

## Editorial

Most articles in the Bulletin are written by physicians. This issue contains one from a patient who is, however, on his way to becoming a doctor. At a time when much is being written about rehabilitation the story of a patient who has been successfully rehabilitated from two bouts of poliomyelitis is very timely. It also illustrates several important principles of rehabilitation. One thing is obvious, rehabilitation starts with the onset of illness. The encouragement of physicians, nurses and relatives plays a very important role in the psychological conditioning of the patient. The will to be rehabilitated is perhaps the most important single item contributing to a successful outcome. The story in this issue illustrates this very well. But in spite of the strongest possible desire to regain lost function, success can be achieved only if the patient's efforts are successfully directed into the proper paths. Unguided efforts may actually cause harm.

Rehabilitation has been described as the third great field of medicine along with preventive medicine and curative medicine. It is a field that always demanded the attention of the family physician and much of it still does and should rest in his capable hands. The ultimate aim of the physician is not simply to cure the disease but to guide the patient back to full health and to effective social and economic integration into his community. However, in many instances the more prolonged and complex illnesses require the assistance of specially trained medical and technical personnel. The modern Rehabilitation Centre has therefore been developed to which the family physician can refer problem cases. Mr. Campbell's story illustrates how rapidly he improved when a full programme of physiotherapy, occupational therapy and physical medicine was brought into play. It also indicates the psychological hazards involved if the patient becomes too dependent upon artificial aids. A team approach to the problem of rehabilitation is extremely effective and in many instances is essential.

To date the Province of Nova Scotia has lagged behind many parts of Canada and the United States in the provision of rehabilitation facilities and in the development of physical medicine and ancillary services. There are now hopeful signs on the horizon that the Council for the Rehabilitation of Disabled Persons may shortly provide the nucleus for the development of a modern rehabilitation programme in this province. The Bulletin wishes the Council every success in its efforts.



# Feeding The Infant And Young Child \*

## Part I—Breast Feeding

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**F**EEDING of the infant and small child is a problem which has faced physicians since the beginning of time. It has been solved in a great many ways over the ages and with varying degrees of success. After a great many years, in which relatively little progress was made in this direction, we have enjoyed rapid progress in artificial feeding during the past 60 to 80 years, and the reduction in the infant mortality rate during that period has reflected in no small way the increased ability of physicians to feed babies. A great disadvantage of this rapid progress, however, has been that an aura of mystery and confusion has tended to surround infant feeding. There has been a feeling that only a few people possess the magic required to feed babies adequately, and the rest of us must struggle along without the advantage of this knowledge. As a result of this, I think we have tended to pay less attention to simple basic facts than perhaps we should have. The material that will be presented in this paper is in no way dramatic. It has all been presented to you before. It will be presented, however, in an attempt to find some practical way of applying simple, sound physiological principles of infant feeding to the problems which face us from day to day.

If we approach the problem chronologically we must decide first what we are to feed the newborn baby; what we are going to give the baby during the period when his stomach is too incompletely developed to handle the maintenance formula upon which he will be discharged from hospital if he is a bottle fed baby. I think, if we made a survey of the hospitals in Canada, we would find that in a large number the routine feeding during this period is a dilute milk mixture. Probably, no more unsuitable mixture can be given to the newborn baby. The swallowing reflexes in the neonatal period are exceedingly immature and, as a result, aspiration of feeding occurs in the first 48 hours of life very much more frequently than it does at any other time during life. The consequences of aspiration of material into the lungs depends almost entirely upon the type of material involved. If milk is aspirated, it sets up an irritant pneumonia, a low-grade process which may persist for three or four weeks, during which time there is danger of the lung tissue becoming secondarily infected. It seems unwise to provide, in this 48 hours of life, food which if aspirated may give rise to such serious consequences.

Milk is an unsuitable feeding during this period also because it is impossible to rule out the possibility of a congenital abnormality of the upper part of the digestive tract in the newborn baby; atresia of the esophagus or, more commonly, tracheo-esophageal fistula appear as congenital abnormalities with some frequency. Until a few years ago, the diagnosis of these abnormalities was a matter of academic interest since their correction was impossible. Now,

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\*One of the series of the addresses given by Doctor McCreary as a member of the visiting team of the C.M.A. when he attended the Provincial Medical Society Meetings of Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland, September, 1954.

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however, it has become possible to correct tracheo-esophageal fistula and the percentage of cases which are corrected depends largely on whether or not pneumonia is present. With either atresia of the esophagus or tracheo-esophageal fistula present the first food taken, whatever it may be, will pass more or less directly into the lung. As a result, symptoms of choking occur and the infant turns blue immediately the food is taken. If the food is milk, a pneumonic process is set-up which greatly reduces the possibility of a satisfactory repair.

A third reason why milk is an inadequate food during this initial period is based upon a belief that incompletely digested proteins may be absorbed across the intestinal mucosa in the first few days of life. It is possible that dipeptides and polypeptides may be absorbed at this time without further breakdown. It has been suggested by allergists that the development of milk allergies later in life is based on this unusual ability to absorb milk in an incompletely digested state.

Some fluid intake must be provided for the infant in the first 48 hours of life because kidney function is poor and danger of neonatal tetany due to phosphorous retention increases with reduced renal output. Boiled water or, preferably, a 5% solution of glucose in boiled water provides the necessary fluids and calories in a form which will not endanger the infant if aspirated.

Consideration of the infant's feeding **after** the first 48 hours of life necessitates a brief consideration of the relative merits of breast and formula feeding. As knowledge of the emotional growth of the infant has increased the advantages of breast feeding have become increasingly apparent.

The percentage composition of mother's milk is suited to the digestive tract of the infant and is digested more readily and with less discomfort than any artificial formula. This is particularly true when any infection is present.

Psychologists tell us of the great importance of the early weeks of life to the emotional stability of both mother and child. For the mother, the feeling that she is performing a service for her infant which no one else can do has a stabilizing effect in a period when emotional upsets are common. For the infant, the inevitable cuddling which accompanies breast feeding is alleged to produce stability and security.

There have been indications in the recent literature that fewer infections occur in the first year of life in breast than in bottlefed infants.

Atopic eczema occurs approximately 7 times as frequently in artificially fed infants as in those receiving breast milk.

Finally, although there has been great improvement in the techniques of preparing artificial formulae, it is still true that in poorer socio-economic groups where sanitary conditions are inadequate the breast fed infant has a considerably greater chance of survival.

Emotional preparation for breast feeding should begin early in the pregnancy. The physician responsible for the supervision of the pregnancy should outline, as clearly as possible, the advantages of breast feeding. He should permit the prospective mother to ask questions and establish a definite course



of action in this regard. If this is not done the prospective mother will tend to be swayed by the experiences of unqualified people with whom she discusses the problem.

Physical preparation of the breasts for breast feeding must also begin as early in the pregnancy as possible. We are indebted to Waller of England for a new concept of prenatal preparation of the breasts. He points out that retracted nipples (fig. 1) also inevitably become cracked when the baby feeds. He postulates that this retraction is due to the presence of adhesions which have resulted from some injury to nipple or breast in childhood or earlier adult life. Far more frequent than actual retraction of the nipple is a similar adhesion interfering with the motility of the nipple but not visibly retracting it. Waller points out that the thickened areola—not the nipple—is designed to withstand the trauma of the baby's jaws in nursing. The nipple under normal circumstances should be pulled into the infant's mouth, be traumatized to a minimal degree and should not be cracked. To test for this normal motility one should place the opposing thumb and forefinger on the outer margins of the areola and compress. The nipple should protrude forward as though into the infant's mouth (fig. 2). If it fails to do so (fig. 3), there are adhesions restricting its movement. If this condition is discovered early in the pregnancy, the adhesions can be broken down by fastening a plastic or glass hollow nipple shield (fig. 4) under a tight brassiere (fig. 5) for daytime wear for 3 or 4 weeks.

Waller has pointed out that the duct system of the breast also requires prenatal preparation. The alveolar or milk-secreting function of the breast develops with each pregnancy and disappears after lactation. Grape-like solid structures develop on the ends of the duct systems early in the pregnancy and evacuate their contents as semi-solid material through the duct system in the last trimester of the pregnancy. If the semi-solid material being evacuated obstructs or partially obstructs the duct system, the amount of milk produced will be grossly diminished. Therefore, a daily five-minute process of manual expression (figs. 6 & 7) during the last two months of pregnancy is the only reasonable insurance that the milk received by the infant will approach the amount which can be produced.

The onset of breast feeding after the infant is born should be carefully supervised. Early nursing—4 or 8 hours after birth—has come into wide use. If the mother is sufficiently well it is probably advisable. More important than the time at which the nursing starts is the duration of the feeding. No milk is available to the infant for 48 to 72 hours and prolonged nursing during this period will produce unnecessary trauma to the breasts and nipples. A workable routine consists of putting the infant to both breasts at each nursing and allowing the nursing to continue for the number of minutes that the infant is days old; e.g., second day, 2 minutes on each breast at each feeding, fifth day, 5 minutes, etc.—to a maximum of ten minutes on each breast.

One of the common reasons for failure of breast feeding is terminating the effort too soon. The amount of milk produced increases slowly for the first 3 days, then rapidly for 4 or 5 days, and slowly again until 14 days



have elapsed. It is impossible to evaluate the amount of milk which will be produced short of a minimum period of 10 days.

The optimum duration of breast feeding has been modified somewhat in recent years. The great advantages of breast feeding are most apparent in the first few months of life. There is increasing evidence that after approximately 6 months of nursing the mineral content of the milk is somewhat less than adequate for the rapidly growing infant. It seems likely that nursing should be discontinued when the infant reaches this age.

We, as Canadian physicians, have no reason to feel proud either of the percentage of infants who are breast fed or of our infant mortality statistics. It is perhaps significant that these two seem related in the sense that those populations with a high percentage of breast fed babies tend to have low infant mortality rates. With increasing evidence of the advantages of nursing and increasing knowledge of the proper technique of preparation of the prospective mother, we become increasingly culpable if we fail to utilize them to the full.



