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Fractures of the Long Bones*

W. ALAN CURRY, M.D.

IN the time at my disposal it will be obviously impossible to make an exhaustive study of this subject. A superficial view is inadequate, and I think would be generally unsatisfactory. I shall, therefore, endeavour to confine my remarks to what I have found the most valuable methods of treatment in certain fractures. So much important work has been recently done in fractures of the femur that I feel it wise to consider this part of the subject quite extensively.

Fractures of the upper end of the femur are of two varieties; the intracapsular, most frequently involving the neck, and the extracapsular, involving the great trochanter. The latter is often partially intracapsular. From a practical standpoint, these two types differ chiefly in their end results. The extracapsular fractures invariably unite by bony union, whilst the intracapsular variety seldom unite by bone and frequently leave elderly patients with a great permanent disability. Reggio has reported bony union and good function in 66 per cent. of such fractures treated at the Massachusetts General Hospital, although 40 per cent. of the patients were over seventy years of age.

It is generally agreed that Whitman's Abduction Method gives the best prospect of obtaining bony union and a useful functional limb. Extension is first made on the injured limb to correct the shortening. The sound limb is abducted to its normal limit. The fractured limb is then abducted with traction constantly maintained, until the degree of abduction corresponds to that of the normal limb. The limb is slightly rotated inwards. A plaster spica is applied, including the lower costal margin and extending down to the toes. Held in this position apposition of the fragments is maintained by internal splinting, (a) by tension of the capsule, (b) by mutual pressure of the fractured surfaces, (c) by apposition of the great trochanter with the upper margin of the acetabulum. In applying the plaster a special fracture table, such as the Hawley pattern is of great assistance in maintaining the limb in the correct position. In these fractures, the plaster cast should be left on for twelve weeks, and for one involving the great trochanter at least eight weeks. A patient suffering from a fracture of the neck of the femur should not, under any circumstances, bear weight upon it under six months from the time the treatment is commenced, and then only after X-Ray and clinical examination have demonstrated bony union.

Fractures of the shaft of the femur are best treated by means of a Thomas splint. The original method of making extension was by means of adhesive plaster applied along either side of the limb and tied over the end of the splint. This method has still some strong advocates in England. It requires a particularly well-fitting ring to the Thomas splint, as it must take all the counter extension from the tuberosity of the ischium. A large ring will slip over

*Read before the Canadian Medical Association, Saint John, N. B., June, 1933.

the tuberosity and soon cause a pressure sore in the perineum. A still more serious disadvantage is that the adhesive strapping tied to the end of the splint must be very frequently adjusted to maintain the extension. The method that is most generally used to-day is to utilize the Thomas splint as a sling for the femur and rely on Buck's extension with heavy weights to correct the shortening. The foot of the bed is raised 8 to 10 inches. The body weight acts as a counter extension. I believe an important point in the application of weight extension is to apply a large amount immediately, 30 to 40 lbs., until the shortening is corrected. A check-up with the X-Ray is taken. If the shortening has been corrected, a permanent weight of 15 to 20 lbs. is then maintained. The sling on the Thomas splint beneath the site of the fracture, particularly for all of the middle third, should be kept tightened, so as to restore the anterior curvature of the femur. If the fracture should unite with backward bowing, a considerable disability results from a limp in walking due to a genu recurvatum. The points that determine the removal of the weights are clinical examination and the appearance of satisfactory callus in the X-Ray. In adults this usually takes 8 to 10 weeks. He is then measured for a Thomas walking calliper splint. He is given physio-therapy treatment particularly to restore movements in the knee joint, which is usually very stiff. The Thomas calliper splint should be worn for six to nine months.

During the last few years skeletal traction has become very popular. It is undoubtedly a very valuable method of treatment, in cases where Buck's extension fails to correct the shortening and displacement. It was used extensively during the Great War. Steinman in 1907 introduced a steel rod which pierced the soft tissues and bone. The disadvantage was that infection resulted in some cases and an obstinate osteomyelitis. Pearson working in a South African War Hospital, modified the Besley calliper, so that the sharp points could not penetrate the bone to any extent. His method is not free from danger because if the nurse should lift up the weights to adjust the splint or position of the patient, the points of the calliper at once slip and they are liable to penetrate the knee joint. I have seen a septic arthritis of the knee joint result more than once, with disastrous results to the patient.

Kirschner in 1927 published a paper describing the use of piano wire, instead of a thick pin for making skeletal traction. The incidence of infection has been practically nil. I believe that this is an ideal method of extension in fractures of the femur and other bones, where adhesive strapping has failed to correct the shortening. The fine wire requires an elaborate drill for its introduction. The stirrup has a device for rendering the wire taut so that it remains straight and rigid during extension. In my opinion this method of extension will replace many open operations with plating. A bone plating operation in a heavy adult is often a serious and difficult one, accompanied by much shock and the liability to a serious infection. If the wound heals by first intention, the muscles become fibrosed and the knee joint very stiff. It is instructive to compare two fractures of the femur, one treated by the Kirschner wire and the other by bone plating. There is not the slightest shock to the introduction of the wire. The knee joint is kept supple by means of the Pearson flexion apparatus attached to the Thomas splint. The muscles are massaged daily. They remain soft and well developed, in comparison to the hard, wasted muscles and stiff knee joint of the bone plated case.

The Kirschner wire is particularly valuable for a fracture of the lower end of the femur. We all know only too well the tilting backwards of the

lower fragment by the gastrocnemius muscle. It has been a very difficult and troublesome displacement to correct. An open operation is a hazardous undertaking. The Kirschner wire is a great advance in the treatment of this fracture. A direct pull can be made on the lower fragment and in the majority of cases it will tilt forwards and come into correct alignment. I have seen gangrene of the limb result from such a fracture being manipulated and a plaster cast applied.

A portable X-Ray is an essential aid in the treatment of fractures of the femur. They should be X-Rayed antero-posteriorly and laterally about every ten days. The limb should be measured with the tape measure every two or three days to make sure that shortening is corrected, or in some cases that lengthening has not taken place. In that case the weights would have to be correspondingly reduced.

In children up to the age of five years, I am a great believer in Bryant's suspension method for fractures of the femur. It is astonishing what good results are obtained by this simple method of treatment. To those practitioners who have not tried it, I can most highly recommend the gallows treatment. After applying the Buck's extension, it is important to manipulate the fracture bones and free their ends. They are apt to become caught in the muscles and the extension may not be sufficient to correct a backward or forward displacement. I have had coasting accidents where both femurs were fractured. They united soundly without any appreciable disability.

The next case I have to show you is one of non union of the tibia of one and a half year's duration. He had been treated by extension and plaster in several hospitals. An open operation had been performed, the ends freshened and a walking Delbet plaster applied. The tibia failed to unite. There was definite non union present. This was demonstrated by physical and X-Ray examination. I advised a bone grafting operation. This was carried out following Albee's technique. The ununited fracture was exposed and the thickened periosteum incised and separated. I did not consider it advisable to correct the displacement, because the alignment was fairly good and the additional operative procedure would add tremendously to the shock. Using a twin saw driven by an electric motor, a 6'' x $\frac{3}{4}$ '' piece of bone was removed. The bone was very sclerosed in the region of the fracture. An identical piece was removed from the crest and internal surface of the sound tibia. It was transferred and held in position by Kangaroo tendons passed through drill holes. It is surprising what a serious state of shock may follow such an operation. This patient was in a critical condition for twenty-four hours. I have seen this occur several times and it has caused me much anxiety. A plaster cast was applied on the table. It was removed in ten days on account of the offensive odour from the decomposing blood, which had saturated the dressings and sheet wadding. The graft took well and good bony union was obtained. He wore a walking plaster for six months following the operation.

I can touch but briefly upon one important fracture of the upper extremity, which presented interesting clinical features.

My last case is a fracture of the epiphysis of the lower end of the humerus. You are all familiar with these cases. Many of them are very satisfactorily treated by making extension and pressing the separated epiphysis forward. The elbow is then flexed and the forearm supinated. This is the popular Jones position. The flexed position is maintained by adhesive strapping passed around the forearm and arm. In this particular case subsequent X-ray

examination showed the epiphysis to be still grossly displaced. A second manipulation was not successful in reducing it. I did an open operation by a posterior incision. The small fragment is difficult to recognize and still more to manipulate into position. Following reduction the arm was put up in the flexed position. On allowing the elbow to extend, a fortnight later, a median nerve paralysis was recognized. It steadily progressed to wasting of the thenar muscles, inability to flex the index finger and anaesthesia over the palmar aspect of the 3½ outer fingers. I explored the median nerve by an anterior incision over the elbow joint. The nerve was found tightly compressed by callus in the region of the fracture. It responded to Faradic stimulation. The nerve was freed and transplanted into muscle. It took several months to regain its function.

In closing, I wish to warn you of an important complication which may arise in treating fractures of the lower end of the humerus in children in the flexed position, viz. Volkmann's ischaemic contracture. If the forearm and hand become swollen, the flexed position should be at once relaxed. The radial pulse should be carefully watched. If great care is not exercised in watching for swelling and shutting off the circulation, the flexor muscles may undergo a fibrosis, and that dreaded disability, Volkmann's Contracture, become established. I have seen several cases and they are most difficult and tedious to treat.

"I'M FEELIN' FINE."

There ain't no use in kickin', friend,
 When things don't come your way;
 It does no good to holler round,
 And grumble night an' day.
 The thing to do is curb your grief,
 Cut out your little whine;
 And when they ask you how you are,
 Jest say "I'm feelin' fine."

There ain't no man alive but what
 Is booked to get his slap;
 There ain't no man that walks but what
 From trouble gets his rap.
 Go mingle with the bunch, old boy,
 Where all the bright lights shine,
 And when they ask you how you are,
 Jest say "I'm feelin' fine."

Your heart may jest be bustin' with
 Some real or fancied woe,
 But when you smile the other folks
 Ain't really apt to know.
 The old world laughs at heartaches, friend,
 Be they your own or mine,
 So when they ask you how you are,
 Jest say "I'm feelin' fine."

Acute Intestinal Intoxication*

A CLINICAL REVIEW

By N. BARRIE COWARD, M.D.

