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# Radiation Therapy in Cancer of the Cervix

S. R. JOHNSTON, M.D.,  
Roentgenologist,  
Victoria General Hospital

OWING to the accessibility of the cervix and the fact that cancer in this region is usually radio-sensitive, radium has become the chief therapeutic agent in the treatment of this condition. It is frequently forgotten that, while radium may have an almost miraculous effect in causing the disappearance of an early or moderately advanced lesion its field of activity does not extend for more than three to four centimeters and hence cannot have any influence on parametrial or pelvic metastases. The application of radium to the cervix is more or less standardized; much smaller doses are used than formerly. The first dose should be large enough to be effective, for repeated applications of radium are as dangerous in this situation as elsewhere. Fibrous tissue is easily broken down and the end result is radium necrosis, sometimes mistaken for a recurrence of the primary disease. The most widely advocated method is to apply a moderately intensive dose to the cervix and after the period of reaction has subsided to treat any remnant of disease by implantation of gold seeds. The good response of cervical cancer to radium therapy tends to suppress the fact that we are dealing with a very malignant form of cancer, that spreads quickly by extension and metastasis. Few cases are seen in the first stage when the disease is localized and when parametrial extension has occurred the great majority have pelvic metastasis. As in cancer elsewhere the greatest problem is to find a method which will successfully deal with metastatic involvement. Recently an attempt has been made to apply to cancer of the cervix, methods successfully employed in cancer of the lip and mouth, namely irradiation of the primary lesion and surrounding tissues with surgical resection of the tributary lymph nodes.

The lymph glands first involved are the iliac, obturator, ureteral and sacral. The operation of iliac lymphadenectomy consists in removing these glands with the exception of the sacral group before the higher and deeper chain becomes involved. This procedure at present bears a high mortality and can only be employed in a carefully selected group, e.g., early cases in good physical condition. For many years radiation therapy has been notoriously uncertain in its effect in either preventing or controlling metastases. Recently, however, the use of more powerful machines and instruments of precision to measure dosage promises further advancement in treatment by the development of better methods of radiation, in order to deliver a sufficient dose to the inevitable metastasis rather than by changes in methods of applying radium.

The amount of radiation delivered to the cervix and surroundings is limited by the reaction of normal tissues, diameters of the pelvis and the general physical condition of the patient. The irradiated area should include



the lower pelvic lymphatics as well as the promontory of the sacrum which means a skin area extending from the iliac crests to the middle of the symphysis pubes.

In order to obtain a uniform dosage of sufficient intensity throughout the pelvis, daily doses of X-ray are given over several areas and continued until the limit of skin tolerance is reached and a definite reaction produced. This will vary from a simple erythema to a pronounced blistering with desquamation, and usually occurs in twenty and twenty-five days from the commencement of treatment and clears up in two to six weeks. It would seem unwise to speak of these reactions as X-ray burns for the word burn implies, at least to the lay mind, careless or bad treatment. The patient should always be warned of the possibility of a skin reaction and assured that permanent damage does not usually result. The duration of such a course of treatment may extend over a period of from twenty to thirty days, a point to be remembered when referring patients for radiation therapy not only in cancer of the cervix but in cancer of the breast and rectum.

No stereotyped scheme can be used; every patient is treated as an individual case. It is not possible to apply radiation in accordance with a definite formula. As the mucous membrane of the intestines, bladder and rectum are particularly susceptible every care must be taken to protect these organs from excessive dosage. Patients with cachexia or marked anaemis respond poorly to intensive radiation, in these supporting measures must be used in order to build up resistance. Patients who are unusually susceptible complain of nausea or even vomiting during or following a course of treatment will benefit by the administration of Calcium A, Glucose or Liver extract by mouth.

In far or moderately advanced cases it is our practice to give X-ray treatments first followed immediately by the application of radium. By this method we hope not only to influence the primary growth but to prevent spread of the disease. The radium is applied before the tissues of the cervix and vaginal vault have had time to develop fibrosis and interference with the local circulation. These conditions usually occur in from four to six weeks following intensive radiation. Great care must be exercised in treating far advanced cases with a hope towards possible palliation. Treatment must not be carried beyond the limits of the patients' strength and the desire to help these sufferers must not overbalance radiologic judgement.

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**Dr. J. H. Couch, Fellow in Surgery, University of Toronto will take as his subjects at the annual Refresher Course "Recent Advances in treatment of Fractures" (slides and models), and "Injection Treatment of Varicose Veins and Haemorrhoids".**



# Carcinoma Of The Colon With Case Report

E. A. FERGUSON, Weymouth, N. S.

CARCINOMA in the colon is much more common than in the small intestine. As compared with cancer in other parts of the body it is less malignant both locally and by metastasis. The great danger in cancer in this region is from liability to obstruction of the gut. The common sites of cancer of the colon when the rectum is excluded, are the caecum and the pelvic colon. The next most frequent positions are the Ascending colon, Transverse colon, splenic flexure, and lastly, the hepatic flexure and Descending colon.

The growth is usually a columnar epithelioma or adeno-carcinoma. It may project into the lumen of the bowel as a cauliflower like mass or the carcinoma may infiltrate the bowel wall rather than project into the lumen and produce an annular stricture.

The disease spreads slowly and involvement of the mesenteric and retroperitoneal glands occur somewhat late and metastatic growth in the liver through the portal stream is also a late occurrence. Carcinoma cells may penetrate the bowel wall and give rise to secondary deposits on the peritoneum and the pelvic organs. On the whole prognosis is good if the diagnosis is made fairly early.

Abscess formation following cellulitis in the extra peritoneal tissue is sometimes observed, especially in cancer of the caecum which may prove a source of difficulty in diagnosis.