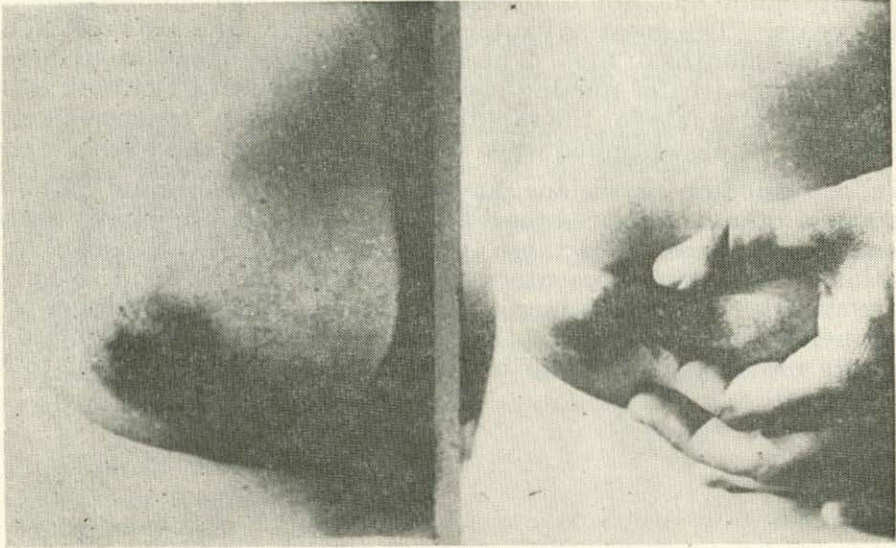


FIGURE 1

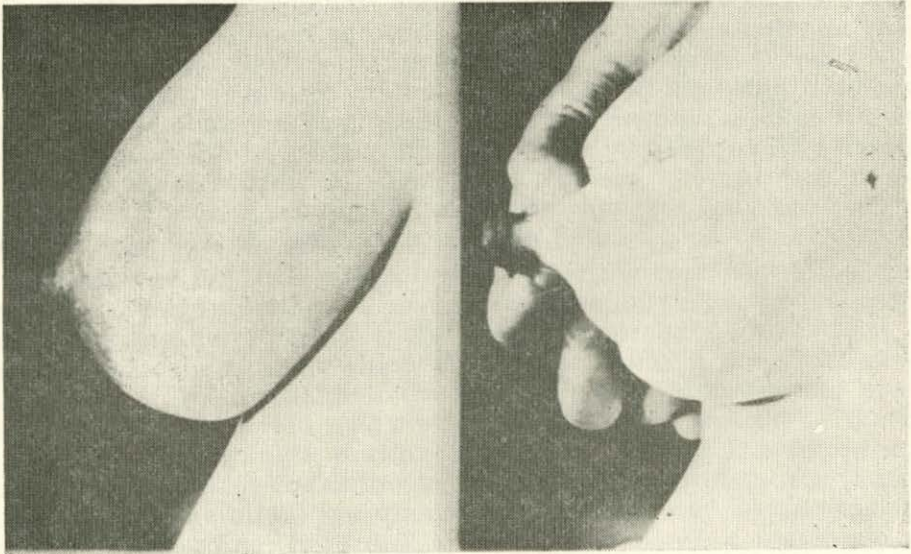


FIGURE 2



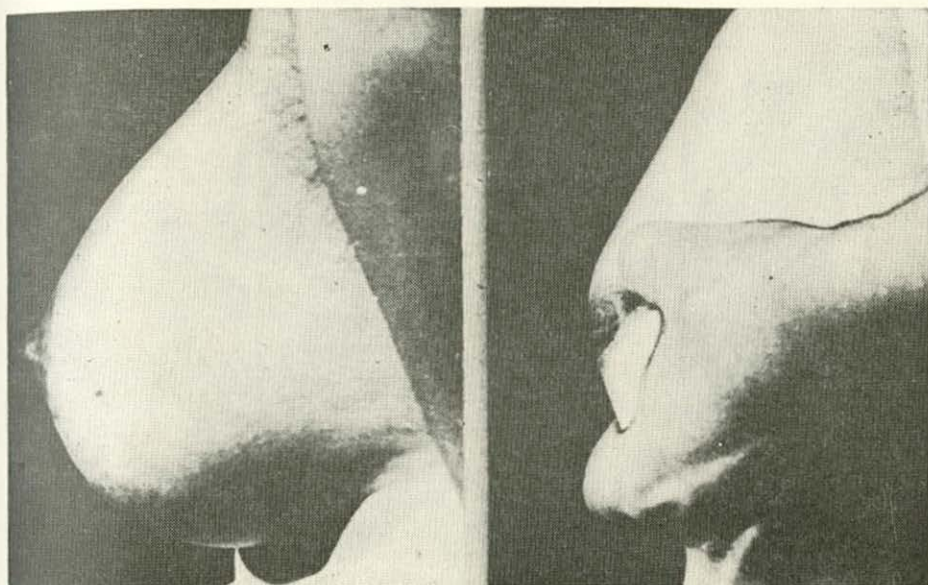


FIGURE 3

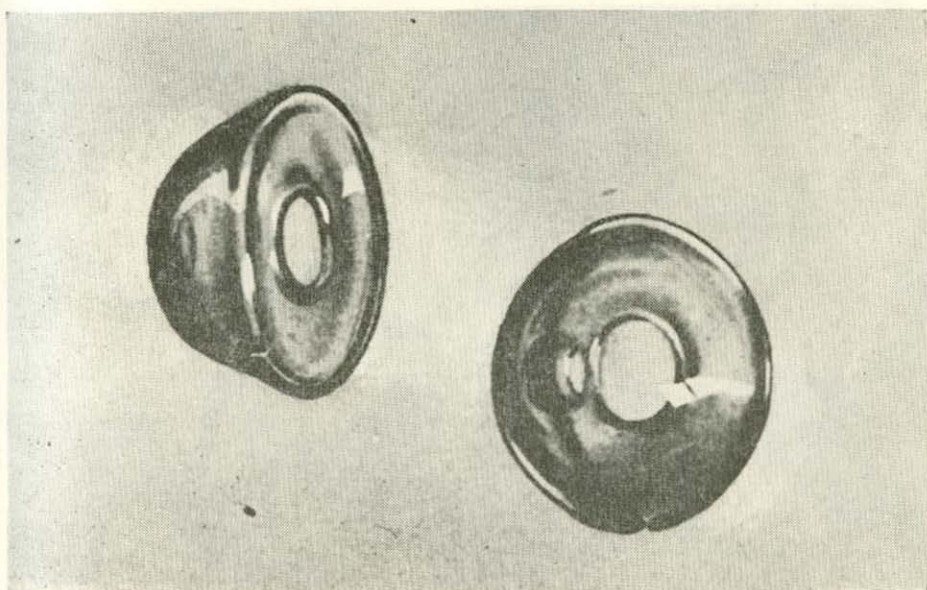


FIGURE 4



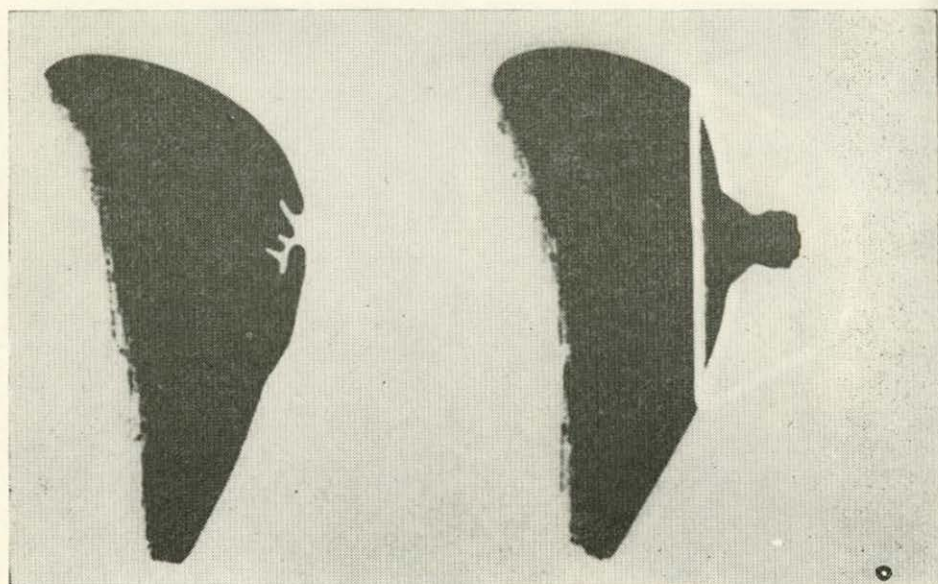


FIGURE 5

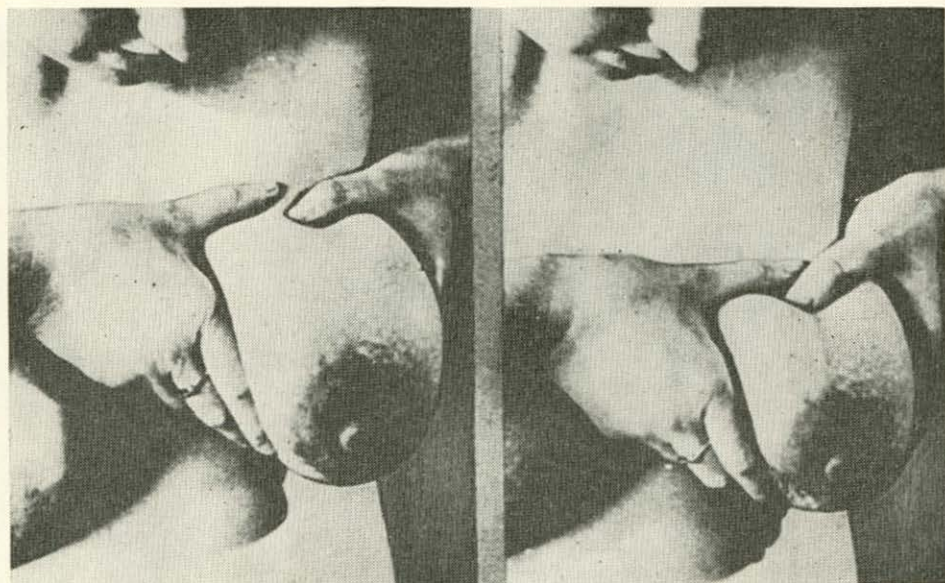


FIGURE 6

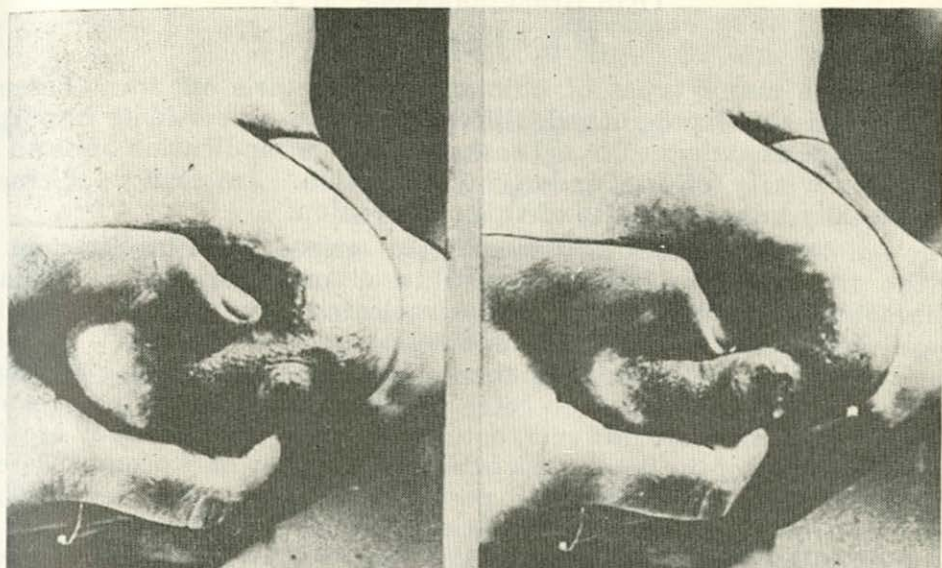


FIGURE 7



# The Band-Shaped Atelectasis And The Underlying Disorders

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Among the many types of pulmonary atelectasis one form, commonly described as disc-or band-shaped, differs from the others in its importance. It is remarkable as a diagnostic aid rather than as an indication of or an addition to the severity of the underlying condition. Internal Medicine and Surgery equally have made use of this observation.

The band-shaped atelectasis was first described by Fleischner in 1936 under the title "Plattenfoermige Atelektase" or "Gerichteter Kollapse". The characteristic feature is that these atelectases appear as long, linear, horizontal shadows of one to five mm. thickness across the entire portion of the lung involved. On fluoroscopy the lines fade and disappear on bending forward but remain unchanged on rotation of the patient. They are called linear atelectases; they are however, actually discs or plates. They are found just above the dome of the diaphragm or so low that they only occupy the costo-diaphragmatic angle and if situated posterior are then only seen in oblique and lateral views. The diaphragmatic excursions are limited. The lines usually are multiple, parallel, closely placed and without nodular irregularities. At first the atelectasis is conical in shape but very soon it assumes a horizontal plate-like shape because the collapsed area is fixed medially by the bronchus to the mediastinum and laterally by the intrapleural pressure to the lateral chest wall allowing the lung only to collapse in cranio-caudad direction.