I HAVE chosen as the subject of my paper the disease known generally in North America as Acute Intestinal Intoxication. In view of its prevalence in Halifax this year, and the publications made about it in the press, I thought that it would be interesting, and perhaps helpful, to review the literature and to see what information we can obtain from it.

Diseases accompanied by diarrhea to which adults and children were subjected, especially at certain seasons of the year, have been known for many centuries. The serious nature of these disturbances, especially in children, have also been noted in the writings of early English and French physicians. The disease was apparently first recognized in America in 1777 by an American physician, Benjamin Rush. He recognized certain features about it that reminded him of Asiatic Cholera, which he had seen in Europe, and so called the disease Cholera Infantum. Many years later all of these diarrheal outbreaks in infants and children, which appeared to occur practically entirely in the hot months, were classed under the general term of "Summer diarrheas of Infants." Finklestein, still later, devised the term "Alimentary Intoxication" and his conception has been adopted on this continent as Acute Intestinal Intoxication. There also have been in recent years other various names used to designate intestinal upsets, both in adults and children, such as Fermentative Diarrhea, a condition supposed to be due to overfeeding of one or more of the food elements, mainly carbohydrate; Infectious Diarrhea, where blood and pus occurred in the stool; Summer Diarrhea, Intestinal Flu, especially of older children and adults; Colera Infantum, a term now obsolete, used to designate the very severe cases with dehydration and toxæmia. Later work has gone to show that these are all essentially the same-disease. The reason why infants and children are more often involved, and show a high mortality rate might be explained on age difference, and the degree of resistance present in different age groups. These cases are now all classified under the head of Acute Intestinal Intoxication, and shall be referred to as such in this paper.

Etiology. There have been many theories current as to the etiology of Acute Intestinal Intoxication. The early writers were prone to blame the excess summer heat, spoiled milk, improper feeding of milk mixtures, the direct effect of heat on the infants' body, i.e. heat retention. Later many recognized some other factor, probably bacterial, but were unable to find any to which some definite etiological importance could be attached.

In 1923, Boyd thought that the disease was caused by the absorption of a Histamine like substance. This substance she obtained from the intestinal wall of infants dying with this disease, and she found that if she in-

*Presented at the meeting of the Halifax branch of the Nova Scotia Medical Society, Nov. 8th, 1933.

jected it into animals, that she obtained a picture very closely resembling that of Acute Intestinal Intoxication. This substance was absorbed into the blood stream through a damaged intestinal wall. This theory found favour with some English writers, and the same idea is expressed by Hume in describing what he calls the Alimentary Intoxication of Finklestein. The bacterial infection of the mucous membrane of the gut produces the diarrhea, which in mild cases is the chief symptom, but in severer cases the gut wall is so damaged, as to allow the passage of poisonous products of digestion into the circulation with the production of a toxæmia. Nothing much more was heard of this theory until Dodd Manot and Casperis in 1932 published their article in which they suspected some toxic substance, which would affect any tissue, to be the cause. After investigation they thought that Guinadine was the toxic substance, and they showed that in their cases it was definitely increased in the circulating blood.

Another school of thought was revived when Marriott, and later Jeans and Floyd and others believed that hidden infection in the Mastoid cells and Nasal Sinuses was of importance in the etiology. They found that by draining the mastoid or nasal antra, they could clear up their cases, i.e. the disease was primarily parenteral, as compared with the opposite school of thought which placed the infection as being enteral. In more recent papers by Dick, Dick and Williams, Sutton, Brown et al. this idea has been shown to be erroneous. The cause is now considered to be primarily enteral with secondary involvement of the upper respiratory tract in many cases. It must be remembered that vomiting and diarrhea occurring separately or combined may be a secondary or symptomatic manifestation associated with disturbances elsewhere in the body, e.g. in a case of Acute Pyelitis, Acute Ititis Media, Tuberculous Meningitis and so on. Marriott has pointed out in a recent paper that there is no difference in a diarrhea caused by an enteral infection from one caused by a parenteral infection i.e. Diarrhea is only a symptom and the treatment is essentially the same. There is no real means of distinguishing them clinically. We are concerned merely with the combination of the two as they occur in the disease under discussion. Taken separately they may be symptomatic of widely different diseases e.g. Vomiting may be the result of some intracranial disease, occur at the onset of a specific fever or pneumonia, or be indicative of an acute abdominal disorder, either inflammatory or obstructive. On the other hand diarrhea, especially when there is blood in the stool, may be symptomatic of an Intussusception, rectal, polyp, or even the too energetic use of a purgative.

When the role of bacteria began to be more seriously considered, it was thought that no single organism was the specific exciter of summer diarrheas. In recent years there has been a lot of investigation along this line. In 1915 Sonne of Denmark isolated a late lactose fermenting species of Dysentery Bacillus which now bears his name. Since this time there have been many reports from Scotland, England, Australia, Norway and America demonstrating the presence of this bacillus in infantile diarrheas. In America most of the work has been done at Toronto, and published by Johnson and Brown. Since Oct. 28 they have isolated 20 strains of *B. Dysenteriae* Sonne, and have shown the relationship of this Bacillus to the etiology of Acute Intestinal Intoxication. In many of their cases specific agglutinins to *B. Dysenteriae* Sonne are to be found in the blood stream, thus demonstrating more clearly the etiological relationship. In the other cases where they

have not found the Sonne Bacillus, they have found other pathogenic organisms, such as those of the Flexner group, Hiss-Russell, Morgans Bacillus, B. Schmitz and others belonging to the Colon-Typhoid-Dysentery group. In some of these latter cases they have also demonstrated specific agglutinins for the pathogenic organism found in the stool. Johnson and Brown's works include different series of cases. Each series is run with a control group of patients of the same age and social class as those under investigation. In none of these control cases did they find these pathogenic organisms in the stools or agglutinins in the blood stream. From their studies they conclude that intestinal Intoxication is not produced by masked infection of the middle ears or mastoid antra, but is due to an enteral infection, caused not by one specific bacterial species, but by a variety of bacilli which belong to the Colon Typhoid-Dysentery group.

The role of *B. Dysenteriae Sonne* is interesting in that it is invariably reported by authors as occurring in epidemic form during the warm months. It is found, however, in the sporadic cases occurring throughout the rest of the year—sufficient to make one realize that the organism is endemic as well as epidemic. No doubt the reason why many cases are missed bacteriologically is, because *B. Dysenteriae Sonne* disappears from the stool in a very short time in the majority of cases.

From the American literature it would seem that there is undoubtedly a seasonal incidence. This begins about August, and lasts until nearly November. There is a sprinkling of cases during the remainder of the year, but at this time the disease often assumes epidemic proportions. Many English and Scotch writers (Fraser & Smith, Pickles, MacGill and Downie, etc.) report epidemics due to Sonne infections from November to March. Flexner outbreaks being more common in the hot months. One would conclude from their writings that the disease is more of an endemic nature with them than it is in America.

There is no doubt that there are certain predisposing factors, which favour the development of the disease. Intestinal Intoxication is found almost entirely among the poor and those infants who are being artificially fed. Infants with some nutritional disorder before summer weather begins are more liable to develop Intestinal Intoxication than others. The disease attacks all ages, but it is more common in infants and young children, especially those in the second half of the first year. It attacks the well nourished infant and child as well as the poorly nourished. In fact, resistance to infection does not appear to be greater in those cases who were in better physical condition. In Johnson and Brown's reports they constituted their worst cases, and their whole duration of illness was shorter. Males appear to be more frequently involved, and the mortality rate is higher in males than in females.

Milk has not been found to be directly causative in the production of diarrheas, other than it is too often used to quench the thirst of infants instead of plain water during the summer time. It must be remembered that in hot weather babies require less food and more water, whereas only too often their increased thirst is assuaged with more milk with disastrous results. Owing to its high buffer action, milk reduces gastric acidity, and in the summer time there is a diminution of gastric secretion, therefore overfeeding with improper milk mixtures only aggravates this condition, and diminishes or destroys the protective action of the gastric juices. The question of spoiled

milk as a cause of diarrhea is also considered unlikely. Many attempts to produce diarrhea by giving spoiled milk have failed.

The question of weather has been of interest in the part it may play as a predisposing factor. It has been frequently observed that diarrheal upsets, assuming epidemic proportions, occurred more frequently in those years when there was dry hot summer, than when the summers were cooler.

Later investigation, however, would tend to show that the trend of predisposing factors lie more in the total lack of personal hygiene, of parents and others looking after infants and children. The overcrowding of infants and children in a single room with several people, where there is insufficient air space and improper sanitary measures, where the cooking stove is going all day, and where flies and dirt are in abundance, no doubt, has a great deal to do with the spread of the disease. Johnson and Brown have shown the part flies play by culturing from flies caught in homes, where there were cases of intoxication, the same organism as was found in the infants or child's stool. If a careful history is taken very often one can find that some one in the family, usually an adult, and one who has had some dealing with the child, has had a mild gastro-intestinal upset, which is often allowed to pass by unnoticed, and then some time later the children or infants are involved. Many authors have stressed the fact that contamination is due to human contact, and that infection may take place during the acute, subacute or convalescent period. Chronic carriers are not regarded as being as dangerous. The source of infection in these cases is the human excreta, and due to the lack of personal hygiene the infection is transferred to the infants or child's food. Johnson and Brown have also proved this connection in finding the same organism from the stool culture of some adult member of the family as was obtained in the infants or child's stool. It is uncommon to get multiple cases developing in one family together—they usually follow one after the other. Pickles, in England, was able to demonstrate clearly the spread of an epidemic due to *B. Dysenteriae* Sonne occurring in a Yorkshire dale and spreading to a nearby town, and he showed that the spread was by personal contact alone and not by water or milk.

No doubt the reason why breast fed babies are so seldom stricken, is because there is no chance for the mother, or some other member of the household, to contaminate the infants food. Again breast milk has a low buffer value and so does not utilize all the gastric acidity up to the danger point. A breast fed baby is also naturally more resistant to an infection than an artificially fed one. Verder, and later Ross and Robertson have shown that animals fed a vitamine deficient diet are more susceptible to infections from the Colon-Typhoid-Dysentery group of organisms.

Pathology. There is very little to say regarding the Pathology, because there are no consistent pathological changes recorded. The intestines may show anything from a mild inflammation of the mucous membrane to a severe haemorrhagic condition of the gut walls. In a small percentage of cases there is an ulcerous and pseudo-membranous formation

The liver is usually always enlarged due to fatty infiltration.