Clinical features—The fact is to be noted that a malignant stricture of the colon, in which the lumen of the bowel is only the size of a lead pencil, is generally attended with so little discomfort that acute obstruction is the first symptom. During the latent period, the patient sometimes complains of flatulent distention, constipation, which gradually gets worse, and vague pains in the abdomen, loin and back. Constipation is the commonest complaint and the lower down in the colon the tumor is the greater the constipation, owing to the more solid nature of the contents. There may be diarrhoea alternating with constipation. The patient suffers from profound anaemia with yellowish tinge of the skin, especially in cancer of the caecum and Ascending colon, these constituting the absorbing half of the colon. At this stage the patient loses weight and strength. Even when the tumor is a considerable size it may not be detectable on palpation.

The majority of cases of cancer of the colon first come under observation on the occurrence of obstruction of the bowel which may gradually follow the above symptoms or they may come on suddenly in a patient who has not suffered in any way and give no history of having done so. Acute symptoms sometimes follow the taking of a purgative, the extra strain on the gut causing compensation to fail.

Differential Diagnosis—When there is a palpable swelling in the ileo-caecal region the diagnosis is to be made from Tuberculous Disease, Actinomycosis and from inflammatory swellings originating from the appendix. When the tumor is in the hepatic flexure or Transverse colon it is to be differen-



tiated from tumors of the gall-bladder, liver, stomach or omentum. Tumors of the Ascending and Descending colon are to be differentiated from tumors of the kidney. Tumors of the pelvic colon may be due to Diverticulitis and Fibromatosis of the colon. In women tumors of the pelvic colon and caecum may resemble those originating from the uterine appendages.

The use of x-rays in confirming the diagnosis is helpful, although reliance should not be placed on this means of arriving at a definite conclusion. One has seen an apparent filling defect of the Ascending colon due to a protrusion of the right kidney which was the seat of hypernephroma.

Treatment—In the absence of obstruction removal of the affected segment of bowel affords a good prospect of permanent cure, that is in those cases where there are no secondary deposits in the liver. In the presence of obstruction relief must be given by opening the bowel above the stoppage. If the seat of the obstruction can not be located the abdomen should be opened to the right of the middle line below the umbilicus, the lowest part of the distended bowel brought to the surface and an artificial anus established. The growth may be excised later or if it is found impossible to remove it, an entero-anastomosis may be performed.

As my Case Report has to do with the carcinoma of the caecum, I intend from now on to confine my paper to the right half of the colon, dealing first with the blood supply, secondly with the lymph channels, thirdly with the operations and lastly the Case Report.

The blood supply to the caecum, the Ascending colon, right colic flexure and Transverse colon is derived from the ileo colic, the right colic, and the middle colic, branches of the superior mesenteric artery. The ileo colic arises from the superior mesenteric below the third part of the duodenum and runs downwards and to the right in front of the right ureter and psoas major muscle. It breaks up near the ileo colic fossa into branches which supply, 1—the terminal part of the ileum, 2—Ascending colon, 3—caecum, 4—the vermiform process.

The right colic artery which often arises from a common trunk with the ileo colic runs to the right behind the peritoneum of the right infracolic compartment. Near the gut it divides into a Descending branch which anastomosis with the colic branch of the ileo colic and Ascending branch which anastomosis with the right division of the middle colic. Both branches supply the Ascending colon.

The middle colic arises from the superior mesenteric at the lower border of the pancreas and enters the root of the Transverse colon. It passes downwards and to the right and divides into a right branch which supplies the right third of the Transverse colon and anastomosis of the Ascending branch of the right colic near the right colic flexure and a left branch which supplies the left two-thirds of the Transverse colon and anastomosis with the Ascending branch of the left colic near the left flexure of the colon.

The lymph vessels of that portion of the large intestine which is supplied by the superior mesenteric artery mainly follow the course of the blood vessels. The lymph glands are divided into four groups, 1—Epicolic, situated on the wall of the gut, 2—Paracolic lie on the medial side of the Ascending colon and above the Transverse colon between the two layers of its mesentery. 3—The Intermediate glands are associated with the ileocolic, the right colic, and the middle colic vessels, 4—The Central group lie along the superior mesen-



teric vessels. Usually carcinoma of the colon has a low malignancy and in practice results are satisfactory if the first two groups alone are removed.

**Operation**—There are various procedures depending on the presence or absence of obstruction. If obstruction is present it is out of the question to resect and anastomose, therefore it is necessary to deal with the obstruction first. There are two possibilities depending on the severity of the obstruction and condition of the patient. If condition of patient is critical relieve obstruction by making an incision to the right of the mid-line below the umbilicus and bringing the lowest part of the distended bowel to the surface and making an artificial anus.

If the patient is comparatively fit make a paramedian incision and explore site and whether removal is possible or not. If tumor is found in the right colon it is often feasible to perform a short circuit Ileo Transverse Colostomy and at a later stage when the patient has recovered from the obstruction and condition improved do a resection of the right colon.

In all growths between the caecum and the Transverse colon, it is always wise to resect the whole right colon because it is easier and safer than any local excision. If only local excision is done the anastomosis is likely to leak owing to the fact that the Ascending colon has only a partial covering of peritoneum.

### Case Report.

Mrs. J. M. S., aet. 54. Admitted to Digby General Hospital June 5th, 1932.

*Family History*—Father died aet. 59, heart failure. Mother died aet. 80, senility. Two sisters and one brother, all well.

*Past History*—Has never been really strong; has had stomach trouble from childhood, treated for gastric ulcer for a number of years. Four years ago had her appendix removed; since that time her stomach has been better.

*Present History*—For the past eighteen months has had increasing difficulty in getting the bowels to move and during the past three months she has had to have recourse to enemata. Two months ago she had symptoms of acute obstruction, which was only overcome with the greatest difficulty. For the past six months she has had a dull ache in her appendix region. For some time she has been conscious of a mass in her right side which disappears into the pelvis on pressure.