The disc-shaped atelectasis is not a clinical entity but rather a symptom accompanying pathological conditions in the chest, the diaphragm, the abdominal cavity and the retroperitoneal space. The mechanical pathogenetic factors are identical: Impaired respiratory movements due to pleural, muscular and peritoneal pain, embarrassed ventilation favouring the accumulation of mucus, inspissation of the bronchial secretion, excessive sedation, anesthesia, paralysis, etc.

Similar shadows which may give rise to difficulties in differential diagnosis, are produced by interlobar pleurisy with thickening or effusion, by atelectasis of the middle lobe (Hampton), by pleural adhesions, by healed pulmonary infarcts (Smith, Castleman). The last can be differentiated from atelectasis by the fact that the lines may run in almost any direction and that it nearly always reaches the pleura ending in a dense nodule.

The following is a list of disorders which can be associated with disc-shaped atelectasis and which have been described in the literature. The author's own observations have been added.

Pulmonary Causes: 1. Tracheo-bronchial tuberculosis. (Roessle), 2. Atypical pneumonia (Boucher). 3. Whooping cough, influenza (Gourdon), 4. Changes in the bronchial wall, carcinoma, 5. Kyphosis, Pott's disease, Pneumoconiosis, 6. Pleurisy, Hemothorax (Marks, Hulten), 7. Stevens-Johnson disease

(Case 1), 8. Chest trauma (Case 2), 9. Upper respiratory infection (Case 3).

Diaphragmatic Causes: 1. Paralysis of diaphragm following phrenectomy (John, Olinger et al.), 2. due to poliomyelitis (Boucher).

Adominal Causes: 1. Upper abdominal operations (Fossati, Case 4), 2. Tuberculous peritonitis (Bagnolu), 3. Hepatomegalic cirrhosis (Camelin), 4. Portal cirrhosis (Marks), 5. Subdiaphragmatic abscess (Fleischer), 6. Cholecystitis (Oppenheimer), 7. Pancreatitis (Marks, Hulten, Sands), 8. Perforated ulcer (Laurell), 9. Liver-and periappendiceal abscess (Hulten), 10. Chilaiditi syndrome (Case 5).

Retroperitoneal Causes: 1. Hydronephrosis (Case 6), 2. Retroperitoneal hematoma (Case 7).

Cases.

#### Case 1.

Mr. L. C., a 28 year-old white man, was admitted to St. Joseph's Hospital on October 22, 1953. He complained of cough, high fever, burning maculopapular rash on the extensor surfaces of the hands and the tibial regions, rheumatoid pain in the ankle and wrist joints, reddening of the conjunctivae and wide-spread, aphthous, ulcerating lesions in the mucosa of the mouth. The diagnosis of Stevens-Johnson syndrome was made. The X-ray findings are given in Fig. 1.

Comment: The cause for the formation of this type of atelectasis lies in the changes of the mucosa of the large and small bronchi, characteristic for this severe form of erythema exudativum multiforme: swelling of the mucosal lining, increased excretion of mucus, impaired activity of the ciliae of the respiratory epithelium and shallow breathing with poor diaphragmatic movements due to pain.

#### Case 2.

Mrs. M. M., a 58 year-old white female, was admitted to St. Joseph's Hospital on July 3, 1954. Two days before admission she had fallen and had sustained a dislocation of the left shoulder. On the routine miniature X-ray film of the chest a shadow was seen at the right base. A recheck on a large film showed a linear atelectasis in the right lower lung field (Fig. 2). The patient complained only of soreness in the chest more on the right than left, and minimal unproductive cough noted for the first time a few days after the accident. A control film eight days later showed complete clearing of the lung fields. Direct trauma to the chest was considered the cause of the atelectasis.

#### Case 3.

Mrs. W. H., 50 years of age, had felt well until February 2, 1954, when she started to complain of chest pain, slight fever, burning sensation in the throat and a dry cough. The diagnosis of upper respiratory infection was made by



the attending physician and under expectorants and salicylates the patient improved. An X-ray examination of the chest on Feb. 13, 1954 showed multiple, horizontal, linear shadows at the base of the right lung. The atelectasis disappeared gradually with subsidence of the clinical symptoms.

#### *Case 4.*

Mrs. A. M., aged 43, was admitted to the Glace Bay General Hospital with a long history of upper abdominal distress. This was found to be due to gastric adenoma. A laparotomy was done on June 27, 1954 and a segmental resection of the portion of the stomach containing the adenoma was performed. The post-operative course was uneventful except for some tightness around the chest which appeared a few days after the operation. A roentgenogram of the chest on July 1, 1954 showed a plateau-shaped, horizontal, thin atelectasis in the base of the right lung. A small amount of free air was still present in both subdiaphragmatic spaces. On respiratory exercises and inhalation treatment the atelectasis and the symptoms disappeared within five days.

Comment: In addition to the well-known factors responsible for the formation of post-operative atelectasis another important cause is probably the splinting of the diaphragm by direct irritation by air which remains in the peritoneal cavity after closure of the abdomen and which accumulates below the diaphragm when a half-sitting posture in bed or in a chair is assumed.

#### *Case 5.*

Mr. L. S., an 84 year-old pensioned miner of reduced nutritional state, complained of right upper abdominal pain, radiating to the right side of the chest, associated with nausea and vomiting. There was a dry, unproductive cough, wheezing over both lung fields and restriction of right diaphragmatic excursions. The anterior liver dullness was absent. Upper G.I. tract X-ray and cholecystogram were negative. Figs. 3 and 4 show the roentgenograms of the chest and the right upper quadrant. The diagnosis of Chilaiditi's syndrome with disc-shaped atelectasis was made. X-ray control a few months later showed the interposition unchanged; however, the atelectasis had disappeared. There were only minimal upper respiratory symptoms present. Upper abdominal discomfort was still considerable. The colon was probably fixed in the abnormal position by adhesions and was irreducible.

Comment: Chilaiditi had noted that hepato-diaphragmatic interposition often occurs in patients with sudden weight loss leading to ptosis of intestinal and retroperitoneal organs especially the liver. The potential anterior subphrenic space becomes occupied by the transverse colon. Diaphragmatic irritation, shoulder pain, respiratory embarrassment are common and causative for the disc-shaped atelectasis in the lung sectors adjacent to the right diaphragmatic leaflet. The incident of Chilaiditi's syndrome is well illustrated by Uspensky who found 22 cases among 26,000 consecutive X-ray films of the chest.

#### *Case 6.*

Mr. H. M., a 78 year-old male, was admitted to St. Joseph's Hospital on November 19, 1954. He was in poor general condition and in considerable distress from right upper abdominal and right lumbar pain. A large mass



could be palpated in this area. The intravenous pyelogram supported the diagnosis of a large hydronephrosis. The roentgenogram (Fig. 5) and the fluoroscopic examination of the chest showed the right diaphragmatic leaf slightly elevated especially in the posterior portion and appeared restricted in movement. Multiple horizontal, linear atelectases were seen in the base of the right lung field. At operation a hydronephrosis of the right kidney of the size of a child's head was found.

#### Case 7

Mr. H. S., A 43 year old miner, was admitted to St. Joseph's Hospital on January 10, 1954 with back injuries received during a stone fall while working in the mine. The patient was in moderate shock which responded favorably to supportive therapy. The X-ray examination showed a comminuted fracture of the 11th & 12th dorsal vertebral bodies with considerable compression but good alignment. A large prevertebral haematoma was also noted. Within two days a large mass developed in the right loin and could be felt readily through the abdominal wall. There was moderate haematuria. A diagnosis of kidney laceration and retroperitoneal haematoma was made. Respiratory embarrassment was only slight. Cough was absent but inspiration was accompanied by considerable pain in the right side of the chest. The roentgenogram (Fig. 6) showed the right diaphragmatic leaf four finger breadths higher than the left and a broad, band-shaped atelectasis in the middle of the base of the right lung. The haematoma was absorbed within three weeks, the diaphragm descended accordingly and within ten days the atelestasis had disappeared without specific treatment.

Comment: The disc-shaped atelectasis in this case cannot be considered as compression atelectasis because of its shape. Similar to the other cases described in this paper it is the impairment of respiration and ventilation at the lung base caused by the elevation of the diaphragm, the pain from the vertebral fracture and the immobilisation for treatment, which must be made responsible for its occurrence.

#### Summary.

Seven patients are presented with pulmonary band-shaped atelectasis as a radiological feature. As to cause each one may be placed into one of the following groups: pulmonary, diaphragmatic or subdiaphragmatic. A fourth group including retroperitoneal lesions is added and two cases relative to it are described.

It is felt that the atelectasis of the linear type is nearly always an incidental finding and does not bear any significance to prognosis of the underlying disease but is rather of importance for the diagnosis since its presence should make the examiner look for another pulmonary, diaphragmatic, abdominal or retroperitoneal lesion.

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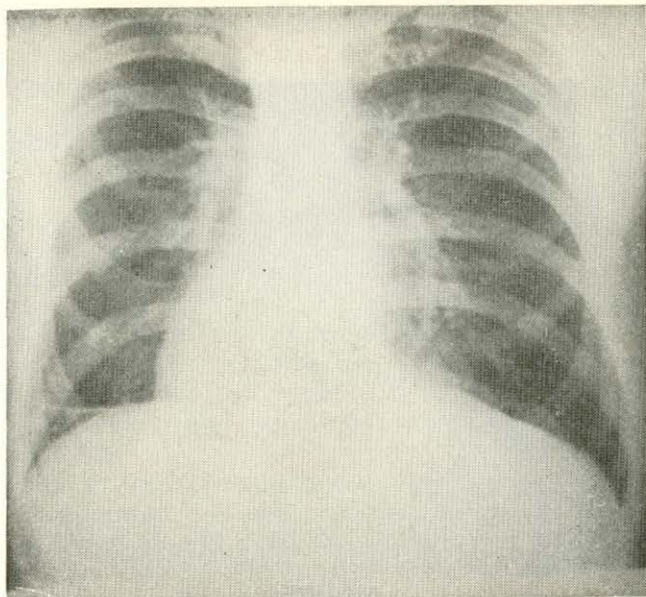


FIGURE 1

*Fig. 1.* Roentgenogram of case 1, a patient with Stevens-Johnson syndrome. There is a slight enlargement of the hila and accentuation of the bronchovascular markings. At the level of the left diaphragmatic dome a horizontal linear atelectasis is noted. There is restricted movement of the left diaphragmatic leaf on respiration.