The kidneys show various degrees of interstitial changes, glomerular involvement being also reported a few times.

Usually the other organs show no changes.

Symptoms. There is little need to dwell very long on the symptoms—you are well acquainted with them. The usual history is that the child may,

or may not, show some degree of malaise, which is soon followed by diarrhea and vomiting, with which there is often associated a mild degree of fever. In a mild case these continue for a few days, and the condition clears up. In the more severe cases, however, the diarrhea and vomiting are severer and more prolonged, and in a short time the patient begins to show the third cardinal symptom-Drowsiness. The patient may pass anywhere from 3 or 4 to 25 stools or more a day. These are foul, watery, contain mucus and sometimes blood and pus. The vomiting and diarrhea lead to a state of dehydration, characterized by the sunken fontanelle and eyes and the inelastic skin, and in the severe cases sometimes Scleroderma. Many also show signs of a profound toxæmia, as evidenced by the ashen grey color of the face, pinched anxious expression, cold clammy hands and feet, rapid pulse and altered respirations. The degree of drowsiness must be determined while the infant is undisturbed, because many can be easily aroused, and their appearance then does not suggest the true severity of the attack. Fever is usually higher in the more severe cases, and hyperpyrexia is sometimes seen just before death. On the other hand the temperatures are often subnormal. There are varying stages from diminished urinary output up to a complete anuria in the severest case. The urine has a high Specific Gravity, and shows albumin, casts, white blood cells and occasionally red blood cells on microscopic examination.

Many writers have described an upper respiratory infection which is always associated with the onset of Sonne infections. This has not been the case in this country. Many infants do develop an associated Upper Respiratory infection sometime during their illness, but this is secondary and probably due to the lowered resistance.

I do not want to enter into a discussion on the acid-base equilibrium, but practically all of the severe cases have an associated acidosis of some degree, which is due to an excess of the Chloride element.

Many reports have spoken of the mildness of these infections due to *B. Dysenteriae* Sonne, and many clinicians and paediatricians regard it as of little importance, but while many are mild, it must be recognized that in young children and infants it may assume very severe and fatal infections.

One may get the impression during an epidemic that cases develop and die within 24-48 hours. This is an erroneous idea. Very often there is a history of some slight upset for a varying length of time before the acute symptoms develop, such as occasional vomiting or a looseness of the stools, which did not cause concern. This is often missed due to poor history taking. In a series of 172 cases of Johnson and Brown's the shortest history from the onset of symptoms to death was four days, and 61% of their patients that died were ill 2 weeks or more. In the older children the history was usually shorter with the onset being sudden, and of 24-48 hours duration. On the other hand the duration of illness to recovery was quickest also in the older children.

Prognosis. It is really difficult to give with any degree of accuracy a prognosis in this disease, and a guarded one should always be given. Many mild cases go on suddenly and quickly to become severe, and die irrespective of any treatment instituted. On the other hand many severe cases, which on first appearance seem hopeless will respond favourably.

The mortality rate in this disease, especially among the severe, is very high, and may reach 50% or more. Various rates from 4-34% have been given. The only authors to report a consistently low rate are those who have

used the raw apple diet treatment, and some of these have reported a 100% cure. The deaths from Acute Intestinal Intoxication occur practically entirely during the epidemic period.

Treatment. If one is to treat this condition adequately it must be met in a vigorous manner—half way measures are of no value. The mild cases will respond easily and quickly usually, but the moderately severe and the severe cases present a problem, which requires careful but bold methods if one is to successfully cope with the disease.

The treatment of these cases falls into four major procedures:

- (1) The removal of all food until all signs of toxicity and drowsiness have cleared up, and the patient has stopped vomiting.
- (2) The administration of fluids.
- (3) Blood transfusion.
- (4) The administration of foods in small amounts when beginning.

The question of removing food by mouth has long been known and practiced. In 1926 Powers advised using nothing but plain boiled water. Many English physicians use either half or full strength normal Saline by mouth for varying periods of 6-24 hours. Barley water has also been used for similar periods. Of more recent years a 5% Glucose solution has been given. These are usually given in amounts of one ounce every hour. The principle of these are all the same—the removing of food and the administration of fluid. There are other combinations of fluid mixtures used as well, and I think the choice lies in either a 15% Sugar Solution*, or a mixture of

1% solution Sodium Citrate.....	1 part, 15 gr.
Orange Juice.....	2 parts, 10 oz.
10% Glucose.....	3 parts, G—1½ oz. W—20 oz.

These two solutions carry a definite caloric value, the former 18 calories per ounce, the latter 10 calories per ounce. This is of value because the solutions can be used for a much longer length of time without fear of starving the patient too much. In using these solutions one is hitting in three directions at the same time—replenishing fluid loss, overcoming acidosis and meeting part of the energy requirements of the patient. Infants have been kept as long as two weeks on these solutions without harmful effects. In the mild type of cases removing food and administering such fluids for 24-48 hours is usually sufficient. In the more severe cases, however, one must resort to additional measures to combat the dehydration and acidosis and there are four procedures at our disposal:

- (1) Interstitials, or subcutaneous injections of fluid.
- (2) Intraperitoneal.
- (3) Intravenous.
- (4) Blood Transfusion.

Of these the first is the easiest to do, but the last one is probably the most important.

Subcutaneous injections should be given twice a day or more often depending on the rate of absorption, and in amounts of 10 cc. of fluid per pound of body weight. These may be given either by gravity method or by syringe.

Intraperitoneals are an easy way of giving larger quantities of fluid, where it will be more readily and easily absorbed into the blood stream. The only contra-indication for this method is when distention is present.

Intravenous administration of fluids, in infants especially, requires a certain amount of skill and knowledge. It is an extremely useful method, because fluids and Glucose can be administered directly into the blood stream, and hence results are quicker. It is used in amounts of 15 cc. per pound of body weight.

The fluids used for these parenteral methods of administration, are a 5% Glucose solution and a 5% Glucose solution in Normal Saline, except for intraperitoneal use where Normal Saline alone is used, as Glucose is apt to produce distention. When one bears in mind the acid-base relationship, it is found that the best results are obtained when three-quarters of the parenteral fluid is given intravenously as 5% Glucose solution and one-quarter given subcutaneously as 5% Glucose in Normal Saline.

In severe cases the blood is unduly concentrated, the kidneys cannot secrete urine because of lack of water, in addition to the toxic effects of the disease, and some writers have advised giving large quantities of a 10% Glucose solution intravenously. The 10% Glucose besides aiding in overcoming acidosis also stimulates the kidneys to function, and the fluid administered provides a means of excretion for the kidneys. These authors are not so concerned with the acid-base equilibrium, believing that if sufficient fluid is provided the kidneys will exert their selective action in excreting unnecessary substances.

In a severe case where there is a marked acidosis, it is often wise to add some Hartmann's solution to the fluid being administered. This is a physiological salt solution especially prepared for the treatment of cases where there is an upset in the acid-base ratio. One can also use small amounts of Sodium Bicarbonate in quantities of 0.5 gms. per Kilo, per day. There is always the danger, however, in using Sodium Bicarbonate of producing an alkalosis, and it must be, therefore, cautiously used, and in no larger amounts than 0.5 gms. per Kilo, per day.

The fourth means of giving fluid, and the third major procedure, in the treatment of these cases, is Blood Transfusion. This is a powerful, if not the most powerful and useful weapon we have, in the treatment of this condition. In transfusing we introduce whole blood and complement, which carry with them resistance unobtainable in any other form of treatment. As a rule mild cases do not require transfusing, but in the moderately severe cases, one should not wait too long, as the indications for transfusion may come too late to be truly effective. So it is best to err on the safe side in submitting these cases to a perhaps unnecessary transfusion, rather than withhold this valuable procedure. It is of extreme value to those infants, who have passed the acute stage and seemingly are doing well, when they suddenly suffer a relapse. Johnson from Babies Hosp. N. Y. C. showed a marked difference in the mortality rate between a group of transfused and nontransfused cases.

In the very severe cases, however, it is often wise to withhold a blood transfusion for 24-48 hours, because the blood is so concentrated, that to pump in more blood cells is very likely to cause an overstrain on an already toxic heart, with collapse of the Right side of the circulation, and consequent death. In these cases all the other forms of parenteral fluid administration

should be employed first, for 24-48 hours, to dilute the blood stream, and then a blood transfusion given. Some authors have used a homologous blood serum in small amounts in these cases with good results.

Transfusions are given in amounts of 15 cc. per pound of body weight, and the infants appear to get more benefit from the first transfusion, than from subsequent ones. Transfusions may be repeated in 48-72 hours as needed.

There are two other special ways of giving fluids—a continuous intravenous, and a continuous nasal drip. The former of these is a rather complicated procedure but very efficacious in skillful hands. A vein, in either the antecubital fossa or just above the internal malleolus, is exposed and a needle tied into it. This is connected up to a Murphy drip bulb and reservoir, and the rate of flow is regulated depending on the age and weight of the patient, 150 cc. per Kilo per day. A rate of flow as low as five drops per minute can be administered in this way for as long a time as necessary. In the severe cases it is usually for 4-5 days or even longer. By this means one can give fluid continuously at a rate which can be easily handled by the patient, as compared with the ordinary intravenous therapy where we give the patient a sudden quick load. Again the effects derived are slower but steady, where as with the other it is temporary. There is also less danger of overtaxing the right side of the heart, as the kidneys can excrete any excess fluid owing to the slow rate at which the fluid is administered.

The nasal drip method is carried out in much the same way, except that a soft rubber catheter is introduced into the nasal cavity, and the rate of flow regulated again as desired. In this procedure one may give fluids to three or four patients at the same time from a common set and reservoir, by using a couple of connecting Y tubes. This method has been used at Bellevue Hospital, N. Y. this last summer with very good success. It is easy to regulate, and does not require the careful watching and handling that the continuous intravenous method does. Plain tap water was used in this procedure.