*Appearance*—Thin and emaciated with lemon coloration of the skin. Her own description of her appearance is that she looks like a dead Chinaman, and she does.

*Abdominal Examination*—A mass can be felt about the size of a baseball, in the right iliac fossa, freely movable, and can be made to disappear into the pelvis. Blood examination shows secondary anaemia.

*X-ray Report*—Negative, except that the transverse colon and right flexure are prolapsed. No apparent filling defect in the caecal region. It was decided to do an exploratory laparotomy.

*Operation*—Anaesthetic—Ethyl Chloride and Ether. Right paramedian incision below the umbilicus. A large mass found involving the caecum and the ileocaecal opening. No enlarged glands in evidence. Liver apparently



free from metastasis. Transverse colon prolapsed. A few adhesions around the caecum divided by dissection. Parietal peritoneum on the lateral side of the caecum and ascending colon divided and the bowel stripped medially. The mesentery of the lower eight inches of the ileum divided and ligated; the right colic, ileocolic, and the right branch of the middle colic arteries next divided. Bowel then freely mobilized. The ileum clamped about eight inches from the ileocaecal junction, divided with cautery and ends invaginated. Transverse colon similarly treated and intervening segment of bowel removed. A side to side anastomosis performed between the ileum and the transverse colon. The cut edge of the mesentery sutured to the lower edge of the mesocolon. The raw surfaces peritonealized, abdomen closed in layers.

Patient stood the operation well and with the exception of a slight incision infection made a rapid recovery and was discharged from hospital on the twentieth day after operation. During the next six months she suffered from a carbuncle and multiple boils.

May 1936, patient says that she has during the past year felt better than at any time during her life. She does not have any constipation and is free from any pain.



# Nutritional Anaemia

N. BARRIE COWARD, M.D.

FOR many years now some paediatricians have recognized the existence of a nutritional or alimentary anaemia of infants, but it is only recently that the condition has aroused general interest. Investigations have shown that nutritional anaemia of a mild degree is almost universal and occurs in both breast fed and artificially fed infants. This state is by no means limited to infancy alone, but usually in the older child there are factors besides those which commonly cause the infantile type, which play their part and must be considered in the causation of the anaemia. There are also other factors connected with the anaemias of praematurity, scurvy, caeliac disease, which, while similar to that of nutritional anaemia, still require differentiating. Hence my remarks will be limited to the Infantile type of Nutritional Anaemia, alone.

The main causative factor in the production of a nutritional anaemia is a deficiency of iron. Aetiologically then this shortage may occur somewhat as follows.

- (1) Deficient Ante-Natal storage.
  - (a) Iron deficiency in the mother.
  - (b) Deficient transference of iron to foetus.
  - (c) Praematurity of foetus resulting in insufficient storage.
  - (d) Twins, the iron stores obtainable from the mother being insufficient for both children.
- (2) Deficient Post Natal Supply.
  - (a) Insufficient supply of iron in breast milk, probably due to iron deficiency in mother's diet.
  - (b) Artificial feeding with cows milk which contains less iron than human milk and gives an iron retention only one fifth of that in a breast fed baby.
  - (c) Prolongation of milk feeding beyond the normal lactation period.
- (3) Deficient ante natal storage and post natal supply.

In the understanding of this condition it is necessary then to go back to the foetal life of the patient where the physiological relationship which exists between mother and her child during pregnancy is intricate and complex. Among other things, nature demands that the mother shall transfer to the foetus certain materials to provide stores available for use during the early months of extrauterine life. Therefore if the total available quantity of say, iron in the maternal tissues is insufficient, there will be a deficiency of these substances in the developing foetus and a condition of simple anaemia may be expected to be present in the infant at or soon after birth. Whereas many authorities believe that infants born of anaemic mothers always have a normal picture at birth, there are still many who disagree with this and later evidence



seems to uphold the latter. While considering this we must also remember that whereas the Metabolic processes of calcium, for example, and iron are very similar, there is this striking difference between them. The mother cannot retain calcium at the expense of the foetus, but has to surrender it even if in doing so she contracts osteomalacia; whereas the mother can, and sometimes does retain iron to the detriment of the foetus. As far as the essential minerals are concerned iron and copper are the only ones which are stored as reserve material in the liver during foetal life. Of this, two thirds of the iron is stored during the last three months of pregnancy. Copper is stored apparently in like manner to iron. This storage of iron and copper reaches its peak at birth, or perhaps shortly after, i.e., after the physiological haemolysis has taken place. After this peak has been reached there is a gradual continuous fall in the stores of both iron and copper during the period of lactation. It is this fall which is so commonly allowed to go too far, which accounts for many of our cases of nutritional anaemia. This is probably most marked in those babies who are small at birth, and, who, relative to their initial weight, increase in size rapidly. It is also more frequently seen, as I have pointed out, in babies who are born of anaemic mothers.

The haematological picture varies but it is always of the hypochromic type. The color index is below unity. The less severe anaemias show a fall in haemoglobin with little if any diminution of the red cell count, whereas, in the more severe forms the haemoglobin values are still lower and the fall in the red cells is proportionately rather smaller. Reticulocytes are usually absent. The white cells do not show any qualitative or quantitative changes except in the presence of an infection. Platelets and the fragility of the red cells are normal.

The appearance of nutritional anaemia varies depending on which factors, which were mentioned above, are most to blame. We may therefore divide them into three classes.

- (1) Congenital Nutritional Anaemia.
- (2) The Nutritional Anaemias of earlier infancy.
- (3) The Nutritional Anaemia of later infancy and Early Childhood.

Essentially these three groups are all the same the only difference being the time of their appearances.