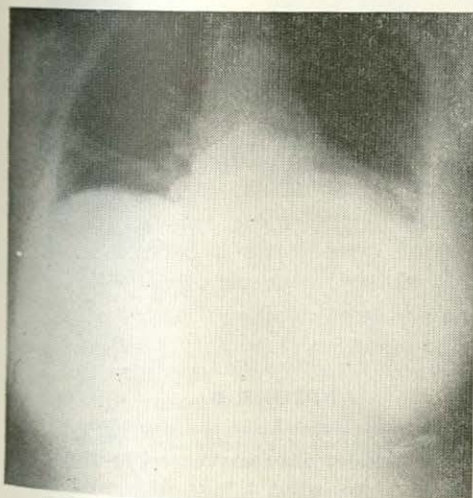


FIGURE 2

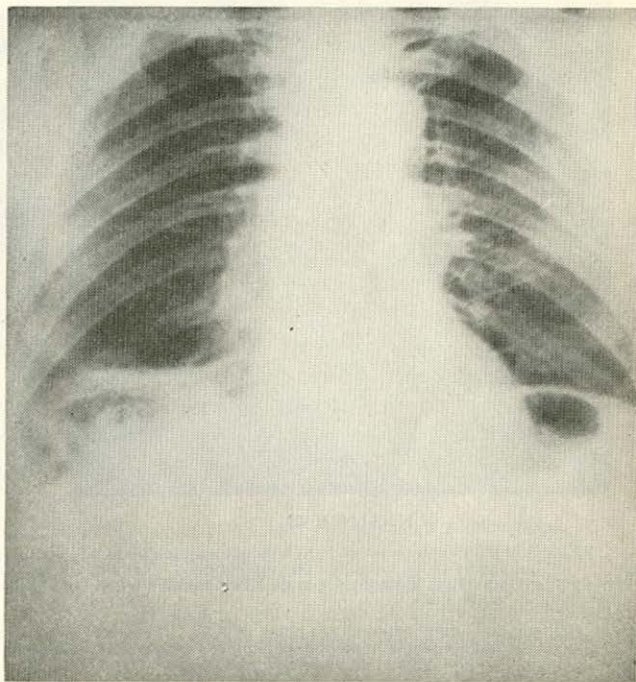


FIGURE 3

*Fig. 2.* Roentgenogram of the chest of case 2 two days after a heavy fall on the left shoulder resulting in a dislocation of the left shoulder and contusion of the chest. There are two linear, parallel shadows, representing atelectasis, in the right lower lung field extending from the cardiophrenic angle towards the periphery.

*Fig. 3.* Roentgenogram of the chest of case 5. The right diaphragmatic leaf is slightly elevated by a gas distended colon loop which had become interposed between the right liver lobe and the diaphragm. There are multiple, horizontal, parallel, linear shadows throughout the base of the right lung extending from the mediastinal border to the periphery.



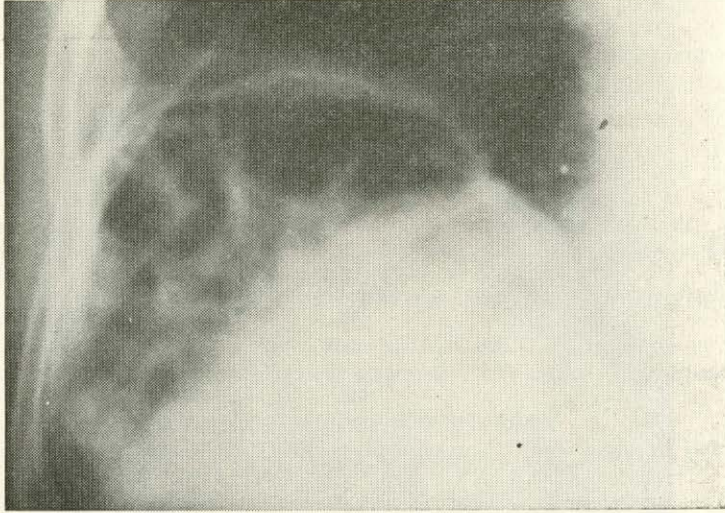


FIGURE 4

*Fig. 4.* Oblique view of the right upper quadrant of case 5 showing the hepato-diaphragmatic interposition of the colon and the disc-like atelectasis in the right basal lung field.

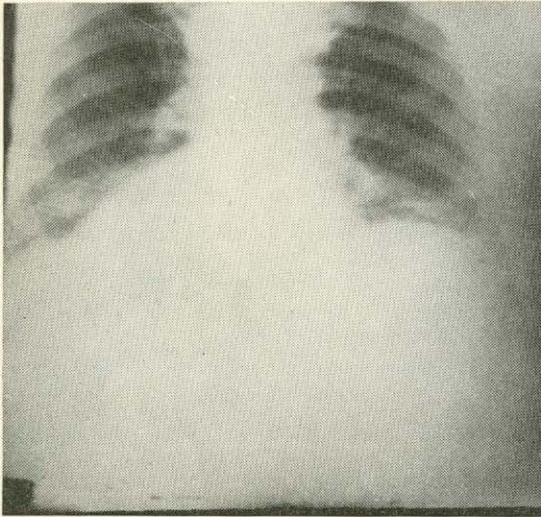


FIGURE 5

*Fig. 5.* Roentgenogram of the chest of case 6. The right diaphragmatic leaflet is slightly higher than normal and was found to be immobile on respiration. This was due to a right hydronephrosis of excessive size. There are multiple, horizontal, parallel shadows at the level of the dome of the right diaphragm as evidence of disc-shaped atelectasis.

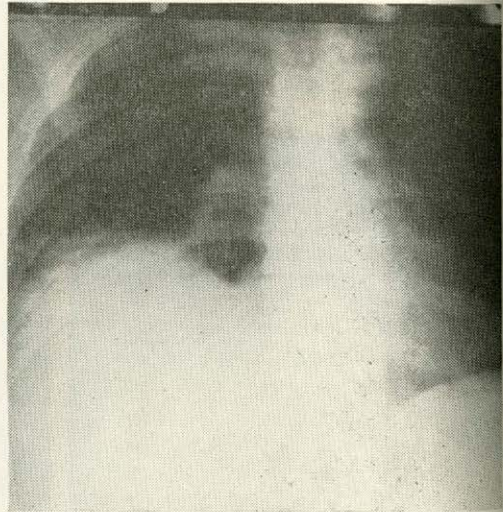


FIGURE 6

*Fig. 6.* Roentgenogram of the chest of case 7. The elevation and the immobility of the right diaphragm is due to a large retroperitoneal, perirenal and prevertebral hematoma. The fracture of the 11th and 12th dorsal vertebral body can not be seen in this plate. The base of the right lower lobe shows a broad plate-like atelectasis.



# Symposium On Facilities For Rehabilitation In Nova Scotia\*

## Rehabilitation of the Tuberculous Patient

Fred G. Barrett, B.A.\*\*

NO one can be enthusiastic about a programme for the rehabilitation of disabled persons unless he believes two things: First, that the personality is of more value than the body, and, second, that personality can be changed. If the former be denied, surely the doctors would not fight so hard to repair broken bones, to maintain function in destroyed muscles, or to keep life in wretched bodies. And if the second be held to be untrue, then other members of the rehabilitation team would be content to see poor, dejected souls continue in the poverty and dejection into which many have been thrown by disease or disability.

Would you not go further and agree with me that many outstanding personalities have inhabited diseased and broken bodies. We think of blind Helen Keller, of crippled Franklyn Roosevelt, of legless Bader, or of tuberculous Robert Louis Stevenson. The contributions made by such outstanding persons were achieved in spite of their disabilities. Some might even agree with me that many great achievements are attained as a result of disease and suffering. Why? Why, if judgment be based entirely on physical findings, do some people live when they ought to die, and others die when they ought to live? We generally say it is due, in the former case, to the will to live; lacking it, the others die in spite of all that medical science can do.

What, you may ask, is the most essential factor in determining the success of a rehabilitation programme; who is the most important member of the team? Is it the degree of medical knowledge and skill that can be enlisted? Is it a function of the facilities for social service? Does it depend on sound vocational guidance and placement? All these skills and services are of utmost importance, yet entirely without value if we lack the co-operation of the most important member of the team—the individual to be rehabilitated. The patient must want to live, want to get well, want to work again, want to be self-supporting, want to be a producer instead of a consumer.

Long before we have any formal rehabilitation programmes, patients rehabilitated themselves. To-day, there are many in our tuberculosis hospitals who would do the same without our help. But what of the others?

I began by asking you to believe with me that personality can be changed. As long as that be true, all individuals are worth helping. I have many times asserted that those who need our rehabilitation programmes are persons lacking resources; bodily resources, social resources, or personal resources. The physicians and surgeons must look after the former, other members of the team are provided to manipulate the environment to the maximum advantage of the patient; it remains for some of us to pay more attention to assisting the patient to adjust his personality so that he can more effectively make use of

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\*\*Director Rehabilitation, Nova Scotia Tuberculosis Association.



all these other services that are at his disposal. Those who are in the field as rehabilitation officers, counsellors, or supervisors will find that the degree of success attained in their programmes, over and above what would have been attained without their influence, will depend to a very great extent upon their ability to understand and mould personality. Somehow, these patients lacking in personal resources must be imbued with purpose, initiative, determination and ambition—in the widest sense, the will to be rehabilitated.

Now, let us leave the theoretical and turn to the practical aspects of the problem. I would like to tell you something of the available facilities—personnel, space and equipment, of finances and of co-operating institutions.

In 1949 the Nova Scotia Tuberculosis Association appointed a director of rehabilitation to develop a programme of rehabilitation for all tuberculous persons, other than veterans, in the province. Within a year this was followed by action of the part of the Department of Health to place a rehabilitation supervisor in each of the four major treatment centres, and, since 1953, there have been five, located at the Nova Scotia Sanatorium in Kentville, Point Edward Hospital in Sydney, Roseway Hospital in Shelburne, the Halifax Tuberculosis Hospital, and the Cape Breton County tuberculosis units. The scope of their activities is indicated by this quotation from the original advertisement:

“Under the direction of The Director of Rehabilitation for Nova Scotia to organize and/or co-ordinate, supervise and actively participate in a programme of rehabilitation in a sanatorium. The field of activity to include all or any of those noted below as determined by the local situation; education, social service, guidance, vocational exploration, occupational therapy, recreation, job placement, and referral to other agencies. To be responsible in all matters of a disciplinary nature to the superintendent of the hospital in which he works.”

Each supervisor may have full-time or part-time assistances as required. To date, only the supervisor at the Sanatorium in Kentville has employed full-time staff; he has working with him an occupational therapist, two teachers, two craft workers and some others.

Rehabilitation workshops have been established by all supervisors. All are equipped to provide instruction in academic and commercial studies and in light carpentry and handcrafts. Three are equipped to teach radio repair and two to teach watch repairing.

Follow-up, on discharge, is provided by each supervisor in his immediate area; otherwise this phase is undertaken by the Director.

The supervisors' programmes are financed through Federal Health Grants at a budgeted cost last year of \$35,000. The salary of the Director, his expenses, and some assistance to ex-patients is provided by the Nova Scotia Tuberculosis Association and affiliated organizations.

Of utmost importance in the provision of necessary training and retraining of ex-patients has been the contribution of The Industrial Training Division of the Department of Labor working under the terms of the Vocational Training Co-ordination Act. Mention should also be made of the assistance given by the Correspondence Study Branch and the two vocational schools



of the Department of Education. The special placement officers of The National Employment Service have shown a willingness to co-operate to the fullest degree in finding suitable employment for tuberculous persons; although their usefulness is limited, there are as conscious of these limitations as are we.

The three greatest needs as I see them at the present are these: A greater variety of training opportunities at no cost to the trainee; work under sheltered conditions for those who cannot compete on the open labor market; and an allowance for certain persons who at present do not qualify for any form of financial assistance.

Schedule R to the Vocational Training Coordination Act, when implemented, will help to supply the first need. The pensions for disabled persons, already provided for but not yet in pay, will be a step in the right direction but a very short step if my information concerning the stringency of the qualifications is correct. It had been our hope that the benefits available to the general population would at least have approximated those available to disabled veterans.

For a relatively small number of ex-patients who can never hope to hold a job if they must compete with the able bodied and who cannot qualify for pension or other form of assistance, there remains the unmet need for sheltered employment of some type where they may earn as they are able. I cannot consider that our programme is complete until this need is met.

### Rehabilitation of the Arthritic Patient

J. F. L. Woodbury, M.D.\*

Originally, I was asked to speak to this gathering about facilities available for the rehabilitation of patients with rheumatic diseases. If I were to confine this talk to the subject suggested it would be over almost before it started. In Nova Scotia, very few years ago, we had in our civilian hospitals only one or two physiotherapists, and although a few doctors were intensely interested in the problem of rheumatic diseases, they faced a great handicap in attempting to treat patients without the team-work that is essential between doctor, nurse, physiotherapist, orthopaedic surgeon and others. The problem of developing this team-work is but slightly less acute now, and nowhere is it more needed than in those crippled patients who require physical and vocational rehabilitation.