Whereas the administration of fluid is the most important single factor in the treatment of these cases, sometimes one runs up against a case which persists in vomiting, even after the removal of food and the using of fluid in small amounts. For these cases lavaging the stomach with a solution of Sodium Bicarbonate, and leaving in the stomach about one ounce of the solution, and then allowing the baby to remain undisturbed for one to two hours will often help. Then when fluids are begun again smaller amounts should be given more frequently, such as one to two drachms every 15 minutes, or one-half ounce every half-hour just as the baby will take it. These cases are, however, best helped along by the liberal administration of parenteral fluids, rather than by mouth. The question of disturbing your patient too frequently is not a very serious one, because they lapse back to sleep again immediately they are left alone.

The fourth major procedure I mentioned was using small quantities of feed when beginning. Do not be in too much of a hurry to begin, or be too anxious to get the child back on its full diet. The child has had a severe gastro-intestinal upset, and will not properly tolerate foods for some time after the acute attack. Failure to remember this will often result in a relapse back to the acute stage, and with each relapse it is more difficult to get your patient better, and the condition becomes consequently more critical.

The choice of feedings varies greatly with the individual. Breast milk is the feeding of choice. For the artificial feedings, I think that the infants tolerate one of the Protein milk or Evaporated milk textures the best. Cultured Lactic Acid milk preparations are also well tolerated, and there appears to be less vomiting with this feeding than with the others. Whole milk or skim milk are never properly tolerated. Feedings should be begun when all signs of toxicity have disappeared, and the patient has stopped vomiting. The feedings for infants for the first day should only be about one ounce of the mixture every four hours, increasing one ounce daily for 3-4 days, when if it is seen that the infant is properly tolerating its food, then they can be increased faster until normal size feedings are reached. Older children will tolerate cow's milk, and their feedings can usually be worked up much faster.

The milk preparations used should be quite dilute at first, and are best compounded with Barley or Rice flour. If there is any sign of a relapse, that is if there is any increased vomiting, or the stools become more numerous and worse again, then the feedings should be checked at once for 12-24 hours, and a more cautious advance to feedings made again. By the careful watching of your patient and the daily examination of the stools, it often is possible to prevent these relapses, which sometimes prove to be so disastrous.

If one is then to frequently administer fluids, to coax infants and young children to drink, above all to carefully give them to the vomiting infant, so that it might retain the fluid, the careful watching, handling and coaching that is necessary when feedings are begun, because so often the baby will resent the food, it is apparent that there must be an additional factor, and that is—good nursing. Indeed this is a vitally important asset to the successful treatment of these cases, and there must be a close understanding and co-operation between the doctor and nurse, be she a trained nurse or the mother of the patient, if we wish to see good results from our methods of treatment. The really acute cases are best treated in hospital during the acute stage, but should be removed home, if possible, as soon as it is over to convalesce.

Since 1928 there has been revived an old form of treatment. It was first started in Germany by Heisler, and aided by his teacher, Professor Moro of Heidleberg, it soon became evident that here was a form of treatment which gave outstanding theurapeutic results. I refer to the raw apple diet treatment of diarrheas of infants and children, which now carries the name of the Heisler-Moro Diet. Most of the work appears in the European literature, there being only one report on this continent, and that was by Birnberg in 1933.

Birnberg reports 70 cases, of which 50 were in private practice. Their ages ran between 9 mos. to 10½ years. He classified his cases into the different types of diarrheas, of which 38 were Acute Intestinal Intoxication. Mentioning his results in these cases:

Fever:—ranged between 100-106 degrees F.—usually normal after 96 hours from the start of treatment.

Stools:—from 4-32 a day.

1-24 hours: average No. 4, highest No. 22, Least No. 0.

24-48 hours: average No. 3, Highest No. 15, Least No. 0.

In 36 of the 38 cases formed stools appeared in an average of 23 hrs.—the longest time was 48 hours, and the shortest 4 hours.

Mucus:—present in all the 38 cases. In 33 cases the average time of disappearance was 61 hours, the earliest 24 hours, and the latest 6 days.

Toxicosis:—present in 5 of the cases to a marked degree. In 4 of the 5 cases the toxicosis disappeared in 36 hours. In the 5th case the patient could not retain the apple.

The reports of cases by Moro, Elias and Schachter, Mignot, Popovicui and others also demonstrate similar outstanding results. Mignot quotes three cases that arrived at the hospital in a moribound state, all of whom recovered on the apple diet treatment.

Completely ripe and mellow fruit only should be used. The apples are thinly peeled, and then grated into a homogenous pulp. The child receives about 1-4 tablespoonfuls every 1-3 hours depending on the age and size of the patient. Moro gives nothing outside of the apple, except when necessary in certain cases where extra fluid is apparently needed, in which cases he uses a little weak tea or water. The treatment is continued for 48 hours, or 72 hours if needed, and then the patient is put on a transitional diet for 2-3 days, and then slowly worked over to a more uniform diet. Some patients will not take the apple pulp alone, in which case some banana pulp may be added for flavouring.

The general conception is that here is a treatment, which offers uniform satisfactory results as compared to the various results obtained from the many other systems of treatment offered. The best results are obtained in the acute cases, but the diet may also be used in chronic cases, when there is generally an improvement in the stools, but no outstanding improvement in the child's general condition. The diet contains plenty of fluid, vitamins, mineral salts, and also furnishes sufficient nutritional needs, so as not to impair the important digestive ferments, as is known to occur in the starvation treatment of diarrheas, and if properly individualized the results are completely satisfactory.

No doubt many of you are thinking that of all the fruits apples would apparently be the worse, on account of their natural tendency to produce diarrhea. To quote from one of the French authors "The diet as worked out by Moro has given some results, which constitute in the realm of the treatment of digestive troubles of children a veritable revolution. Indeed for the first time we speak of the marvellous results attributable to a food, which not only had the reputation of not doing much good, but on the contrary, creating in many cases diarrheas especially among children."

Wiskott, of Professor Pflandler's Clinic, had an artificial preparation of apple made, which is sold under the name of "Aplona." It is a clear yellow powder, with an aromatic odour, and 100 grams of the powder is equivalent to 1000 grams of raw fresh apple. He wanted something which could be more easily handled, and in which the dosage could be more easily regulated. Aplona is quickly and easily prepared, is stable, and Wiskott found that it had the advantage of being more readily accepted into the homes of sceptic families, than did the fresh apples. His results are just as satisfactory as the other authors who used the fresh apples. He uses from 20-24 grams given as a 4% solution for the first 24 hours, and 30-40 grams given in a 4-8% solution the second 24 hours.

Whereas all the authors are unanimous in voicing the successful results obtained with the apple diet, there are some differences as to just how it derives its beneficial values. Moro believes that the apple pulp provides a non-

irritative filling for the intestine, which tranquilizes the neuro-motor apparatus. It effects a mechanical purification, and acts as an adsorbant. The apple pulp also contains a Tannic Acid principle which forms a protective membrane, and so guards the cells from any form of Chemical, Bacterial or Mechanical injury.

Heisler believes that the mechanical cleansing effect is the most important factor, with the action of the tannin next.

Popiovicui believes that the diet supplies the necessary vitamin deficiency.

Mayloth believes the efficacy is due to a substance in the fruit called Pectin. The substance has some colloidal property, by which means it absorbs exogenous and endogenous toxins. It is mixed in with the cellulose of the apples, which is present in a finely divided state, and it adsorbs the intestinal bacteria into this apple mass like a sponge, and they are then excreted as such. Probably, he concludes some other unknown physiologico-chemical processes are concerned in the therapeutic effects of the apple diet.

The latest form of treatment is that of Dodds et al, who as I mentioned before believe that the etiology lies in an excess of the toxic substance Guanidine. To combat this they have treated their cases with an Intravenous solution of Calcium Gluconate—about 2-4 cc. of a 10% solution in 100 cc. of fluid—with very good results. In those cases where the Guanidine was only slightly increased, they were treated with an Intramuscular injection of Calcium Gluconate—about 2 cc. of a 10% solution. In a personal communication with my former Resident Physician at the Hospital for Sick Children, Toronto, who is now practicing in the Southern States, he told me he has had striking results with it in a few cases. This form of treatment is still in its infancy, however, but it appears to be at least worth bearing in mind for cases who do not appear to respond to other more tried methods.

Bacteriophages and sera have been used in this disease, but with very unsatisfactory results.

Summary and Conclusions. Acute Intestinal Intoxication is a clinical entity, more prevalent amongst infants, especially those artificially fed, and children, but also occurring in adults, assuming epidemic proportions during the late summer and early fall months. It is caused primarily by one or more of the species of the Colon-Typhoid-Dysentery group of organisms.

With the present number of systems of treatment offered, it would seem that if much is to be accomplished in this disease it must be through prevention rather than cure. A few such preventative measures would be: the developing of a sanitary conscience on the part of the people, who have anything to do with children; a realization of the source of the infection and its spread; higher standards of cleanliness and common decency, to say nothing of personal hygiene; the control of flies; the Breast feeding of infants during the summer months; making more use of the parks and other free outdoor places for the infants and young children during the summer time.

Cases which do develop must be treated in a vigorous and bold manner by reducing food intake and administering fluids.

The apple diet treatment is simple to administer, and appears to offer uniformly good results, the efficacy of which seems indisputable, and it deserves to be tried in the treatment of infantile diarrheas.

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DR. MacDOUGALL AND DR. MURPHY RESIGN.

ANNOUNCEMENT has recently been made that Dr. G. H. Murphy and Dr. J. G. MacDougall have resigned their positions as chiefs of surgical divisions of the Victoria General Hospital. In taking cognizance of this event we hesitate as to whether we should express our regrets or our congratulations to them. Perhaps there is room for both, for, those who have thought of the Victoria General more or less in terms of them will experience some regret that they will not be able to think of it in such terms in future, while those who know of their great interest in the work of the place in the past, will congratulate them in that they were able to give themselves to their duties for so long, and now are able, voluntarily and with good grace, to hand over the reins to others.

Dr. MacDougall joined the staff in 1914, and during many years gave abundantly of his time and apparently inexhaustible energy to the free service of the hospital. During this time he attained first rank as a surgeon, winning a reputation second to none this side of Montreal. In medical education and in medical organization he has played a prominent part. Though not a son of Dalhousie he has contributed a great deal to the reputation of her medical school, not only as a teacher of Surgery but in other ways of great importance; indeed it has only recently become known to some of us that the first steps which led to interest in the Dalhousie Medical Faculty on the part of certain great philanthropic institutions, were taken by him or through his instrumentality. He is a past-president of the Medical Society of Nova Scotia, past-president of the Halifax Medical Society and past-vice-president of the American College of Surgeons.