(1) Congenital nutritional anaemia, which is due to deficient ante-natal storage, may be present at or shortly after birth. This must not be confused with true congenital anaemia or primary anaemia of the new born which is an anaemia of a haemolytic character. To distinguish between these two it is necessary to exclude the occurrence of an abnormal haemolysis. This may be done (a) by the absence of icterus or of a sudden dramatic increase in anaemia shortly after birth. (b) by the presence of a blood count showing a typical hypochromic anaemia and without evidence of a marrow response. (c) The occurrence of a reticulocytosis after treatment with the missing factor or factors.

The nutritional anaemia of earlier infancy which is usually due to a combination of ante-natal and post-natal deficiency, makes its appearance about the fourth month. This group forms a large class of the nutritional anaemias.

The nutritional anaemia of later infancy and early childhood is usually not noticed until about the seventh month or later. In this group the commonest cause is the continuing of milk feedings alone for too long a period of time without the addition of suitable iron containing foods.



The clinical picture presents a child usually fairly well nourished and of normal physical size for its age, and their appearance is striking only because of their pallor. This varies from a slight to an extreme degree of whiteness according to the intensity of the anaemia. Mild cases are often not recognized because by inspection it is almost impossible to suspect an anaemia until the haemoglobin has fallen to the neighbourhood of 60%. Even then if the child is crying very much or near a fire the color will improve sufficiently that the anaemia is not obvious. Mistakes on inspection are less likely to be made if the conjunctiva is used to determine the color rather than the appearance of the face as a whole. Usually the rest of the examination is negative unless there is some intercurrent infection present. As a matter of fact this is only too common rhinorrhoea, otorrhea or bronchitis being frequently present. As regards the effect on the mental development there is nothing characteristic, but it has been noticed that the proportion of nutritionally anaemic infants who show mental backwardness, is greater than that found in normal children.

*Treatment:* In considering the treatment, we must go back and consider such factors as are concerned with the development and maturation of the blood cells. The conception of blood as being merely a vehicle for the conveyance of material to and from the body cells, limits the understanding of the problems presented by the anaemias. It should rather be considered as a tissue or organ consisting of not only the circulating cells, but also of their predecessors, or as Haldane has put it "the blood in the living body is a living structure actively maintained". The recent work of Strauss and Castle has shown that the maturation from megaloblast to normoblast, the two early forms of the Erythrocyte, or red cell, requires the presence of a haemotinic factor, formed by the interaction of an intrinsic factor present in the normal gastric juice, and an extrinsic factor which they believe to be Vitamine B<sub>2</sub>, or a substance closely allied to it. The maturation from normoblast to erythrocyte requires according to Witts, the presence of iron, copper, Vitamine C, and thyroxin.

As far as we are concerned in this paper our attention is directed mainly to the latter group. Megaloblastic anaemia in infants is rare, and its cause does not interest us in this paper. There is one factor though which is concerned in its production which may play a part in the treatment of simple nutritional anaemia, namely the gastric secretion. Many nutritionally anaemic infants have a diminished gastric secretion. This is even more likely to be so if there is an intercurrent infection present. This diminished acid secretion also has a diminishing effect on the use of iron therapy as we shall see later. Therefore in many cases it is necessary to supply this factor and this is best done by the use of Dilute Hydrochloric Acid.

The most important therapeutic aid in the treatment of this condition is iron. The results of treatment however seem to vary a great deal. Some cases will respond rapidly others less so. That is some cases will show no improvement whatsoever in the haemoglobin curve for a period as long as two to three weeks while under treatment. At the end of this time however there is usually a quick spurt up towards improvement. The reason for this is not always easy to say. There are at least four possible explanations.

- (1) The presence of an intercurrent infection.
- (2) Different degrees of regenerative power owing to the abeyance of marrow function.



- (3) Varying degrees of iron shortage.
- (4) The preparation of iron used.

Perhaps the most common cause is a combination of the first and fourth reasons. The type of iron generally used in the treatment of anaemia is Reduced Iron or Iron and Ammonium Citrate. Both of these are Ferric salts. Both owe their virtue by forming ferrous chloride through the action of the hydrochloric acid in the gastric juice. Now as I mentioned before nutritionally anaemic infants frequently have a hypoacidity and it is a well known fact that during infections there is a hypoacidity, or even an anacidity. Therefore it is obvious that if we are going to use either we must be reasonably sure that the gastric secretions are functioning properly. Hence if there is any acute infection present it must be cleared up first before iron treatment is begun for the anaemia.

As to the choice of iron preparation used it would seem that the ferrous salt would be the one of choice since it has been proved that iron is effective in the cure of anaemia only when it is absorbed in the divalent condition, i.e., as a ferrous salt. However ferrous salts are very unstable and difficult to dispense and this forms the main reason for their not being used. It has been found that oxidation can be prevented though, by dispensing ferrous salts in a vehicle of glucose syrup. Of the ferrous salts available Ferrous Chloride or Ferrous Sulphate are the choice and of these two Ferrous Sulphate has been used more extensively. The average daily amount required for an infant is about twelve grains, or more if needed, of Ferrous Sulphate, and with this drug better results, and much quicker responses are obtainable, than with the use of the scale preparations.

With the knowledge of the wide spread nature of this condition it has been my practice to administer an iron salt to what are apparently normal infants at about the fourth month. This is continued for a month or two until solid food is begun. I have used the scale preparation, iron and ammonium citrate, in one quarter to one half teaspoonful doses, which is added directly to the total daily milk feeding. This is merely as a prophylactic measure as the most recent work indicates that the percentage of iron absorbed is increased by increasing the iron intake.