In 1950 the Nova Scotia Division of the Canadian Arthritis and Rheumatism Society (C.A.R.S.) was formed, and since that time various steps forward have been taken, both by that organization and the Provincial Government. The Physiotherapy Department of the Victoria General Hospital has been enlarged, and additional physiotherapists are now employed there. The Out-patient Department of the hospital has been broadened to include a clinic specializing in the care of patients with rheumatic disease. The military services and the Department of Veterans' Affairs operate hospitals with

\*Medical Director, The Canadian Arthritis and Rheumatism Society.



well-staffed Physiotherapy Departments. The Nova Scotia Division of the C.A.R.S. has two Mobile Physiotherapy Units operating, one in Halifax and one in Dartmouth. In these centres the patient can be treated by his family physician using the Society's Mobile Units to carry the treatment to the patient's home. The C.A.R.S. has contributed to the training of a specialist in rheumatic diseases.

In Halifax, the personnel of the team required for rehabilitation is largely present, and we look forward to the centralization of facilities which would allow closer co-operation between its members.

The rheumatic diseases constitute a group of conditions which have in common a chronic course, with pain and stiffness in muscles and joints. A wide range of diseases is represented from so-called "fibrositis," which is painful but not crippling, through the metabolic disease gout, and the chronic systemic and joint inflammation rheumatoid arthritis, to degenerative joint disease which has been represented as an acceleration of the normal aging of joints.

Research in this field is in its infancy. Negligible in Canada in 1947, it has received a great stimulus from the C.A.R.S. with Federal Government assistance; as a result of which thirteen or more University Departments study problems related to rheumatism.

Degenerative joint disease rarely presents a great rehabilitation problem, since the more disabling forms are fairly successfully treated surgically.

We hope that the application of standard measures of treatment for gout, employing newer drugs to increase the elimination of uric acid, may bring this disease under control. If this can be done, chronic, deforming gouty arthritis may become a rarity in the future.

The greatercrippler is rheumatoid arthritis, of which the cause is not known. The disease usually follows a course of remissions and exacerbations, which complicates rehabilitation by adding the problem of recurrent or chronic disease. There is an acute need for hospital beds set aside for the treatment of chronic illness. When these beds are available, the patient with advanced rheumatoid arthritis will have a better chance of becoming rehabilitated. It has been inadequately emphasized in teaching that best results are obtained in rheumatoid arthritis with a programme of rest, balanced by therapeutic exercises to prevent the development of deformity, loss of range of movement of joints, and wasting of muscles around inflamed joints during the active phases of the disease. Gold salts, cortisone, phenylbutazone and other drug treatments should take second place to this rest cure.

We look back with some measure of pride at some of the work that has been accomplished in the rehabilitation of chronic rheumatoid cripples in Nova Scotia in the last year or two. There have been several patients in whom control of the disease has been attained by the rest exercise programme, following which deformities of the knee joints have been corrected by serial manipulations under anaesthetic, followed in each case by the application of plaster casts. Later, re-training in walking has restored the patients to useful activity.

In a case with severe rheumatoid disease of the spine, the patient was greatly wasted, ill and in pain. He requested the Canadian Arthritis and



Rheumatism Society to consider supplying him with a neck brace to supplement the back brace he was then wearing. He was admitted to hospital, treated with deep X-ray therapy to relieve his pain, and followed up in the Arthritis Clinic of the Out-patient Department of the Victoria General Hospital. He obtained increased rest after that, and over the next month or so became relatively free of pain and able to consider employment again. A satisfactory position was found for this man through the agency of a generous volunteer Rehabilitation Officer, and he has worked steadily since then. He no longer wears a brace for either neck or back.

In the field of rehabilitation of the arthritic there are various principles which must be kept in mind. First is diagnosis, which is rather often faulty in this group of conditions. The second is an accurate estimate of the course the patient's disease is taking at the time rehabilitation is considered. Then one must measure the patient's present accomplishments; and through measurements of his psychic, social and functional capacities, determine what future accomplishments may be expected. The vocational history must be considered. In some cases, the problem may be solved by simply changing the patient's job; in others the patient may require hospitalization and intensive treatment, utilizing team work between the internist, the physical medicine department, the orthopaedic department, the psychiatric department, a vocational guidance expert, and finally vocational training, job placement and follow-up on the job.

The goal we set for ourselves and the patient depends in part upon what his joints will tolerate, and this cannot be decided by clinical examination nor by X-ray. One must see how the patient reacts to a given amount of exertion, stress or work. To permit a patient to walk on a knee which cannot be fully straightened, is to condone a course of action which is apt to lead to greater and greater deformity, and eventual inability to carry weight on the lower limbs. Deformities which can be corrected should be corrected.

The advent of potent drugs which reduce the amount of pain, and sometimes the amount of inflammation, such as cortisone and phenylbutazone, has somewhat increased the potentialities for rehabilitation. It often seems that if the patient can be given a clear view of the possibility of great improvement, by demonstrating that his pain and swelling can be controlled by cortisone, the way is paved for his disease to show spontaneous improvement.

Suddenly to wave the carrot of a return to a more normal and independent existence, before the nose of a chronically ill patient who has gradually surrendered his self-sufficiency, is to produce an emotional shock of almost equivalent force to that received by a previously active person who through sudden accident or illness finds himself almost completely paralysed. It is therefore extremely difficult to estimate the strength of motivation of a sick and depressed invalid. It is most necessary that the patient should know what one is attempting to attain with treatment measured.

It is often necessary, though it should be done as little as is consistent with the patient's welfare, to devise special implements with which the patient can carry out activities which formerly were impossible because of impaired joint function. Sometimes a special wheel chair has to be made to fit the



buttocks of the spondylitic who is unable to bend his hips sufficiently to sit on a standard seat. Chairs may need to be made higher than usual, and toilet seats may need to be raised or special frames placed over them. Longhanded combs and shoe-horns are examples of other types of gadget most helpful to badly crippled patients. Sometimes one has to decide whether to straighten a patient's knees and restore him to walking, only to have him unable to sit down, or whether to advise the patient to accept permanent wheel-chair life.

Our primary need in Nova Scotia is for a place where the general practitioner can bring his patients and sit down with the internist, the physical medicine specialist, the orthopaedist, the neuro-surgeon, the psychiatrist and perhaps others, and work out a programme which can be carried out in that centre by these physicians, as well as by physiotherapists, occupational therapists, vocational guidance experts, vocational training instructors and rehabilitation officers.

We need such a rehabilitation centre to serve a wide variety of handicapped persons. The tuberculous or cardiac patient could benefit from the vocational and psychological services. The orthopaedic group of conditions would benefit in some cases from the whole potential of the centre, in others from sections of its facilities; for example, the physical, the psychological, the sociological, the vocational or combinations of these. In many cases, such a programme would be economically profitable to the Government by turning dependents into taxpayers. In many others, the patient would receive priceless restoration of his self-respect, dignity and independence, for which those of us who enjoy these fundamental rights should be more than willing to help to pay.

### **Rehabilitation of the Poliomyelitis Patient**

Osra Beauchamp Morton, M.C.S.P., C.P.A.\*

The facilities existing in the Province of Nova Scotia at the moment for rehabilitation of poliomyelitis cases are fairly comprehensive.

The early convalescent patient is handled in the Polio Clinic in Halifax. There is a new Physiotherapy Department and a qualified physiotherapist working full time as from June last. I myself work in the Clinic during the winter months until the provincial back roads are passable. It is then that I travel throughout the province giving what advice I can to the discharged cases in their own homes.

When a patient is discharged home from the Clinic, we always like to have him back for check-ups over a two year period at a minimum. Out-patient clinics for all are held on Friday afternoons and also on Monday mornings, the latter being exclusively for orthopaedic cases. The clinics are very well attended, and the financial cost of travelling to and from them is borne by the March of Dimes Fund, wherever necessary.

Those poliomyelitis cases requiring rehabilitation into the outside world are referred by the Medical Committee to the March of Dimes Rehabilitation

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\*Travelling Physiotherapist.



Committee. This body undertakes the directing of the individual into a Vocational Training School, where necessary, and then, when that is completed, assists him through March of Dimes funds to set up a business of his own, or undertakes to search for suitable employment in accordance with his limitations. This arrangement has proved very satisfactory in that many apparently hopeless cases have been placed in jobs throughout the province.

I know to-day the focus of interest lies in the possible establishment of a Rehabilitation Centre. I would like to bring to your notice something of my experience as a physiotherapist in dealing with work done in such places. I do realize that Rehabilitation Centres fulfil a very important necessity and far be it from me to decry them, but there are certain, very grave, and I repeat very grave, dangers attached to such establishments, that in one's anxiety to help those handicapped, are inclined to be overlooked by the staff, and are, worse still, completely unperceived by the patient.

The Rehabilitation Centre (as I understand it) is an institution where a patient should learn to help himself. Too often, I'm afraid, they are inclined to become a place where the patient is occupied from dawn to dusk learning tricks from others, and attending a series of set classes. In these, he learns multitudes of muscle building exercises which, incidentally, he forgets when he leaves. He is not to blame if that is what he is taught and shown to be the correct things to do. In a Rehabilitation Centre, he should learn to develop his own ingenuity, learn to work unsupervised, and be prompted and encouraged to think up his own methods to face and overcome his limitations.

Far too often, I'm afraid, a Rehabilitation Centre tends to become a sort of human dump where the empty headed are goaded to move by the staff; in other words, where the patient receives help all the time, anticipates it, and never dreams of exerting himself more than just enough to "get by!"

This is exhausting, hopeless, and unrewarding work, especially for the Physiotherapy Staff. And I might here advise you who are present to-day; that if you find yourselves getting a rapid turn-over of this personnel, then it is time to review the type of humanity your institute is handling. You may find that your patients have very mistaken ideas on the purpose of their being in it.

Another great factor is covering up this essential aim of a Rehabilitation Centre; namely, teaching a patient to help himself, is the other misdirected kindness of surrounding him with an enormous amount of "helpful" apparatus. In my particular experience, those cases most anxious to get better (that is the tragedy of it) will grasp after, and cling to, every artificial gadget available, the physiological picture being established in their brains that all these things are necessary, or rather essential, to their progress. These people can become like hot house plants. They are able only to live in an artificial environment such as a Rehabilitation Centre can so easily become; a place where toilets are built for wheel-chair convenience; elevators and wide stairs especially constructed and so forth. Do not misunderstand me, I do not wish to imply that such things are unnecessary, but the danger is that the patient becomes complacently adapted to living in such a Centre and is not really able to grapple with the problems facing him in his own home standard, such as outside sanitation, narrow pokey stairs and the like.



I submit that IF a Rehabilitation Centre can be "keyed up" to teach a patient to look upon such problems as these present, not with defeatism, but as a challenge to himself, to his own wit and ingenuity THEN he has learned an invaluable lesson.

It is an extraordinary fact that a patient who grasps this fundamental, of seeing his limitations as a challenge to himself, usually requires little or no artificial physiotherapy equipment.

As an illustration, I have seen a man with two artificial legs, standing at the bottom of his bed, swaying for hours on end daily, from leg to leg in time to radio music. His ambition was to ballroom dance. He did it, but it took him two to three months of steady, unsupervised work.

So let me, before this conference is opened for general discussion on rehabilitation and poliomyelitis, just say in conclusion:

Set up a Rehabilitation Centre with the view to *forcing* upon the patients the truth; that they are not in the establishment to be aided continually, but to develop their determination to help themselves.