Much of what has here been said can be said of Dr. Murphy, who joined the staff of the V. G. only a few months after Dr. MacDougall and who, with his ability as a teacher and his skill as a surgeon contributed very greatly to that reputation which our provincial medical centre enjoys. In medical organization he too has played a very important part. He was president of the Medical Society of Nova Scotia, president of the Halifax Medical Society, and for four years was a member of the Board of Regents of the American College of Surgeons. He served the *Bulletin* with distinction as its Editor-in-Chief, in the days when contributions to its pages were infinitely harder to obtain than they are to-day, and in that capacity supplied a most important step in this journal's evolution. He still gives evidence of a lively interest

in its welfare. Dr. Murphy has the further distinction of having been this province's first Minister of Health—a feature of his activities which no matter how excellent, as a medical journal, in Nova Scotia, we can barely mention.

These men, with Dr. E. V. Hogan and Dr. H. K. MacDonald constituted, in their heyday, the big four of surgery for a considerable area. Of these, Dr. Hogan has passed to his reward, and now Dr. MacDougall and Dr. Murphy, having "borne the burden and heat of the day" have asked and have been relieved of the grind incidental to a busy public ward service. They have, however, been appointed to the consulting staff of the hospital and retain their connection with the Medical Board.

While these men are still keeping active in their practices we are happy on this occasion to pay this tribute to their record and to hope that the relinquishing of their ward services will afford them more enjoyment in the realm of less strenuous exercises.

N. H. G.

WILLIAM DUNLOP

1792-1848.

By

COLONEL F. S. L. FORD, C.M.G., M.D.

The above appears upon the cover of a little book of 60 pages which has just come into our hands. As we open it we find another interesting page:

To

Colonel John Stewart, C.B.F.,
 M.B., C.M. (Edin.) V.L.A., (McGill, Edin., Dal.)
 F.R.C.S., (Edin.) late C.A.M.C.

It is the story of a most interesting medical personality who lived and fought in Ontario in that troubled time in Canadian history indicated by his years. Colonel Ford, who is well known to many if not most of the profession of this province, has a good story and has told it in a style which makes it very readable. Apparently others have thought that as well, for, published in 1931, and reprinted in the same year it is, this year, showing itself in a second edition. It is well printed and illustrated by the University of Toronto Press, and is published by The Albert Britnel Book Shop, Toronto.

The leading article in the April number of *The Journal of Laryngology and Otology* (London) entitled "The Lymphatic System in Relation to Recurrent Laryngeal Nerve Paralysis Secondary to Cancer of the Breast" was contributed by Dr. H. W. Schwartz. The writer reported one case and reviewed the sixteen previously reported. The explanation of this phenomenon put forward by Dr. A. Logan Turner in his original article in 1921, and which has prompted all subsequent reports, is examined and questioned in the light of more recent knowledge of the anatomy of the lymphatic drainage of the breast and its connections. The conclusion arrived at is that the explanation suggested is subject to correction in its essential points.

CASE REPORTS

EVIPAN

FOR a long time intravenous anaesthesia has been visualized as taking the place of the inhalation drugs. Many preparations have been tried, but until very recently none has passed the necessarily rigorous scrutiny.

To be perfect an intravenous anaesthetic must have certain attributes. Chief of these is that it must be effective in a fairly small dose, i.e., a requisite amount of the drug must be soluble in a small amount of fluid. This dose must be non toxic in the required amount, and finally the necessary dose must be capable of determination.

That the new Intravenous Anaesthetic "Evipan" is perfect no one can assert. Its limitations will later become apparent.

"Evipan" (Bayer) is supplied in ampoule form. One ampoule contains 1 gm. of the drug, the second ampoule contains 10 c.c. of distilled water. The drug itself is a Barbitone derivative.

When one considers indications and contra-indications one comes to the limitations spoken of before. The action of Evipan is very quick as to induction and to return to consciousness. The action of one ampoule cannot be expected to last more than one half hour. Severe kidney disease is the only other contra-indication.

In its administration the distilled water is withdrawn by syringe and injected into the ampoule containing the Evipan which is so dissolved. This is now ready for intravenous administration.

The dose is best gauged by the speed with which the patient loses consciousness. For a fairly long anaesthesia (20 minutes) twice as much again is given as was already given when the patient went to sleep—the latter may be determined by having the patient count. The maximum dose is considered to be 10 c.c., but on the patient showing definite signs of waking it may be repeated. We have done this with perfect success. The rate of injection is about 1 c.c. in 15 seconds, and the patient is usually asleep before the second cubic centimetre is injected.

During anaesthesia several things have been noted which are of interest. The pupils are slightly dilated, but react to light. The conjunctival reflexes may be absent. The Blood Pressure may fall 20-30 mg. Hg. Twitching of the limbs is a fairly common finding. Care must be exercised to see that the jaw is kept forward.

After waiting about two minutes after sleep is induced, the operation may be proceeded with. Some reaction may be shown on first incising, but no memory of anything unpleasant is retained on waking. Invariably the patient remembers nothing after the insertion of the needle for some forty-five minutes thereafter. Patients have described the feeling to me as one of being "irresistably and pleasantly sleepy".

One more point needs a word—preliminary medication. We find the narcosis deeper and more prolonged when Omnopon (Pantopon) 2/3 gr. and Scopolamine grains 1/100 have been given about half an hour before. Moreover, one must remember that the effect suddenly wears off, and unless

preliminary medication is given the patient is suddenly plunged into full consciousness of Post-operative pain. The Anaesthetic Committee, Medical Research Council do not, however, agree with preliminary medication, (B. M. J. July 8th, 1933-64).

A few cases with divergence of ages and operative procedures may be of interest:—

(1) *S. H.*, *aet.* 21.

Radical Cure Left Inguinal Hernia—20 minutes.

6 c.c. Evipan. Some movement of the legs occurred, but the patient remembered no pain or discomfort after the operation.

(2) *C. T.*, *aet.* 72.

Local amputation of breast—20 minutes.

Under 5 c.c. Evipan. Perfect anaesthesia.

(3) *E. S.*, *aet.* 27.

Skin graft—28 minutes.

10 c.c. Evipan. Perfect anaesthesia.

(4) *C. M.*, *aet.* 45.

Cystoscopy.

Perfect anaesthesia, lasting until Pyelograms taken under 10 c.c. Evipan.

(5) *E. B.*, *aet.* 38.

Exploration of knee.

Twenty minutes under 8 c.c. Evipan. Perfect anaesthesia.

The above cases given some idea of the use to which this drug may be put. The longest we have worked under one injection is twenty-eight minutes, but this man did not wake for over twenty minutes after he was back in bed, and then immediately went to sleep again.

A. H. SANGSTER.

Sarcoma of Scapula.

Lucy M, age 18, a girl of healthy appearance, presented herself to the Medical department of the Public Health Clinic, suffering from stiffness and pain in the shoulder. It was claimed that about three months previously, while dancing, she had received a blow on the shoulder, and that three weeks after the injury she began to feel pain in the shoulder and down the arm. In addition she had noticed a swelling which appeared on the back of the shoulder blade, and was increasing in size.

As the condition was suggestive of acute osteomyelitis she was referred to the surgical clinic, where on examination, a diffuse, tender, firm swelling was discovered, situated over the lateral end of the spine of the scapula. There was stiffness in shoulder and arm movements, but no wasting of muscles. An increase in skin temperature was felt over the swollen area. The patient's temperature was 99.

It was felt that neither the local nor constitutional signs were characteristic of acute inflammation of the bone, and the normal count of white blood cells, obtained on two successive occasions further confirmed this view. The progress was thought to be much too rapid for tuberculosis, and an exhaustive examination including the use of X-rays ruled out this possibility.

The X-ray showed periostitis involving the spine and axillary margin of the scapula. We were unwilling to consider this a mere aseptic inflam-

mation of the periosteum, due to trauma, and arranged for her admission to the Victoria General Hospital. Here she was kept under close observation. The swelling increased in size and the pain became worse. The temperature remained normal.

Tissue was aspirated through a wide bore needle and sent to the pathologist. (By this time the swelling had become softer in consistency). The aspirated material was haemorrhagic in nature. Areas of small and large round cells, arranged around thin walled capillaries, the absence of polymorphs, and of other typical signs of inflammatory tissue, all pointed to a diagnosis of sarcoma.

In the absence of signs of pulmonary metastases it was recommended that a disarticulation of the shoulder girdle should be done. Permission for the operation was refused, and the patient was sent home.

Interest in this case centers around the alleged blow on the back, which, in the aetiology, may be assumed to be a contributing factor of considerable importance. The rapid onset and spread of the condition was thought to be characteristic of bone sarcoma, especially in adolescents. In fact it was this feature of the case that made us fear malignancy. In its similarity to acute pyogenic infection we were reminded that the telangiectatic type of osteogenic sarcoma, pulsating, and presenting many of the local signs of acute osteomyelitis, requires great care in coming to an accurate diagnosis.

I am indebted to members of the surgical staffs of the Public Health Clinic, and the Victoria General Hospital, Halifax, for permission to publish this case.

J. A. NOBLE,

Diabetic Neuritis.

A. K., a machinist of 59, came complaining of numbness of the feet and saddle area during the last three years. This had become much worse about six weeks before he was seen and was accompanied by increasingly frequent attacks of aching pain at the lower end of his spine.

The numbness had appeared about three weeks after he had fallen astride of a girder. He did not have to stop work and only consulted a doctor several days later because of stiffness of his back. Examination revealed no signs of injury and he went back to work where he remained for five weeks. Then he had to stop because of the numbness which had then been persisting for two weeks. Re-examination, including X-Ray of the spine, was again negative and he returned to work. He was able to continue for three years and finally stopped, six weeks before coming under observation, because of increase in the numbness together with increasing weakness of both legs and pain and tenderness extending from the middle of the thighs to the ankles. The pain did not seem to be aggravated by movement; it was of a steady, sharp, aching character with intermittent, momentary twinges of much sharper pain shooting down the back of one or other thigh to the knee. Within two weeks of the onset he was subject to 10-12 such agonizing twinges each day.