The use of copper in the treatment of this condition has been stressed for many years. Its full effect and action is still an unsettled point. It was thought that in many cases a complete recovery was unobtainable without its use; or in other words recovery would take place only in so far as there was sufficient copper present. It was known that copper was not necessary for iron assimilation but it was necessary for the synthesis of haemoglobin. In the light of more recent investigation this theory has now given place to the idea that copper is not really needed for the cure of nutritional anaemia, that copper renders the iron utilizable for haemoglobin formation, and that a copper shortage is an uncommon occurrence. It is quite true that some babies may be born with a deficient copper supply due to maternal dietetic deficiency, and so develop a nutritional anaemia due to the lack of both copper and iron. However, most iron salts as used generally have copper combined with them in small amounts as an impurity, and this is sufficient usually to prove effectual in the cure of this anaemia. Again, in most dairies milk is pasteurized in contact with copper, and this has been found to raise the copper content very definitely. Thus these two factors would seem to supply all the need there is for copper, even if to begin with there is a deficiency present.



The value of Yeast as a source of Vitamine B in the cure of nutritional anaemia is still unsettled. Whereas it is of distinct value as a cure of nutritional anaemia in the experimental animal it is much less efficacious in the treatment of the child. There are some cases, however, who would seem to benefit from its use. This may be from the general beneficial effect of yeast as a whole rather than from any specific effect of it on the haemotopoietic centres.

The last phase in the treatment I would mention is the natural cure. This occurs when the infant is started on solid food, and is due to the increase in the intake of mineral salts, notably iron and copper. The improvement continues until the child is about eighteen months old when the adult level is maintained. This natural cure takes place usually only in the mild cases as the curve of recovery in the severer ones tends to flatten out and approach the normal only at a very slow rate. In these cases the administration of iron at any time will hasten this return to normal.

Under treatment the infants usually respond rapidly, improve in colour and appetite, become much more lively, and the intercurrent infection which has resisted treatment for so long at last begins to improve.

Conclusion: Nutritional anaemia is a wide spread condition occurring far more frequently than we imagine, and may affect infants at any age from shortly after birth and on. It is easily cured by the administration of iron. This should be done as soon as the anaemia is recognized rather than allow a natural cure to take place. It should also be an important part of antenatal supervision to see that there is an adequate quantity of the essential haemotopoietic substances in the dietary of the pregnant person.



# The Early Diagnosis of Brain Tumours\*

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THE past thirty years have seen great changes in our attitude towards localized intra-cranial lesions. At the beginning of the century they were regarded as rarities, only possible of diagnosis in their terminal phases, and practically impossible to deal with in most instances; while to-day it is recognized that diagnosis can be made at an early stage in many cases and that successful surgical intervention can be hoped for in a goodly number. The practitioner who is dealing with a case of suspected tumour of the brain has a grave responsibility and any extra effort to prove or disprove his suspicions will be well repaid.

This change in our attitude to these growths has come about mainly as a result of the improvements in neurological surgery which were instituted by Sir Victor Horsley, in England, and by Harvey Cushing, in America; and the pupils of both of these masters have continued to increase our confidence in this specialized branch of surgery. The advances in surgery followed, and to a certain extent were based on, the brilliant clinical and experimental work of David Ferrier, Hughlings Jackson, and Alexander Hughes Bennett of London, who advanced neurological diagnosis to the point where Bennett in 1874 accurately localized a brain tumour in a young man of twenty-five and persuaded Rickman Godlee to operate. The operation was the first of its kind to be recorded and its importance was recognized by a jubilee celebration last year. It is not amiss to mention here that the advances brought about in histological technique by the Spanish school has lent a tremendous impetus to the advances initiated by the English school of neurologists.

*The incidence* of cerebral tumours is not known exactly but it is generally accepted that the brain ranks with the breast, the stomach, and the uterus in the tendency to undergo neoplastic change. Some significant figures are available which bear on this point. Gowland and Armitage examined the autopsy records of the Leeds General Infirmary during the twenty years up to 1932 and of 13,000 autopsies they found that the skull was opened in 3,533 instances, and that there were 264 tumours of the brain. In other words 2.02% of the total autopsies were cases of brain tumour; while in the same series the incidence of other conditions was as follows: cancer of the colon, 2.6%; cancer of the stomach 2.5%; and carcinoma of the lung 1.2%. Of the 264 intracranial masses 66% were true neoplasms, while the remainder, with the exception of one syphiloma, were tuberculoma. The incidence of other common lesions of the nervous system in the 3,533 cases in which the skull was opened was as follows:—Purulent meningitis 374 cases; tuberculous meningitis 356 cases; cerebral tumour 264 cases; cerebral haemorrhage 211 cases; and cerebral abscess 165 cases. The frequency of metastatic tumours is difficult to estimate because the manifestations are so frequently indeter-

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minate and unless routine autopsies are done many cases will be missed. Figures from more selected groups of patients are even more arresting. Walshe found that of 1309 patients admitted to the National Hospital for Nervous Diseases, London, in 1928, 163 had intracranial tumours, 132 disseminated sclerosis, and 132 neuro-syphilis. Finally, Bailey and Cushing have made the statement that "of all the organs of the body, with the possible exception of the uterus, the brain appears to be the most frequent seat of neoplastic disease."

*The Symptoms* vary a great deal. There are three ways in which a tumour may manifest itself:—

1. It may give rise to raised intracranial pressure.
2. It may produce signs of a slowly progressive focal lesion.
3. It may give rise to fits indistinguishable from those of the so called idiopathic epilepsy.

The commonest presenting symptoms are those of raised intracranial pressure which declares itself by the classical triad of headache, vomiting, and papilloedema, with, slowing of the pulse rate and a slowly progressive blunting of mental alertness and capacity passing into terminal coma. It should be noted that in the early stages only a few or one of these symptoms and signs may be present, and that the pressure is usually fairly high before the classical triad are all present.