This policy applies particularly, I believe, to poliomyelitis cases, and is, in fact, the secret of any success in dealing with them.

### Rehabilitation of the Cerebral Palsy Patient

Margaret Pirie\*

I have been asked to speak about cerebral palsied children and the classroom of which I am the teacher. I may seem presumptuous to speak to doctors and nurses about cerebral palsied children, but since most of the professional people with whom I have been speaking say they know very little about this condition, I feel we are on just about an equal footing for I realize my knowledge concerning it is limited, too.

In September, 1952, the Halifax Board of School Commissioners opened a classroom for cerebral palsied children in the St. Francis School. This was brought about when parents of these children joined together to form the Halifax Cerebral Palsy Association and to request educational facilities for their children. Their right was twofold—if the children were educable but unable to attend a normal class, why should they be deprived of a chance to be educated—and these parents paid taxes for education so why should their child be deprived of an opportunity for training. This was the first class east of Montreal. Since 1952, Saint John, Moncton, Charlottetown and Fredericton have had leanings toward school facilities for these children. I am not positive, but I believe their teachers are paid by private organizations, not the School Boards.

Our class started out with five pupils and has since grown to eight. Ten is an average class. The children are of various types, spastic, athetoid, ataxic, rigid. There are none with tremors as yet. Their handicaps vary—some walk, some do not; some have good use of their hands, others do not; all have speech defects—one has no speech at all. Some can toilet themselves, others cannot, and some have learned to toilet themselves but toilet facilities are so poor it is almost a physical impossibility to train them.

\*Teacher, Special class for cerebral palsy patients, Halifax.



The children are transported to school each day by the Walter Callow Bus. This bus has wheelchairs which provide safe seating for the children who can be strapped in. The service is provided by the Walter Callow organization plus a grant from the Rotary Club of Halifax to help defray expenses. Without this transportation, the school could not function.

The classroom is equipped fairly well. We have parallel bars, steps, a weighted doll carriage for walking, a sand table, typewriter, radio, gramophone and therapeutic toys and puzzles which provide as much physiotherapy as I am able to give, not being a trained therapist.

The children have special attention given to their speech; speech games and singing, or anything to provide opportunity for normal sentence speaking.

Besides all the therapy, the children must be taught academically. Reading is stressed but also taught are arithmetic, printing, nature lessons, geography, history, art, music. All these are taught at their own level and at their own speed. It is like having eight different grades, each child being an individual.

The method of teaching these children depends entirely upon the teacher. From my two summers at Columbia Teachers' College, methods of training were not acquired for the simple reason each teacher must work out just whatever method suits herself and the child involved. It took a period of two weeks to train these children to pick up and hold a pencil properly. A single mark on a paper was another week's training and an X was quite an accomplishment. Every normal action a child performs automatically needs to be trained in these children, and this training must be kept up until the age of 16 to 19 when patterns have been formed to provide means of accomplishment.

In a cerebral palsied child physically handicapped but mentally alert, many frustrations and discouragements result. One child who has great difficulty with his hands often used to say "I hate my hands. Aren't they ugly?" Now, because he can control them to some extent, he has become interested in making them do just as he wishes them to up to a point. He often wishes he could do as well as the younger children in the class, but comforts himself with the thought that he can read better or can type. Finding something each one can do and capitalizing on it is one way in which I can approach these children in a positive way. Anything negative creates setbacks too great to be overcome very easily. Never do I touch their work without first asking their permission, especially in art. A corrective line or two done without permission may cause an attack of frustration which destroys much more than was accomplished from the lesson up to this point. However, if permission is asked it is usually accepted with good grace, but should any slight refusal be given, other good parts of the drawing are praised.

Many psychologists tell us that these children should be treated first as children and secondly as children with a handicap. They have the same desires and wants as normal children. They have the same tempers and are much more spoiled or much more rejected than normal children and they require love and understanding from the most important people in their lives; mother, father, peers, teachers, and so on as their sphere of life enlarges. A classroom such as we have gives us an opportunity to exercise this normalcy.



# Dame Virus Polio—A Dual Date

John E. Campbell  
Halifax, N. S.

It did not do me much good to be told that according to the laws of chance, statistics and immunity, if you got polio once, you would not likely get it again. However, I could tell people not to worry about polio during the Nova Scotia epidemic of 1951—I had had polio in 1949—I was a cured case. I was a pseudo-authority on the subject. While others would not swim in the North West Arm through the “polio scare period” I had nothing to worry about and I swam freely. I quickly passed out bland, authoritative thoughts about polio hysteria. Thus it was quite a shock when “the great God Brown” caught polio for a second time in the summer of 1952.

Just before I go any further in this reminiscence let us get the time straight. The two dates were separated by three years (1949-1952) to the month (July) and to the day (29th).

During the summer of 1949 I was working with a Highway Construction Company in and around Digby. In the spring of that year I had completed my third year of an Arts Course at St. Mary's University. Returning one week-end to Halifax, I was fast developing the signs of polio. Monday I was in hospital rather than back in Digby. At first involvement seemed to be restricted to head and neck only. My neck was stiff, I could not speak above a whisper and I could not swallow solid food. I don't think I could lift up my head. This condition seemed to progress for a few days, came to a certain point and then subsided. At all times I could swallow fluids. There was a question of diagnosis—but bulbar polio was finally agreed upon.

As the head and neck symptoms subsided, spasms and “queer” happenings started to take place in my right leg. It soon became apparent that the anterior horn cells to the leg region were in for a little battle. Strangely, I think, most of the involvement was on the right side. There was very marked atrophy of the right leg and my right foot became inverted and plantar-flexed. The left leg was only slightly affected, if at all.

I spent a little over four months in the Victoria General Hospital and Polio Clinic at Halifax, and the biggest thing was to get that inverted foot straightened “out” and the plantar-flexed foot “up.” Fortunately it was able to be straightened to a right angle—this allowed for practically normal walking. As walking increased, so the leg and foot strengthened and grew until a few years later when I caught the virus again, both legs were of equal strength.

As a result of the first polio scuffle, a year of schooling was lost. So I decided I had better try to make up for the lost time. Through an agreement with Dalhousie and St. Mary's I took three senior courses at St. Mary's and my first year pre-medical sciences at Dalhousie at the same time. This worked out pretty well except for certain times of the week when for example I had Chemistry at Dalhousie and English at St. Mary's at the same hour of the day. At the end of the year I got a B.A. The



following year I completed my Pre-medical Sciences at Dalhousie. I had received the good news of acceptance in Dalhousie Medical School on Scholarship and was very happily working with the National Research Council during the summer, when Dame Virus Polio came along, tapped on my shoulder and said: "Excuse me—but we have a date!"

In contrast with the first attack, there was suddenness of signs and symptoms. The first signs and the critical condition were on the same day, Tuesday, July 29. In retrospect, however, it is easy to fit in other evidence. As I look back I remember that the Friday before, the muscles of my right leg were twitching and contracting as if they were "going to go into spasm and wouldn't." Spasms of the right leg muscles had been fairly common all along—but this was a feeling that they were about to contract but would not quite make it. This was taking place while I was walking along the street and it was rather a funny picture, since each time these fibrillations started, I would stop, grab my leg and push my heel back into my buttock. I must repeat that at the time I thought nothing of this. That week-end was a beautiful hot one, and I spent the time swimming, canoeing and lazing in the sun—absolutely no symptoms!

Tuesday morning I awoke with one "heck" of a sore neck. As I walked to work I began to wonder in what kind of a queer position I had been sleeping, in order to give me such a strained neck. After an hour's work instead of the stiffness going away as I had expected, it became much worse and I became very weak. As I started out for home I seriously wondered if I could "make it." I "packed off" to bed and the medical examinations soon started. That afternoon I was taken by ambulance to the Infectious Disease Hospital. The next morning I was quickly transferred to the Polio Clinic, since (so I am told) my intercostal muscles and diaphragm were "going fast." For the next day and a half, day and night hot packs (compresses) were slapped on my chest and back regularly every half hour. Now this is a point that has often made me think since then. Although I could not see clearly, I knew they were putting packs on my chest. Having had polio before you would think that I at least knew that hot packs were the treatment for early polio. But at no time during this period did I have any idea that I was having respiratory muscle trouble. I felt like "blazes"—weak and in pain—but had no conception of what was really the source of my trouble. Even when an ambitious interne suggested that I go in an iron lung for a few hours I apparently replied with what only a sick patient can "get away with." I still had no conception that I was having trouble breathing—yet I still sort of knew what was going on around me. This apparently was followed by a period of delirium. For example, I thought I could hear the nurses' voices in fast repeated succession tempting me to jump out of bed. As I would attempt to jump out, they would push me back in and then start tempting me again. Then there was a complete void and the next thing I knew I was in an iron lung.

What does it feel like to open your eyes and find that you are in an iron lung? Do you resist? Do you get excited? Does the eerie "swishing" of the bellows make you nervous? Well, to tell you the truth, when my



eyes flopped open and I discovered myself in an iron lung, I could not have cared less! I let my eyes flop closed again.

The battle was now on. Days and nights the same. Never any sleep, unable to read (my eyes could not focus), unable to concentrate (the radio would be turned on to say a ball game—I would think that I was listening to it, but in an hour's time I would not even know who was playing, let alone the score), and muscle pains in the back and legs. It is interesting to note here that, in my chest and arms, where the most damage was done, I had no pain. I can still see those patient night nurses reaching through the port holes of the lung to move the cushions under my buttock up a bit, or down a bit, now back to the first position, all in an effort to relieve my muscle pain—all to no avail, as they so well knew.

But even under these seemingly miserable circumstances there can be moments of funny incidents. You might call this incident "fear is fun." I had an intense fear that some nurse would leave one of the port holes open and therefore leave me in distress. Now when an iron lung breathes for you—you have no say whatsoever when you wish to speak. You speak when the lung breathes out and then have to wait until it breathes out again for you, before you can finish what you are attempting to say. With one of the port holes open I could barely get out one word. Now from time to time as I would have a particular feeling of distress or difficulty, of course the first thing I would think of would be an open port hole. Not being a sailor I called the port holes, windows. Thus as soon as I started gasping "Windows, Windows," the nurse would rush to put down the windows in the room and leave me to "stew" more.

After about ten days the tide started to turn. I began to get a few hours sleep each night and to breathe about three minutes per day on my own. Each day I would try to do as good or break the grand record of the day before—three minutes, then five minutes next day, eight minutes and so on. The tension, excitement and seconds would be long during these trial periods. The now familiar rhythmic swish of the lung would be silenced and I would have the attending nurse announce each minute that I breathed on my own—one minute—two minutes—three minutes, as encouragement to try just a little longer. The days rolled by and the minutes that I could stay out of the lung rolled into hours, until finally I could "stay out" all day long. Then came the battle to stay out at night. Sleep was out of the question—since breathing was such a conscious effort. I could not possibly doze off. Moreover the lung was now becoming more of a temptation. I could stay out all night, but if I did I would not sleep and would have to go back in, exhausted, the next day. When you are lying awake in bed at 2 a.m. in the morning and you know that if you are put back in the lung you will be asleep in two minutes, there is quite a temptation to let the mechanical lung do the work for you and go to sleep. Gradually, however, I would stay out one night, in the next, then out two nights, in the next and finally out three nights, and in the fourth night. October the 5th, 1952, I spent my last night in an iron lung. September the 15th I spent my first full day and night out of the lung and as the Medical Director of



the Clinic said that happy Sunday morning—"You'll never forget this date, John, it will be a milestone in your life." I had been put in the lung August the 1st.

Now that the skin and bones (it was estimated that I weighed in the high seventies at this stage) could breathe by himself—the big thing was to get on my feet. Active and passive exercises in bed were increased but were of course limited by my extreme weakness and exhaustion. It was not all forward progress either as complications of kidney stones and days and days of vomiting set in.