To direct questioning he gave history of urgency and occasional loss of control of micturition for 2-3 years with nocturia 2-3 during the same time. He also recalled that he had become increasingly thirsty during the same period. He had also lost about 15 pounds in weight in two years. Further enquiry into functions proved to be negative.

His past health had been good apart from an irregularly recurring, thinly scattered, brownish red, macular eruption which had first appeared five years ago. There was no history of chancre.

Physical examination showed a well preserved man of 59 who presented no mental or emotional changes. Speech was normal.

Cranial nerve functions were normal apart from poor retention of contraction of the pupils to light together with a moderate degree of bilateral ptosis. The optic discs were pale with sharply defined margins and the retinal arteries showed a moderate degree of sclerosis.

Motor Functions of the upper limbs and trunk were normal. The musculature of the lower limbs was generally small and soft with bilateral hypotonia. Power was defective in the extensors of the hip, knee, and ankle on both sides; elsewhere it was fair. Co-ordination was defective in both limbs.

Reflexes:	Right	Left
B. J.	+	+
S. J.	0	0
T. J.	+	+
U.	+	+
Abdom.		
L.	0	0
K. J.	0	0
A. J.	0	0
Plantars.	Flexor	Flexor

Sensation: To cotton wool touch, pin prick, heat and cold were everywhere normal. Deep muscle tenderness was increased in the calves. Sense of position and passive movement were defective at the first metatarsophalangeal joints; elsewhere they were normal. Vibration was not appreciated below the anterior tibial tubercles.

Gait: slow and hesitant with occasional dragging of both feet.

Station: He had some difficulty in maintaining equilibrium on a narrow base, but there was no definite Romberg's sign present.

Cutaneous System: There was a reddish brown, scaly eruption scattered thinly over the body in patches the size of a quarter. When the surface was scaled off a silvery looking surface was left. The largest patches were at the elbows (extensor surfaces).

Other Systems: No abnormalities apart from a subsiding balanitis.

Laboratory Examination: Lumbar puncture—no abnormalities in C. S. F. pressure and no evidence of loculation syndrome. No increase in cells. Wass. negative. Colloidal Gold Curve—no abnormalities. Protein within normal limits.

Urine:— Sugar 4 plus. No ketone bodies present.

Blood Sugar:—503%.

Blood Wass:—Negative.

Diagnosis:—Diabetes Mellitus.

Diabetic Neuritis.

Psoriasis.

Balanitis Diabetica.

Comment: A male of 59 presenting a history of pain and weakness who on examination, was found to have ataxia and loss of tendon reflexes in the lower limbs. This is most commonly found with tabes and not infrequently a polyneuritis exhibiting these signs is so diagnosed. The differentiation is readily made on clinical grounds alone for the pain of neuritis is more persistent and burning than the transitory, and usually sharply localized, pains of tabes; with tabes the deep tissues are usually insensitive while in neuritis they are very sensitive; in tabes there is almost invariably nasal hypalgesia while this is not seen with polyneuritis. A true Argyll Robertson pupil is never found with polyneuritis...

The case presented represents a rare complication of diabetes, for although loss of tendon reflexes is common, severe neuritis is uncommon in this disease.

Treatment advised was a full diet with insulin. After ten days he was free of pain and was commencing to gain strength. He was then lost sight of although I heard indirectly that the improvement had continued. The ultimate prognosis I believe to be good for recovery of strength and freedom from pain. The diabetes was of a relatively mild type and was soon controlled with diet and small doses of insulin. The balanitis rapidly cleared up when the amount of sugar in the urine diminished.

IAN MACDONALD.

Port Elgin, N. B.,
May 13th, 1934.

Secretary Medical Faculty,
Dalhousie University,
Halifax, N. S.

Dear Sir:—

Would you kindly bring to the attention of the graduating class the fact that I am moving from Port Elgin into a city and leaving a large country practice here.

If any one would be interested in locating here, I would be very glad to supply them with any information they would care to have.

Thanking you, I am,

Yours very truly,

(Sgd.) R. D. MACNEILL, M.D., C.M.

CANCER

PRINCIPLES GOVERNING THE PRESENT DAY RADIATION THERAPY OF CANCER

IT is more than thirty-five years since radium a new and powerful weapon was placed in the hands of the medical profession, and the story of its progress from the initial fight for recognition to its present day status is one of the most interesting in medicine.

Notwithstanding the vast amount of research, it is strange that while the value of radium in the treatment of malignant disease is generally accepted, there is still great diversity of opinion and practice in regard to its clinical use. Likewise all are not in complete agreement as to the fundamental principles of its biological effects, and many problems remain to be solved.

In order to appreciate the action of radium on malignant tissues it is necessary to understand something of its physical properties. Radium, an element belonging to the alkaline earth group and possessing many of the chemical characteristics of barium, has the peculiar property of constantly breaking up, the first product of its disintegration being radium emanation or radon.

A beam of radiation is complex and composed of three products of disintegration, namely Alpha, Beta and Gamma rays. 1. The Alpha rays representing 88% of the total beam, have very little penetrating power, are completely absorbed by a piece of thin paper, and have no therapeutic value. 2. The Beta rays, composing 4% of the beam are much more penetrating and can traverse a centimeter of tissue. 3. The Gamma rays, which represent only 7% of the beam are extremely penetrating and can still be measured after passing through ten inches of lead.

Since both radium and emanation give rise to decay products which are the source of beta and gama rays, it can be understood that radium and emanation have the same therapeutic value.

Radium, due to the emanation produced, is constantly decaying, its rate of change is extremely slow; in 1760 years it will have lost only 50% of its activity. The emanation on the other hand decays rapidly, 50% of its activity will disappear in four days, and in 30 days it has practically all disintegrated. The final products of this disintegration have no therapeutic value. The rate of decay can be disregarded in treatments lasting only a few hours, while in those of 24 hours or more, allowance is made in computing the dosage.

Among the important advantages in using the emanation rather than the radium itself is the greater elasticity of the former. A large quantity can be placed in a very small container, which may be of any size or shape, while radium must be confined to its original containers, needles or tubes as the case may be. Also the danger of loss is eliminated, since in the case of emanation the monetary value is only that of the container.

FILTRATION

As we have seen beta and gamma rays differ considerably in their physical characteristics. Similar differences also exist in their biological effect—to be discussed later.

Filtration makes it possible to use only the more penetrating gamma rays when their specific action is desired. In order to do this certain metals are utilized in the manufacture of containers such as needles or tubes, or otherwise interposed in the paths of the rays. The most common of these metals are brass, silver, lead and platinum, the filtering value of which is increased with their densities. Thus, .6 mm. of platinum will filter out all the beta rays, while .5 mm. of silver, which is most frequently used, allows only 4% of the beta rays to pass.

GENERAL PRINCIPLES OF RADIUM THERAPY. THE BIOLOGICAL ACTION

Radium affects tissues in three ways. 1. A diffuse caustic action. 2. A selective lethal action. 3. Growth restraint. The first is really a radium burn obtained by the action of feebly penetrating rays, e. g., the beta rays, and this produces necrosis of all tissues without any selectivity.

The second or lethal action which is selective on malignant cells, is in effect molecular destruction and death of the cells without visible necrosis. This specific action is the peculiar property of the gamma rays.

The principle of the selectivity of gamma rays is perhaps the most important in the whole subject of radium therapy. This selective action is due to the greater sensitivity of malignant cells to irradiation as compared to normal cells. In this way we are often able to destroy cancer cells at a depth without damaging the over-lying normal tissues.

From these observations the first law of radiation therapy was formulated, commonly known as the law of Bergonié and Tribondeau. This law states that the sensitivity of cells to irradiation is in direct proportion to the reproductive activity of the cells. The young immature cells are highly sensitive, and thus it is that rapidly growing tumours with a preponderance of immature cells are often very susceptible to radiation. While there are some exceptions, this law has been abundantly proved and is universally accepted. It has unquestionably served to explain many of the varying effects of radiation on tumour growths.

GROWTH RESTRAINT

This action although not curative is nevertheless of great value. It depends mainly on the devitalizing action of the penetrating rays on the cancer cells, together with fibrotic changes produced in the stroma of the tumour mass, and has the effect of restraining the malignant cells and decreasing their blood supply. Probably these changes are a factor in all radium reactions, and reach their maximum effect in tumours not particularly susceptible to radiation, e. g., metastases.

METHODS OF IRRADIATION

The object of radium treatment is to destroy or administer a lethal dose to each cell of the growth. To obtain satisfactory results it is essential to give the whole tumour a homogeneous dose with the least damage to the healthy surrounding tissues. Thus ideal radium therapy requires fine adjustment in balancing these two factors.

Two methods are in common use. First the massive dose used in small lesions where the destructive action can be applied without regard for the surrounding tissues. 2. Prolonged irradiation with small doses initiated by Regaud of Paris has been used for many years by English and Continental therapists and is now largely adopted by American workers. In this method an attempt is made to utilize the knowledge obtained by the law of Bergonié and Tribondeau, and by applying a small amount of radium over a long period of time it is hoped that every cell will receive irradiation during the period of its life cycle when it is most sensitive, namely the stage of immaturity. This effect is obtained either by applying a small amount of radium in a properly filtered container or plaque, or by implanting needles or seeds made of gold or platinum. The filtration must be such that none of the soft non-penetrating rays are used.

FACTORS INFLUENCING THE ACTION OF RADIUM

Much has been written in regard to the grading of tumours in accordance with the differentiation of their cells, and this has been used as a basis for radium treatment. (Broder classifies Squamous cells in epitheliomata as Grades I, II, III, IV). The fascination of the classification of tumour cells has led to many attempts to make radium treatment a mathematical problem. Unfortunately, this ideal does not always work out in practice.

Tumours which are absolutely identical histologically behave in different patients in totally different ways. While admitting the great importance of tumour cell classification particularly from the clinical aspect, and with full appreciation of the increased knowledge thereby gained as to the relative malignancy of any lesion, it would appear that there has been a tendency, in order to simplify methods of treatment, to ignore other factors which are as vital for success as cell distinction. Let us consider the factors which decrease radium sensitivity. These may be divided into general and local:—

General:—1. Decreased individual resistance to cancer. 2. Old age. 3. Anaemia. 4. Cachexia. 5. Syphilis. 6. Tuberculosis. 7. Diabetes.