Headache is present, sooner or later, in about ninety percent of cases. Its location varies. It is usually paroxysmal, worse on waking, and aggravated by lying down, coughing, straining or sneezing. In tumours involving the bone it may be localized. Taken by itself, and in the absence of associated symptoms and signs, headache may do no more than raise suspicions. It is one of the commonest symptoms met with in practice, and while it is frequently trivial it may occasionally be a symptom of grave significance. Intermittent headache appearing first in adult life should be investigated adequately by means of a thorough physical examination, special attention being directed to the ocular fundi, the nose and nasal sinuses, and the cardio-vascular and renal systems; and if doubt exists examination should be repeated at regular intervals.

Papilloedema is noted in about three quarters of the cases and affords the most constant and quickly ascertainable evidence of raised intracranial pressure. It is a venous engorgement of the nerve head produced by an obstruction to the venous and lymphatic return from the eye, and it manifests itself as redness, blurring, and eventually haemorrhages about the discs. It is within the scope of every practitioner to be capable of recognizing these changes with the ophthalmoscope and so to make earlier diagnoses as well as to avoid dangerously lusty lumbar punctures in cases with intracranial hypertension. Papilloedema may be present for some time in a patient who has little or no headache or vomiting; and it may exist for some time with little or no disturbance of vision. Later there is blurring of vision and rapid loss of vision may then occur; and in some instances these may be the only symptoms.

It has been said that there is a certain localizing value attached to unilateral or asymmetrically developing papilloedema, but unless the differences are very marked it has no significance. A tumour arising near one optic foramen may result in the development of primary optic atrophy on that side



and later on papilloedema may develop on the opposite side. Papilloedema is most marked with cerebellar tumours, and next in neoplasms of the fourth ventricle and temporo sphenoidal lobe.

Vomiting is present in about 60% of cases. It does not differ materially from ordinary vomiting and it is unwise to wait for the relatively rare "projectile" vomiting. It is noticed usually the first thing on rising in the morning, and after the nausea and retching are over the individual frequently enjoys a good breakfast. It should be noted that vomiting may be the only symptom of brain tumour for some months, more especially in children. In this instance I recall the history of a girl of eight who had been vomiting in the early morning for the eight months preceding the time she came under observation. About six months after the onset of the vomiting her vision commenced to fail and within two months she could just perceive light in the temporal fields. The only signs on clinical examination were papilloedema subsiding into atrophy together with slight unsteadiness of the right hand when co-ordination was tested. A cerebellar decompression was done but the cerebellum was so tense and enlarged to such a degree that nothing could be done and death soon took place. At autopsy a large mid-line cerebellar tumour was found; and it is probable that diagnosis six months earlier would have enabled a surgeon to deal with this growth.

Mental confusion is more likely to occur in middle aged and elderly patients rather than in children.

Other symptoms which may be present are; vertigo, dysphasia, slowing of the pulse and respiratory rates or signs of hypopituitarism; and these depend for their production on increased intracranial pressure, except in instances where the growth is situated where it can produce these effects by local pressure.

Evidence that a slowly progressive local lesion of the brain is present is considered to be pathognomic of a neoplasm; for no other disease causes a non-febrile, steadily increasing, localized alteration in nervous function. Focal symptoms usually appear after pressure symptoms. The exact interpretation of these signs demands as accurate knowledge of the physiology and anatomy of the brain and a sufficient experience to exclude false localizing signs. The latter are produced by pressure and the most common are uni- or bi-lateral 6th. nerve palsy; then 3rd. nerve palsy; then an extensor plantar response on the same side as the lesion. These focal signs may be a gradually developing hemiplegia, defects in the visual fields, unilateral sensory changes, pituitary signs, progressive speech defects etc. Pre-frontal lesions for instance, are hard to localize because the characteristic signs are psychological rather than somatic, and in middle aged and old patients it is frequently difficult enough to distinguish, not alone localize tumour from one of the pre senile conditions such as Alzheimer's or Pick's disease, or from cerebral arteriosclerosis. The mental changes are a slow, progressive impairment of mental alertness and initiative, with defects in memory and in association of ideas. Corpus callosum tumours are rather similar except that the neighborhood signs are more prominent. Pre-central tumours are the easiest to localize because of the early development of symptoms of excitation and destruction of pyramidal fibres with consequent production of spastic weakness and reflex changes. In temporal lobe tumours there are field defects in almost half the cases. With parietal lobe tumours sensory disturbances are prominent.

Generalized epileptiform convulsions may be present for months or years before other symptoms and signs appear. I can recall to mind one case in



which there was a history of petit mal for three years before signs of raised intracranial pressure developed and terminated the life of the victim before a decompression could be done. I saw another case that had been seen regularly by an eminent neurologist for seventeen years before the fits changed in character and additional signs sufficient to establish the diagnosis of tumour became evident.

If any of the symptoms and signs which I have mentioned should develop the suspicion of cerebral tumour should be raised and a careful neurological examination carried out. A simple standard form of examination should be adopted so that no major signs will be missed. Examination of the pupils and tendon reflexes alone is not sufficient; nor on the other hand is it often necessary to carry out the tedious, but impressive, examinations favoured by some. There can be no substitute for a thorough and methodical clinical examination. After the physical findings have been considered it may be found necessary to carry out some of the accessory methods of investigation which are available. The most widely used of these is lumbar puncture, by means of which the pressure of the cerebro-spinal fluid is measured and fluid is obtained for chemical and serological examination. If the ophthalmoscopic examination has revealed a marked degree of papilloedema great care should be taken to withdraw a very small amount of fluid only. Evidence of raised pressure is of great value in arriving at a diagnosis. The chemical examination should include the estimation of the total protein for with certain tumours the figure may be raised from the normal 40 mg. to 60 mg. or 100 mg. or higher. Of course the Wassermann reaction, cell count, total chlorides etc. should be done.