My legs were coming along fine. I could move them quite freely in bed and would be stood up on them daily (with the aid of four people). I would lie in bed and say—"To-morrow when you people stand me up I am going to move my legs and walk. Why shouldn't I? I can move them freely in bed and I have a good concept in my head as to how you walk." The therapist would quickly say—"No, you won't, not to-morrow,"—and she would turn out to be correct; try as I did to prove her wrong.

I had set as my goal to spend Christmas Day at home. To oblige my high hope I was taken home Christmas Day, but it was an unsuccessful venture and I was quickly returned to the Clinic.

If my Christmas plans were disastrous, it was only to draw contrast to the great successes of the New Year. For then I showed steady progress—never dramatic, never sudden, never amazing, but always a daily visible improvement in strength and accomplishment. Believe me this was the greatest encouragement. I tipped the scales at eighty-five pounds on first weighing and increased a steady 1.5 to 2 pounds per week.

At this point I would like to make a few comments about breathing exercises. During the lying in bed stage, a therapist would say, "O.K., now John, let's see you take a deep breath." I would do my best, and she would say "Good." But do you know that I could not tell you whether I was trying or not. Strange as it may seem, I did not have a concept in my mind as to how a normal (or otherwise) person goes about taking a deep breath. I did not have the "feel of it," so to speak. Watching a practical demonstration by a therapist did not seem to help either. Gradually by picturing a wave sweeping into shore, up over the diaphragm and into the chest, I could sort of get the feel of how you go about attempting to take a deep breath. Once I could get the feel of it—I knew *then* whether or not I was trying my hardest. But before this it was sort of a void. Another quirk of mind was my expansion of the chest. I would call someone over and say—"Watch my great chest expansion." "Wonderful, wonderful," they would say. I was told later that all I used to do was arch my back.

When I was on my feet, as breathing exercises to improve my vital capacity, and also the smoothness and strength of speech, I used to read poetry—aloud. I would scuffle down to a vacant ward, in my mechanical walker, hold up the poetry book and see how many words, then lines, I could get out in one breath. At first I could only bellow out one line, then I could



follow to the punctuation mark and finally it was a real achievement when I could get all this out at once:

“The curfew tolls the knell of parting day,  
The lowly herd wind slowly o’er the lea;  
The ploughman homeward plods his weary way  
And leaves the world to darkness and to me.”

I went through quite a few books of poetry and visitors to the Clinic during this recital period must often have wondered, upon hearing this monotonous mumble, if by mistake they had entered a monastery.

Weeks went by and accomplishments piled up—able to get out of bed on my own steam—able to get up from a chair on my own—able to get off a toilet seat by myself and so on. Until I conquered this last mentioned problem, there were many frustrating moments. I could flop down on the seat on my own, but could not get up. As my voice was not very strong I could not hail anyone if they were any distance away. Thus I would sit and stew until someone would find me.

In May I had become so well that I was becoming extremely irritated by everything and everybody around the Clinic. Thus I went home. However, I religiously kept up my routine of exercises and used to return daily to the hospital for therapy. The only difference was that now I was living at home instead of at the Clinic. Our house is about five blocks from the hospital. At first the exercise of walking that far took my total capacity—so much so that if I met someone I knew on the street, I would have to stop them, stand for a minute to get my breath and then speak. This, however, soon improved with practice. During the summer months I got a place reserved for myself on the fall class list to enter Medical School. I used the word reserved because there were grave doubts expressed by the doctors and all parties concerned as to whether I would be able to do it or not. I also harboured such thoughts, but kept them to myself and outwardly proclaimed that I would like to try it.

Thus thirteen months after that second date with Dame Virus Polio, I stood in the registration line up for first year medicine. I can say freely now that after that first week in Medical School I decided to stop. I talked it over with a few friends that week-end and they agreed one hundred per cent that I should drop out of the class. However, man is proud and those of Scottish descent are prouder. I still wanted some little item or crisis that I could point to and say—“That is the reason why I quit.” That little item or crisis did not happen the next week, so I continued on and began to take things in my stride. By the end of that month I was convinced I had not made a mistake and was happily absorbed in the study of medicine.

During the Christmas holidays, through the courtesy of the Nova Scotia Chapter of the Canadian March of Dimes, I was sent to the Institute of Physical Medicine and Rehabilitation in New York for an evaluation. It was felt by then, that considering the involvement of the case I had come along very satisfactorily. However, they did feel that a surgical tendon transplant could possibly help the function of my right hand. I re-



turned to Halifax to complete the Medical School year and following the May examinations I went to New York for the operation.

Perhaps I had better briefly describe my right hand. I have no thenar eminence. The three muscles (abductor pollicis brevis, flexor pollicis brevis and opponens pollicis) are completely atrophied. The abductor pollicis is present but very weak. The lumbricales and interossei, if present, are very weak. The tendon of the abductor pollicis longus can be palpated but is functionless as far as movement is concerned. The rest of the hand muscles are present and fairly strong—the extensors being weaker than the flexors. With this amount of loss what could I do with my hand? I could squeeze a fist but without the participation of my thumb. I could not do any act which involved the thumb in opposition to the fingers. As I so well found out, this movement is involved in most of our fine hand movements of daily life picking up a pencil, or reaching into your pocket for a ten cent piece. I developed a fair skill at picking up things between the index and middle finger, but this is at best awkward. Just what could I do with my thumb? I could flex the interphalangeal joint (flexor pollicis longus) and by so doing pull the thumb across the palmar surface of my hand. I could extend my thumb quite strongly.

The idea of the tendon transplant was to give me some sort of opposition of the thumb to the fingers. The operation consisted of taking the superficial flexor of the ring finger and reinserting it into my thumb in the region of the metacarpal and phalangeal joint in such a manner that when the muscle contracted my thumb would be abducted and rotated in an ulnar direction. Flexor digitorum sublimis of the ring finger was freed from the insertion, pulled back through the hand, wrapped around the ulnar wrist flexor (flexor carpi ulnaris) as a pulley, run subcutaneously across the thenar area and inserted into the head of thumb metacarpal bone.

For the first three weeks following the operation the hand and wrist were set in a plaster cast in the flexed position to allow for healing. The fourth week the cast was off, and just passive movements were allowed. I was "to play with it"—but that was all. The fifth week range of movement exercises were started. The sixth week it was given "the works"—hydro, physio and occupational therapy. I would like to interject here that I was amazed at what three weeks immobilization of joints can do to them. I could not move any of my hand or wrist joints in any direction.

Through weeks of intensive therapy and continual playing with it I got the desired movement and the range improved. The net result of the operation is that I now can abduct my thumb and then from the abducted position, by flexing the flexor pollicis longus I can get opposition to the four fingers. This enables me to perform many free hand movements that were impossible before. As an example writing. Before the operation my thumb was of no use in holding a pen or trying to write. I had learned to write quite well by holding the pen between the index and third fingers. But I could not get too much control, speed or ease of writing, by this method. Now I can hold the pen with my thumb and two fingers and write as freely and easily as I ever could.



An interesting question was asked me by several different doctors who examined my hand after it was presented at clinics in New York. In trying to move my thumb in the desired movement did I concentrate on flexing the finger from which the tendon came? Did I have to flex my ring finger in order to get the new movement of my thumb? My answer was that I never thought about flexing the finger. I knew the movement I was to try to get in the thumb and concentrated on moving it. The first few days when I tried to move the thumb, I noticed that the ring finger would give a little flicker towards flexion, but in two days there was none of this. The movement was pure and isolated.

In concluding these reminiscences I will pose a question to myself. What do I think was the biggest hurdle to master in the bout with polio? Thinking it over for a few moments, I would say freeing myself from dependence upon the iron lung. There comes a time when it is so comfortable for the iron lung to do the work for you that you have to fight to free yourself from it.

## NOTICE

**Applications are invited for the post of full-time secretary for the Nova Scotia Division of The Canadian Medical Association. Those interested should address communications, stating qualifications and experience, to -**

**The Chairman,  
Secretary Selection Committee,  
The Medical Society of Nova Scotia,  
Dalhousie Public Health Clinic,  
University Avenue,  
Halifax, N. S.**

# Department Of Public Health

## Venereal Disease Examination and Treatment Programme

Very shortly it is proposed to institute a new Venereal Disease Examination and Treatment Programme in Nova Scotia. Releases will be sent to all physicians in the province concerning this programme. At the same time the recommended schedule for treatment of syphilis will be sent to physicians. One of the features of the new programme is the institution of a plan for fee-for-service for the treatment of cases of syphilis who are unable to pay for such treatment.

The statement issued by the Department of Public Health concerning this programme follows:

### Syphilis

The Department of Public Health hereafter shall pay the physician treating a case of syphilis, certified by the physician as being unable to pay for such treatment, a fee for service subject to the following conditions and according to the following schedule:

Original physical examination plus blood test	\$5.00
Lumbar puncture	5.00
Follow-up bloods (maximum of 12) each	2.00
Smears (Cervical and Urethral)	2.00
Darkfield examination	5.00
Injection of penicillin	2.00

### Conditions:

1. The case must be officially reported to the Department of Health, Provincial Building, Halifax, using the NH 1 form.
2. The request for penicillin (which will be supplied free) is to be made out on V.D. Form No. 35. It must be signed by the physician stating that the drug provided will be used only on the named case. The request for penicillin may then be approved by the Divisional Medical Health Officer and sent to the Central Office in Halifax.
3. The Divisional Medical Health Officer must approve the application on the basis that treatment is indicated.
4. Sufficient laboratory information must be available to confirm the diagnosis, for example:

Early Syphilis	—Darkfield Test Positive, or Chancre and 1 Positive blood test or 2 Positive blood tests
Latent Syphilis	—2 Positive blood tests
Congenital Syphilis	— <i>Newborn up to three months:</i> clinical evidence plus a positive blood test; <i>Others</i> —2 Positive blood tests at intervals of one



Neuro-Syphilis  
Gumma

month with a stationary or rising titre.

- 2 Positive spinal fluids
- 2 Positive bloods plus clinical evidence.

5. The patient must be examined, treated and receive follow-up tests in accordance with the enclosed schedule. Cervical and urethral smears must be taken at the time of the first examination in addition to blood tests.
6. Payment of accounts shall be made up to but not over three months after the completion of treatment.
7. There must be no charge to the patient by the doctor for examination or treatment.
8. The doctor's account must be submitted to the Divisional Medical Health Officer on V.D. Form 33 which must be completed before payment can be made. This form is to be checked and passed on to the Central Office in Halifax for payment.
9. No fee is allowed for the treatment of a case of syphilis residing in Halifax City. Patients residing in the City of Halifax who are unable to pay for treatment may attend the Halifax City Clinic which will remain in operation.
10. The Department of Public Health will cease to operate its Venereal Disease Clinics throughout the Province, with the exception of those in the City of Halifax.

Penicillin will be supplied free to physicians anywhere in the Province for their patients with syphilis *who are able to pay for their treatment* subject to conditions number 1 to 5.

### Gonorrhoea

Penicillin will be provided free to physicians anywhere in the Province for the treatment of those patients with gonorrhoea who are unable to pay for their treatment on the recommendation of the Divisional Medical Health Officer or the Halifax City Commissioner of Health. In the City of Halifax patients may have treatment free at the Halifax Venereal Disease Clinic at the discretion of the attending physician.

All such cases of gonorrhoea for whom free penicillin has been requested must be reported on the NH 1 form. Application for penicillin shall be made on V.D. Form No. 35.