Local:—1. Sepsis. 2. Oedema. 3. Extension to bone. 4. Poor blood supply. 5. Syphilis. 6. Previous surgery. 7. Previous irradiation. 8. Structure of surrounding tissues or tumour bed.

To consider very briefly these factors. It is generally admitted that in each individual there is a defence mechanism or a natural curative power varying in degrees of intensity, to assist the patient to overcome the disease. This factor of personal resistance, impossible to assess, is responsible for many variable effects obtained in tumours of the same type.

Old age, anaemia, cachexia are important influences in lessening radium sensitiveness. A favourable reaction cannot be expected in a patient with a low haemoglobin percentage and red cell count, or in an advanced stage of cachexia.

The medical treatment of malignancy is often overlooked. Every effort should be made to prepare the patient for treatment by tonics, nourishing diet and removing obvious foci of infection. Local conditions such as sepsis, oedema, poor blood supply and syphilis are unfavourable for effective radium reaction. In syphilitic glossitis with much scar tissue the adverse influence of a poor blood supply is well seen.

The further application of radium is often rendered undesirable through the decreased sensitiveness of the surrounding structures and the lessening

of the blood supply by previous irradiation. Such is commonly seen in the case of rodent ulcer, when recurrence results following treatment. The lesion has become more resistant, while the resistance of the surrounding tissues is decreased; hence further irradiation will tend to break down normal tissues while the ulcer remains unaffected. The general rule should be to make the primary dose lethal to all parts of the tumour.

THE STRUCTURE OF THE SURROUNDING TISSUES

The tumour bed plays an important part in radiation therapy. In brief if the tumour bed is more resistant than the tumour, a favourable result may be expected, if the reverse the difficulty may be insurmountable. To illustrate this point consider a squamous cell cancer of the lip. While the disease is confined to the lip it is favourable to irradiation, but when the same squamous cells invade the glands of the neck, the whole situation is changed. In order to destroy the cancer cells imbedded in lymphatic tissue some distance below the surface, it is necessary to produce a severe skin reaction which does not at the present time seem justifiable, or the radium must be actually implanted in the glands by an open operation. Other examples of the influence of a complex tumour bed are seen in malignancy of the oesophagus and lungs. Both these organs are very sensitive to irradiation and to administer a lethal dose to the cancer cells by an external application would mean great destruction of normal tissue. The ovarian tissues on the other hand possess such a high degree of sensitivity that they can be readily influenced by a moderate dose of radium.

As epithelial tumours constitute the most favourable field for radiotherapy they will be considered in detail.

A. Epithelial Tumours. In order of suitability for Radium Therapy.

1. Pathological Types, Basal Cell, Transitional Cell, Squamous Cell, Adeno-carcinoma.

2. Clinical Sites, Skin and Lip, Cervix, Mouth and Tongue, Nasopharynx, Anus, Scrotum, Penis, Vulva, Breast, Bladder, Prostate, Rectum, Secondary Glands, Oesophagus, Lung.

B. Clinical Sites in which radium treatment should always be considered and is frequently the method of choice.

Cancer of the Skin, Lips, Mouth, Tongue, Tonsils, Pharynx, Larynx, Cervix, Anus.

While the lesions in this group are particularly suitable for radiotherapy it is often necessary to use other agents in combination. A bulky cancer of the skin is rendered more suitable for radiation if its bulk is removed by excision or electro-surgery, leaving a smooth flat base for the application of radium. Surgery of approach may be necessary before radium can be efficiently used in cancer of the larynx.

C. Lesions in which radium should be considered for its palliative effect (growth restraint).

Metastasis irrespective of location or nature of primary growth. Cancer of the Bladder, Rectum, Prostate, Uterus, Ovary, Inoperable lesions in general.

However much controversy there may be about the ability of radium to "Cure" malignant disease, there can be no doubt at all about its palliative effect and its power to relieve pain and make life more endurable, when it is properly used. Many cases can be quoted to support this assertion. These

effects are often remarkable and if radium had no other action, would be sufficient to render it a valuable agent in the treatment of malignancy.

When using radium as a palliative agent except in the treatment of metastasis, it is often difficult to resist the temptation of giving repeated large doses in an hopelessly advanced case, particularly when a beneficial result is seen. Such a course is seldom or ever justifiable. Advanced lesions are easily broken down resulting in an increased toxæmia, which may shorten the patient's life. Heavy doses applied to lesions in close proximity to large nerve trunks may set up an intractable neuritis.

D. Pre and Post-Operative Radiation.

In practice it is often impossible to give the patient preoperative treatment, but the post-operative can always be given even when the incision is not completely healed; such radiation has been shown to greatly increase the beneficial effect of surgery.

NOTE: It should be mentioned that Deep X-Ray Therapy is of equal value in groups C and D.

In conclusion it is generally admitted that radiation is one of the most valuable agents in the treatment of malignancy, and holds out a good promise of beneficial results and alleviation of suffering. While anticipating even a greater field of usefulness, as the result of improved technique and a better understanding of its biological action, it is well to realize that much harm can be done by over optimistic statements that radium is established as a cure for cancer. Until we have some means of destroying cancer cells in metastases, the word cure should be used with caution if at all. If cancer at its commencement is purely a local condition, then early diagnosis and complete removal ensures a reasonable chance of success, and it is to obtain this early diagnosis and treatment that the profession should put forth greater efforts.

S. R. JOHNSTON

ANNUAL MEETING YARMOUTH, July 4th and 5th, 1934

Full Programme will appear in the next issue
of the Bulletin.

Department of the Public Health

PROVINCE OF NOVA SCOTIA

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

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

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

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 HON. DR. F. R. DAVIS - - - - Halifax.
 DR. F. R. HILL - - - - Parrsboro.

MEDICAL HEALTH OFFICERS FOR CITIES, TOWNS AND COUNTIES

ANNAPOLIS COUNTY

Hall, E. B., Bridgetown.
 Braine, L. B. W., Annapolis Royal.
 Kelley, H. E., Middleton (County) (No report from Town).

ANTIGONISH COUNTY

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

CAPE BRETON COUNTY

Densmore, F. T., Dominion.
 Fraser, R. H., New Waterford.
 MacKeough, W. T., Sydney Mines.
 Archibald, B. C., Glace Bay.
 McLeod, J. K., Sydney.

O'Neil, F., Sydney (Louisburg & C. B. Co.)
 Murray, R. L., North Sydney

COLCHESTER COUNTY

Dunbar, W. R., Truro.
 Havey, H. B., Stewiacke.
 Johnson, T. R., Great Village (County).

CUMBERLAND COUNTY

Bliss, G. C. W., Amherst
 Drury, D., Maccan (County).
 Gilroy, J. R., Oxford.
 Jeffers, Edward, Parrsboro.
 Rockwell, W., River Hebert (M.H.O. for Joggins).
 Withrow, R. R., Springhill.

DIGBY COUNTY

DeVernet, E., Digby.
 Rice, F. E., Sandy Cove (County).
 Belliveau, P. E., Meteghan.
(Clare Municipality)

GUYSBORO COUNTY

Brean, H. J. S., Mulgrave.
 Smith, J. N., Guysboro (County).
 Moore, E. F., Canso.
 (St. Mary's
 Mcpy.).

HALIFAX COUNTY

Almon, W. B., Halifax
 Forrest, W. D., Halifax (County).
 Payzant, H. A., Dartmouth.

HANTS COUNTY

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

INVERNESS COUNTY

McLeod, J. R. B., Port Hawkesbury
 LeBlanc, L. J., Cheticamp (County)
 McLeod, F. J., Inverness.

KINGS COUNTY

Cogswell, L. E., Berwick.
 Bishop, B. S., Kentville.
 Burns, A. S., Kentville (County).
 deWitt, C. E. A., Wolfville.

LUNENBURG COUNTY

..... (County).
 Rehffuss, W. N., Bridgewater.
 McKinnon, C. G., Mahone Bay
 Zinck, R. C., Lunenburg.
 Zwicker, D. W. N., Chester (Chester Mcpy.)

PICTOU COUNTY

Blackett, A. E., New Glasgow.
 Chisholm, H. D., Springville (County).
 Bagnall, B. O., Westville.
 Stramberg, C. W., Trenton
 Sutherland, R. H., Pictou.
 Whitman, G. W., Stellarton.

QUEENS COUNTY

..... Liverpool.
 MacLeod, A. C., Caledonia (County).

RICHMOND COUNTY

LeBlanc, B. A., Arichat.

SHELBURNE COUNTY

Brown, C. Bruce, Clark's Harbour.
 Churchill, L. P., Shelburne.
 Fuller, L. O., Shelburne (County).
 Densmore, J. D., Port Clyde (Barrington
 Mcpy.).

VICTORIA COUNTY

Gillis, R. I., Baddeck (County).

YARMOUTH COUNTY

Blackadar, R. L., Port Maitland (Yar. Co.)
 Burton, G. V., Yarmouth.
 O'Brien, W. C., Wedgeport.
 LeBlanc, J. E., West Pubnico (Argyle Mcpy.)

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

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

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

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

County	Cer-Spi. Meningitis	Chicken Pox	Diphtheria	Influenza	Measles	German Measles	Undulant Fever	Pneumonia	Scarlet Fever	Poliomyelitis-Ante.	Tbc. Pulmonary	Tbc. other forms	V. D. G.	V. D. S.	Whooping Cough	Goitre	Pink Eye	Erysipelas	TOTAL
Annapolis				2															2
Antigonish						5													5
Cape Breton	1	2	1					9						1	18				32
Colchester		1				10	1		3								7		22
Cumberland		1		6		1		2	17	1		1		1					30
Digby				3	1				5		1								10
Guysboro				4	6	7		6			2		4						29
Halifax City		8	3						8		1				2				22
Halifax		2	2						1										5
Hants								2	4										6
Inverness				7	10			2	2		1		5						27
Kings	1			22	1			3					1				5		33
Lunenburg								1	8										9
Pictou				14		10		9											33
Queens																			
Richmond				2				1			2		1						6
Shelburne								3											3
Victoria																			
Yarmouth																			
TOTAL	2	14	6	60	18	33	1	38	48	1	7	1	11	2	20	..	12	..	274

RETURNS VITAL STATISTICS FOR MARCH, 1934.