Radiology has a place, and contrary to general opinion a plain plate has a definite value because hypophyseal duct tumours, gliomata, and meningiomata may contain calcified material; and the skull overlying a meningioma may exhibit irregularities in profile and density. Then the skull which has been subjected to increased tension frequently presents a "beaten silver" appearance on the X-ray film. The sella turcica may be eroded either by intra sellar tumours or by pressure from above.

Certain surgical procedures may be used as diagnostic aids. These are:

1. Ventricular estimation which consists in withdrawing the ventricular fluid through a needle which has been inserted into it. Usually the ventricles contain about 20 c.c. of fluid; if internal hydrocephalus is present 50 c.c. or more may be obtained, and if such an amount is obtained from one side and very little fluid is obtained from the opposite side, there is very probably a tumour compressing the latter. Although this procedure involves trepanning it is safer than the procedures which involve air injection.

2. Ventriculography. This is based on the fact that if the fluid in the cerebral ventricles is replaced by air the ventricles are clearly outlined on X-ray plates and any distortion or alteration in size will become apparent. This method is particularly valuable in comatose patients. The air is injected directly into the ventricle through a brain needle. It is a method not without danger and it is particularly inadvisable 1, when there is a severe degree of intracranial hypertension, and 2, unless a surgeon is available and prepared to operate within a few hours if definite signs of tumour are found or if rapid increase in intracranial tension occurs.

3. Encephalography is the injection of air into the subarachnoid space through a lumbar puncture needle with subsequent X-ray examination. The



plates resemble those seen with ventriculography. This method is easier but, if a tumour is present, it is more liable to be followed by dangerous complications than is ventriculography.

4. Arteriography is carried out by the injection into the common carotid of a solution opaque to X-rays and then taking a rapid series of plates. At the present time it has a very limited value, and as such it should be used with caution.

The differential diagnosis is sometimes difficult, and in many instances we must consider brain abscess, arachnoiditis, hydrocephalus, cerebral arteriosclerosis, intracranial aneurism, the ubiquitous neuro-syphilis, epilepsy, migraine, and retro-bulbar neuritis. In most of these conditions there are points in the history to guide us, while in others a careful examination will frequently lead to the correct diagnosis.

In conclusion I would add that we must be less pessimistic in our attitude towards brain surgery and do our utmost in suspected cases of tumour to prove or disprove our suspicions before the cardinal signs have become evident and the patient is in the grip of an inoperable condition and an inexorable fate.



# Current Technics for Obstetric Analgesia\*

KENNETH M. GRANT, B.Sc., M.D.C.M.

WE are indebted to Sir James Y. Simpson for the introduction of anesthesia into obstetrical practice. He employed ether for this purpose in 1847, and later replaced it by chloroform. Channing of Boston, introduced the practice into America. Except for the few who still believe in following literally the biblical injunction—"in sorrow shalt thou bring forth"—all intelligent people feel that women should be spared, as far as possible, the suffering incident to the completion of normal labor.

During the past thirty years or more many drugs and combinations of drugs have been used in an attempt to alleviate and abolish pain during labor. The outstanding examples are nitrous oxide, morphine-hyoscine, Gwathmey's synergistic analgesia, and more recently ethylene. During the past several years a voluminous literature has accumulated on the use of barbituric acid derivatives in obstetrics. The purpose of this paper is to present a resume of the more common methods now employed for the alleviation of pain, and to present the doses of the various drugs which are considered safe and effective for good results.

Too many have attempted to obtain the "ideal of painless labor" viz. amnesia, analgesia and anaesthesia, by massive doses of unintelligently administered drugs without thought of the not infrequent deleterious effect on the mother and babe. Too often each new drug that has a sedative or hypnotic action has been seized upon as the perfect agent for relief of pain in childbirth; too often have physicians, with no thought of the physiologic action of the drugs they were so indiscriminately using, jeopardized the lives of both the women in labor and their offspring.

Relief from pain in labor is one of the greatest assets to the well being of the average mother. With the thought of the comfort of his patient in mind, the obstetrician must consider her safety and the safety of her baby. He must learn that the woman in labor does not enjoy an immunity to injudicious medication but rather that she is highly susceptible to it.

In the last few years there has been a persistent demand by women for painless labors, supported and influenced by publicity in the press. The bad results, of such painless labors unfortunately, have not obtained the same publicity. It is possible to safely alleviate the pain of labor. It is possible to make of labor an incident rather than an ordeal. Certain knowledge is essential and certain specifications are essential to do this intelligently. The doctor should acquaint himself with his patient both physically and emotionally. When she comes to you for pre-natal care, take time to study her as an anaesthetic as well as an obstetric risk. Note her reactions to the common discomforts of pregnancy; her mental attitude towards the approaching labor.

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Assure her you have ways of making labor easy. Following this study, formulate a plan by which you propose to relieve her of pain in labor.

Individualizing each patient is important. The obstetrician who does the best by his patients in the matter of pain relief is the one who familiarizes himself with the action of the drugs to be used and then selects the drug or drugs best suited to the individual patient. In other words, he fits the drug to the patient, not the patient to the drug.

It is important to know the action of the drugs used. The barbiturates and morphine, both powerful respiratory depressants, should not be used in close association in the same patient. While a transient cyanosis will do no harm, any prolonged cyanosis is dangerous.

It is also important to know the mechanism of labor and the progress the patient is making. The latter requires the closest attention of the obstetrician. It is rather poor obstetrics to have a "blanket" set of orders for analgesia and anaesthesia and to try to cover each part with it. Pain relief in labor requires more, not less, of the obstetricians time. It requires more careful study of the mechanism of labor, more accurate diagnosis of the presentation and position, and more careful supervision of the patient. Unless one is prepared to give that added time and study he should not attempt it.