### Contacts of Cases of Venereal Disease

The examination of contacts of cases of venereal disease residing outside of the City of Halifax will be paid for according to the aforementioned schedule of fees. Such individuals, however, must be referred to a physician in writing by the Divisional Medical Health Officer. In such cases, Conditions 6, 7, and 8

will apply in respect to accounts. In the City of Halifax contacts of cases of venereal disease will be examined free of charge at the Halifax Venereal Disease Clinic.

### Penicillin—how Supplied

Procaine Penicillin G. in Oil with 2% Aluminum Monostearate is still the recommended form in which to administer penicillin in the treatment of syphilis. It is supplied as follows:

1. 10.0 c.c. vials each containing 3,000,000 International units.
2. 1.0 c.c. cartridges each containing 300,000 International units for use with disposal plastic syringes, or as replacements for metal cartridge syringes.

Penicillin G. Potassium (Crystalline) is also supplied for us in those cases of congenital syphilis where it is recommended.

(Bismuth Subsalicylate is also supplied for certain cases of cardiovascular syphilis as recommended in the schedule of treatment).

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## ANNUAL MEETING

The Annual Meeting of The Medical Society of Nova Scotia will be held at the Fort Cumberland Hotel, Amherst, N. S. September 6th, 7th, 8th and 9th.

The Executive Committee meeting will be held September 6th and general sessions will be held on September 7th, 8th and 9th.

It is hoped that all members of The Medical Society will make plans to attend the meeting.



## Notes From Maritime Medical Care

Spring is a wonderful season. Everyone looks forward to it, and as the days get longer and warmer a good many of us begin to dream of secluded brooks and streams, of huge speckled trout and wary (or non-existent) salmon. Among, but not of the pleasant visions, strides a spectre—with outstretched hand—the Receiver General of Canada. This nebulous gentleman, to whom so many owe so much, puts a damper on things, at least until the returns are filed.

The annual scramble to assemble all legitimate deductions in acceptable form makes a lot of extra work in the case history department of Maritime Medical Care. Most of our subscribers require a statement of what has been paid to doctors on their behalf during the preceding year. This necessitates checking the history cards and totalling all payments—quite a task, with other business as usual.

Occasionally a subscriber expresses surprise at the size of payments which have been made to some doctors. He cannot see how our payment could amount to that figure when the doctor only made so many calls—and he has a pretty fair idea of the present fee schedule. So we find that the doctor has submitted his account in excess of the number of calls which the subscriber states he has made. Such an error could easily happen, of course, but if oft repeated it results in beautifully padded accounts, to the detriment of the participating physicians who are co-operating in every way with Maritime Medical Care.

The scale on which this larceny is being conducted has not yet been determined. Padding of accounts is difficult to prove. This fact has caused many accounts which might be regarded with suspicion to be passed for payment without question. It has also lulled our erring brothers into a false sense of security, for although difficult, proof is not impossible. As time goes on, an increasing body of evidence points towards the offender: confidence becomes suspicion; suspicion becomes fact, and fact warrants investigation. This could have extremely unpleasant results for some of those concerned. It is our intention to scrutinize some of these suspicious appearing accounts more closely than ever before—more will be said on this subject at a later date.

Not a very pleasant letter, but something which deserves some thought.

Yours truly,

G. B. Shaw, M.D.,  
Medical Director.

Maritime Medical Care Incorporated

## Personal Interest Notes

Miss Joan Hudson, Executive Secretary, Dalhousie Post-Graduate Committee, first prize winner of the Kellogg's Mystery Muffin Contest and her mother, Mrs. F. Carl Hudson of Halifax, left by air on March 13th for Florida. Miss Hudson's prize is a ten-day Florida vacation for herself and her mother. They will be guests at the Sunset Hotel, St. Petersburg. The contest was Canada-wide, and this prize, as well as an electric refrigerator and a sum of money, was awarded Miss Hudson for naming the Mystery Muffins.

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On February 20th, a panel discussion under the auspices "The People's School" was held at St. Francis Xavier Junior College Auditorium and broadcast over C.J.C.B. The subject was "Where are we in National Health Insurance?" Those taking part in the discussion included Doctor Harold J. Devereux, representing The Medical Society of Nova Scotia, Mr. Thomas MacLachlan, President of the U. M. W., District 26, and Mrs. Levi Desjardins, Editor, "The Maritime Co-Operator." Mr. Herman Timmons, Assistant Director, Adult Education, Province of Nova Scotia, acted as chairman.

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Doctor and Mrs. G. Ronald Forbes of Kentville left March 16th to spend a month's vacation at Daytona Beach, Florida.

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The Bulletin extends congratulations to Doctor and Mrs. L. R. Hirtle of Halifax on the birth of a son, Roy William Moyle, on January 3rd; to Doctor and Mrs. J. W. MacIntosh, Jr., of Halifax on the birth of a son, William Donald, on March 8th; to Doctor and Mrs. A. J. Shaw of Sydney on the birth of a daughter, Mary Kathleen, and to Doctor and Mrs. J. B. Tompkins of Glace Bay, on the birth of a daughter, Moira MacLaughlin.

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Flight Lieutenant David E. MacLeod, M.D., R.C.A.F. has been awarded the Queen's Commendation for Brave Conduct. He was commended for braving fierce flames and danger of explosions in trying to save the lives of two officers of a burning jet fighter at North Bay last September eighth. Flight Lieutenant MacLeod graduated from Dalhousie Medical School in 1954. He re-enlisted in the R.C.A.F. following graduation and has been medical officer at the R.C.A.F.'s North Bay station since last June.

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Doctor and Mrs. E. F. Ross of Halifax spent a two week's vacation in Bermuda recently.

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Doctors W. Alan Curry, J. A. Noble, E. F. Ross and J. Charman, all of Halifax, and Doctor S. A. Green of Glace Bay attended a sectional meeting of the American College of Surgeons at Providence, Rhode Island, on March third, fourth and fifth.



In March the New Aberdeen Hospital was opened in New Glasgow. Situated on a fine spacious site on the East River Road it represents the effort and enterprise of the populous eastern section of the County of Pictou. It will replace the old hospital of the same name on the west side of New Glasgow, opened in 1897. For the present the nurses home will remain on the original site.

The new building, opened by Harold Connolly, M.L.A., has a capacity of some 200 beds and its design is completely modern. Much equipment will be transferred from the old hospital, but a great deal that is entirely new has been installed. Doctor Hugh McKay of New Glasgow will be its Medical Director and Miss Mary Ross, R.N., its Superintendent of Nurses.

For several years the hospital facilities in this area have been taxed to capacity and the relief from a state bordering on crowding will be welcomed by patients as well as by the medical and nursing staffs. Working under such improved conditions will prove a source of genuine inspiration to all concerned with the care of the sick.

It is of interest to note that this is the seventh hospital building to be erected in Pictou County. The first two were at the entrance to Pictou Harbour for quarantine purposes. Then came the Marine Hospital in Pictou. The Aberdeen Hospital was the first in East Pictou followed shortly afterwards by the Cottage Hospital in Pictou. In 1928 the Cottage Hospital was replaced by the Sutherland Memorial Hospital, built on the site of the old Marine Hospital which was demolished beforehand. The old quarantine hospitals still stand but with their terror of smallpox and cholera only a matter of history; they serve as summer homes at Seacrest.

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Doctor M. R. Macdonald, the Secretary of The Medical Society of Nova Scotia attended the mid-winter conference of Divisional Secretaries of The Canadian Medical Association at the Royal York Hotel in Toronto on February 16th and 17th, and also attended the first Canadian Medical Association Conference on Rehabilitation on the 18th and 19th. Doctor W. D. Stevenson, Chairman of the Nova Scotia Committee on Rehabilitation also attended the latter conference.

## Obituary

Doctor Frederick Augustus Fullmore Corbett died at Regina July 3, 1954. He was born at Five Islands in 1870. He was educated at Mount Allison University and McGill University where he received his medical degree in 1896. He practised at Parrsboro for a few years. After taking post-graduate work at Berlin, London and Edinburgh he became a member of the Royal College of Surgeons in 1911. He settled in Regina where he had a distinguished record as a surgeon. He was especially interested in cancer and was considered a pioneer on this subject. He was a Member of the American College of Surgeons and a charter Fellow of the Royal College of Physicians and Surgeons of Canada. He retired from active practice in 1946 having completed fifty years of active professional life. He is survived by his widow, two daughters and two sons.

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Doctor Cameron St. Clair Guild died in Tupper Lake, New York, October 18, 1954, at the age of fifty-eight. He was born at Musquodoboit Harbour. He was a graduate of Dalhousie Medical School Class of 1925. He took up Public Health work in the United States and took his Public Health Degree from Yale in 1931. He was interested in tuberculosis and was for a time a member of the National Tuberculosis Association and was the first Executive Secretary of the American Trudeau Society. Until his death Doctor Guild was Chief of Professional Services at the Veteran's Hospital, Tupper Lake, New York. He was buried in the family lot at Musquodoboit Harbour.

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Doctor Clarence Gordon Campbell, chief radiologist of St. Paul's Hospital, Vancouver died suddenly while attending a staff meeting on October 13, 1954. He was born in Dartmouth fifty-three years ago. He was a graduate in Arts and completed his medical course at Dalhousie in 1924. He practised for a short time at West Branch, River John, Pictou County, and for a few years in Halifax. He decided to take up radiology as a specialist and did most of his radiology training at Queen's University where he received a degree in 1944. He was certified as a specialist in diagnostic and therapeutic radiology by the Royal College of Physicians and Surgeons of Canada. He is survived by his widow, a daughter and two sons. Doctor Campbell belonged to a family which provided many members of the Nova Scotia medical profession including Doctors D. A. Campbell, George M. Campbell, Donald Campbell and J. G. D. Campbell, at present a member of the Pension Board at St. John's Newfoundland.

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Doctor William Thomas McKeough, a physician in Cape Breton's north-side district for forty-one years and long an outstanding community worker, died at his home in Sydney Mines, on February 24th.

Doctor McKeough had been about town in recent days and his death was unexpected, although his health had not been robust since he suffered a broken hip in a fall three years ago.



He was born April 20th, 1888, at Afton, Antigonish County, a son of the late John McKeough and Alice Leydon. He attended high school at Canso and graduated from St. Francis Xavier University in 1907.

He taught school in Sydney for several years and in holiday periods worked with the old Nova Scotia Steel and Coal Company at Glace Bay. He entered Dalhousie Medical School, graduating in 1914, and in 1915 he took up residence in Sydney Mines.

He was a member of the Cape Breton, Nova Scotia and Canadian Medical Societies, a long-time member of the Cape Breton Curling Club, a charter member of Sydney Mines Rotary Club, and one of the best known members of Santa Maria Council, Knights of Columbus, which recently honoured him.

He was Nova Scotia representative on the Canadian Cancer Society. As a community worker he had few equals and no cause for good lacked his support. In addition, Doctor McKeough was an ardent sports fan as well as being recognized as one of the district's most enthusiastic anglers.

He is survived by his wife, two daughters, and four sons. Of the latter, Doctor Thomas J. McKeough and Doctor Liam L. McKeough are in Sydney Mines.

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Mr. Milton L. Bellew of Halifax, former Commissioner of Finance for the City of Halifax for eight years, died on March 7th, after a lengthy illness. Mr. Bellew had been the auditor of The Medical Society of Nova Scotia for many years.

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The Bulletin extends sympathy to Doctor K. P. Hayes on the death of his brother, Mr. Cecil John Hayes, which occurred on December 21; to Doctor R. K. Merriam of Middleton on the death of his father, Mr. Simon G. Merriam, as the result of injuries received in an automobile accident at Tallahassee, Florida, in February; to Doctor G. L. Covert of Halifax on the death of his sister, Mrs. F. W. Bissett, on February 16th; and to Doctor J. M. Stewart of Halifax on the death of his brother, Mr. J. McG. Stewart who died on February 12th.