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis	11	23	8	13	11	1
Antigonish	14	8	0	5	9	0
Cape Breton	118	110	21	69	45	6
Colchester	25	26	17	16	10	4
Cumberland	31	30	13	20	22	0
Digby	18	13	6	11	17	1
Guysboro	19	20	1	16	12	3
Halifax	81	66	55	66	80	23
Hants	24	36	4	9	12	0
Inverness	15	18	5	16	12	3
Kings	21	30	14	27	25	0
Lunenburg	27	26	5	22	16	3
Pictou	34	30	15	20	18	5
Queens	12	15	4	4	7	0
Richmond	10	15	1	6	6	1
Shelburne	13	13	2	6	9	1
Victoria	4	7	0	3	5	2
Yarmouth	24	30	1	11	15	3
TOTAL	501	516	172	340	331	56

Report on Tissues sent for examination to the Pathological Laboratory, from April 1st, 1934 to May 1st, 1934.

The number of tissues sectioned was 155. In addition to this, 6 tissues from 2 autopsies were sectioned, making 161 tissues in all.

Tumours, malignant.....	27
Tumours, simple.....	11
Tumours, suspicious.....	3
Other conditions.....	114
Tumours, pre-cancerous.....	..
Tissues from 6 autopsies.....	6—161

EACH MORNING.

Leigh Mitchell Hodges, in the Philadelphia Evening Bulletin: Someone has written a book on "Life Begins at Forty." I rise to offer a substitute title, Mr. Arthur, "Life Begins Each Morning."

Whether one is twenty, forty or sixty; whether one has succeeded, failed or just muddled along; whether yesterday was full of sun or store, or one of those dull days with no weather at all, Life Begins Each Morning

Life is a day—this day. All past days are gone beyond reviving. All days that still may come for you or me are veiled in the great mystery, and for all we know, there may not be another for either of us. Therefore, this day is Life, and life begins anew with it.

There is no stated age or period of which it can be said, "Here is the dawn of life's day." To-day is the dawn of that day. Take and use it as best you can, or as you choose. It is your life, and if you prefer to loll it away or waste it, that is your privilege, though it be unwise and unprofitable.

However you have used gone days, you can start afresh each morning, if you so desire. You can use this day for consolidating past gains of spirit, brain and hand, or you can use it for tearing down the old structure of self and laying the foundations for a new building. Each night of life is a well between to-day and the past. Each morning is the open door to a new world—new vistas, new aims, new tryings.

The greatest fact in life is this, that it never is too late to start again. History overflows with starting examples of this truth. And if we had access to the vast number of unrecorded lives, we would find an overwhelming mass of supporting testimony.

However discouraging your days may have been thus far, keep this thought burning brightly in your mind—Life Begins Each Morning!—*Bridgetown Monitor*, Dec. 13.

When in Yarmouth for the Annual Meeting

OF THE

Nova Scotia Medical Society

enjoy the comfort and privacy of your own fireside at

Braemar Lodge

For Reservations and Special Convention Rates, write J. D. BURTON, Manager,
Yarmouth, N. S.

OBITUARY

DR. A. A. DECHMAN passed away on April 20th at his home in Bridgetown. The Doctor had been in poor health for the past two years, and for several months had been confined to his bed. Dr. Dechman was born in Sherbrooke, N. S. in 1862. He graduated from Dalhousie University in 1890. His first practice was in Musquodoboit, from there he moved to the State of Montana, then to Wedgeport, Yarmouth County, from which place he moved to Bridgetown, and had been in practice there for the past twenty-five years. The funeral took place on Monday, April 23rd, and many of the medical profession did honour to his memory, among whom were Drs. F. S. Messenger and J. A. Sponagle of Middleton, L. R. Morse of Lawrencetown, G. F. White and L. B. Braine of Annapolis Royal, and E. B. Hall and O. R. Stone of Bridgetown.

Dr. Colin W. MacDonald, one of our Nova Scotia physicians, who had lived in Roxbury, Mass. for the last number of years passed away in April. Dr. MacDonald was a native of Glassburn, Antigonish County, N. S. a son of William C. and Isabella MacDonald. The Doctor first graduated from St. Francis Xavier, studied Medicine at Dalhousie and was granted his M. D. at the College of Physicians and Surgeons, New York. His funeral was attended by prominent State and City officials.

Canada's medical fraternity mourned the passing of one of its most celebrated members, Dr. Frederick N. G. Starr, who died at his Toronto home in April after a short illness.

Dr. Starr was one of the founders of the Royal College of Physicians and Surgeons, served with distinction as officer of the Canadian Army Medical Corps, was associated with four Toronto hospitals and was emeritus professor of clinical surgery at the University of Toronto.

During the war when Dr. Starr was serving with the medical corps, he was mentioned twice in despatches for gallantry and distinguished service in the field. The King created him a commander of the military division of the British Empire.

Dr. Starr married Miss Annie Callauder MacKay, daughter of George Forrest MacKay, "Hill Head," New Glasgow, in 1904.

There passed away at the Addison Gilbert Hospital, Gloucester, Mass., at the age of seventy-one, Dr. Snow P. F. Cook, well known eye, ear, nose and throat specialist. Dr. Cook was born in Milton, Queens County, N. S. He graduated from Acadia University and studied Medicine at the University of Pennsylvania.

The death occurred at Victoria, B. C. on April 1st of Dr. M. A. McKay, at the age of fifty-four. Dr. McKay was a native of Big Baddeck, N. S. He graduated from Queen's University, and for the past twenty-eight years had been practising at Pittsdale, Saskatchewan.

Dr. Daniel MacDonald of North Sydney was called to Mabou recently by the death of his oldest brother, Alexander MacDonald, who died on April 11th after an illness of two months and at the age of ninety-nine years.

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*B.M.J., Sept. 26, 1931

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Personal Interest Notes

The Annual Meeting of the Provincial Association of Health Officers will be held at Yarmouth at the Grand Hotel on July 3rd. A good meeting is expected and a large attendance is requested.

Changes in the staff of the Victoria General Hospital, Halifax. It was recently announced that Dr. George H. Murphy and Dr. J. G. MacDougall have resigned as members of the staff of the Victoria General Hospital, and that Dr. C. E. Kinley and Dr. N. H. Gosse have been appointed to fill the vacancies so caused. It was announced at the same time that Dr. W. Alan Curry had been promoted to the position made vacant by the death of Dr. E. V. Hogan. This necessitated the appointment of other assistants and Dr. Arthur L. Murphy, Dr. J. A. Noble and Dr. E. F. Ross have been appointed.

Dr. Havey talks on Public Health. At the regular meeting of the Men's Club of Stewiacke held on Thursday evening, April 5th, Dr. H. B. Havey gave an excellent address on Public Health. Dr. Havey stated that there had been a great development in this field in the last fifty years and the principle underlying it from the time of Galen to Banting is to aid suffering humanity.

The speaker then gave a historical sketch of the development of medicine. He stated that Moses in 1571 B. C. was the first great doctor in Egypt, forcing the Israelites to observe a code of regulations which preserved them in health and vigor during their long wandering in the wilderness. Then in 460 B. C. came Hippocrates, called the father of medicine, who advised pure air, water and sunshine which is so much advocated to-day.

Next in line was Galen (130-200 A. D.) who discovered the relation of the pulse to the diseases of the body, but it remained for Harvey nearly 1400 years later to establish that back of the pulse was the heart. He described the great English physician John Hunter, as the greatest man of the Anglo Saxon race. A pupil of Hunter's, Dr. Jenner, in 1802 proved that vaccination would prevent smallpox.

He told the club that Sir James Simpson was the first to use chloroform in operations, but though he relieved pain the deaths from infection were appalling.

Then came to the rescue Louis Pasteur the French scientist who discovered that tiny organisms in the air turned milk sour. This discovery of Pasteurs was applied to surgery by Sir Joseph Lister (1827-1912) by proving putrefaction might be prevented by keeping the wound free from germs. Then came Robert Koch (1843-1910) who discovered the T. B. bacillus and the germ of cholera.

The speaker then in considerable detail showed how all these discoveries have been applied by health authorities to prevent illness and to conserve life.

Dr. and Mrs. F. F. Eaton of Truro made a brief visit to Baltimore during April.

Dr. and Mrs. A. Fraser MacGregor of New Glasgow left Saturday, March 31st, for New York and Montreal to spend a two weeks holiday.

The wedding took place on April 4th, at the home of Dr. and Mrs. J. G. MacDougall, 95 Spring Garden Road, Halifax, of their only daughter, Jean Stewart to Robert Donald King, assistant manager of the Imperial Oil Company at Halifax. The ceremony was performed at seven o'clock by the Rev. J. Norrie Anderson, of Fort Massey Church, assisted by Rev. Ian MacKinnon.

The bride was attended throughout by Miss Jean Murray, while Major R. L. Densmore, of Imperoyal acted as groomsman. Following the marriage a reception was held at the house after which the couple sailed by the Lady Somers on a honeymoon trip to Kingston, Jamaica.

The engagement is announced of Catherine Elizabeth, daughter of Judge William Francis Johnson and Mrs. Johnson, of Snow Hill, Maryland, to Dr. George O. Eaton, a son of Dr. F. F. Eaton of Truro and a graduate of Dalhousie University.

Dr. and Mrs. R. Evatt Mathers of Halifax have returned from a holiday spent in Kingston, Jamaica.

Gift to Dalhousie University. Dr. William Inglis Morse, well and favorably known in Liverpool, has donated \$500 to Dalhousie University to constitute two prizes for students in history and medicine, respectively. Dr. Morse, donor of the Morse collection of books valued at more than \$20,000. is a native of Paradise, Annapolis County.

Dr. H. J. Melanson of Digby recently returned from a trip to Montreal.

Dr. A. W. Miller of New Waterford arrived home on April 19th from an extended cruise through Southern waters.

Having a Shot. Many of the Chicago gangsters were in the Irish Sweep. They had hoped to be in on the draw.

Dangerous Fellow. The signalman wireless enthusiast who tried to switch a train on to a foreign station.

Cause for Discussion. An evening gown that consists of nothing to speak of is usually one that is something to talk about.

Lucky. The house demolisher who is always on top of his job.