There is but one rule to follow in determining the time for beginning analgesia, namely the suffering of the patient. As soon as the patient begins to feel uncomfortable, no matter how early in labor, something should be given her for the relief of pain.

In choosing a technic the following General Considerations are stressed to obtain the best results:

- (1) Any method used for the relief of the pains of labor must be absolutely safe for both mother and child;
- (2) The drug should abolish all memory of pain;
- (3) There must be a wide margin of safety in the dosage of the drugs used;
- (4) The progress of labor should not be delayed;
- (5) Having the patient enter hospital early in labor is essential if satisfactory amnesia and analgesia are to be obtained;
- (6) Operative interference, maternal and fetal morbidity and mortality, must not be appreciably increased;
- (7) Constant attendance is essential from the time sedatives are given until delivery is completed and preferably for several hours following delivery;
- (8) Opiates should not be given within three hours of the termination of labor.
- (9) Fluid intake and output must be maintained during labor. This is important in prolonged labors and intravenous or subcutaneous fluids, or fluids per rectum, may have to be administered in such cases.
- (10) The bladder must be carefully watched and not allowed to lose its tone from over-distension. It may be necessary to catheterize as often as every six hours if the patient is not voiding;
- (11) In rectal instillations, the best results are obtained when the return flow from the bowel is clear before administering drugs;



- (12) It is unwise to administer rectal ether to patients with a definite history of colitis with the past year or so;
- (13) Drugs to which the patient is known to be sensitive should not be administered;
- (14) All patients should be shaved and an enema given before analgesia is begun.

It is not the intention of the writer to enter into any detailed discussion of the advantages or disadvantages which one method may have as compared with another, but rather to present a resume of the methods in use at the present time, for the relief of the pains of labor. The value of nitrous oxide, ether, chloroform, vinyl ether and other inhalation anaesthetics for the relief of pain in certain stages of labor is generally accepted, and does not come within the scope of this paper.

### Scopolamine-morphine Seminarcois or Twilight Sleep.

This method of combating the pain of labor was introduced in 1902 by Steinbüchel, who reported that the hypodermic injection of scopolamine hydrobromate and morphia practically annulled the pains of labor.

It is used as a first stage measure. For the best results, semi-narcosis is begun when the uterine contractions are strong and occur at regular intervals and usually when there is one or two fingers dilatation of the cervix in the primiparous patient. In some cases where the contractions are painful and of good character and frequency, it is begun with practically no cervical dilatation, but this is a questionable procedure. In the multipara, on the other hand, the procedure is usually begun with the first regular contractions that are painful.

After the usual preparation, the patient's ears are stuffed with cotton moistened with oil and her eyes are covered with gauze held in place by adhesive strips. The initial dose of hyoscine hydrobromide is 1/150 grain. With the first injection, separately or combined, is given 1/6 grain of morphine sulphate. The injections are given subcutaneously, slow absorption of the hyoscine being desirable. The first injection usually causes dryness of the mouth and throat and a flushed condition of the face. The patient is encouraged to drink water freely at this stage.

The second injection of hyoscine is given forty-five minutes after the first one. The dose is usually the same. Morphine is never repeated after the first injection. The degree to which the patients are under the influence of the drug is tested by a very simple method. Before the second injection and before each subsequent injection, the patient is required to put her index finger to the tip of her nose, her eyes being covered (pass-pointing). If she succeeds in doing this promptly she still retains locomotor co-ordination and the contemplated injection is given; if, however, she moves her finger around vaguely and misses the mark, she has lost locomotor co-ordination and the injection is omitted, or the dose is reduced, for the patient has the desired amount of the drug. In most cases this stage is reached shortly after the third injection, but in not a small number before the time for it.

The third injection is usually given forty-five minutes after the second one. If the patient at this time shows signs of going under the influence of the drug, such as drowsiness or sleeping between pains, but still manifests locomotor co-ordination the third injection is reduced to 1/200 grain or 1/300



grain for the average woman. If no such signs are present the original dose of 1/150 grain is given.

After the third injection most patients remain sufficiently scopolaminized for two to three hours or longer. At the expiration of this period full cervical dilatation has taken place in most cases and further injections are unnecessary and are to be avoided. The first stage of labor is over, or nearly so, and within a short time the semiarcosis should be deepened to complete anesthesia by one of the general anesthetics.

The amount of hyoscine given depends entirely upon the degree to which the patient appears to be under the influence of the drug. Its administration should be continued until the patient has lost locomotor co-ordination; when this stage is reached it should be maintained by small and infrequent doses such as 1/300 grains every two or three hours. The loss of locomotor co-ordination marks one boundary of seminarcosis for the patient, but she must be kept from crossing the other boundary, which is reached when, during a labor pain, the pupils no longer show the usual dilatation at the height of the contraction because they are already dilated to the maximum by the action of the hyoscine on the terminals of the third nerve in the iris. These are the two boundaries which must be watched during the administration of hyoscine and keeping the patient within these constitutes scientific seminarcosis.

When the seminarcosis is augmented by a general anesthetic at the time of delivery, great care must be exercised to prevent the giving of too much anesthetic. Ten to fifteen drops of chloroform on a thin gauze mask are usually sufficient to render the patient sufficiently relaxed. There is a tendency to give more anesthetic than the occasion demands, with the result that the fetus may be born apneic, or asphyxiated, and requires resuscitation. Generally speaking, however, fetal asphyxia is not increased, although an occasional child is born in a state of oligopnea, from which they usually promptly recover on the slightest stimulation.

The advocates of this method find it has its greatest usefulness in cases where labor is likely to be prolonged, particularly in elderly primiparae and cases of moderately contracted pelvis. Also, in the multiparous patient where the stage of labor is protracted and painful due to premature rupture of the membranes, or a long rigid cervix. They state there are no disadvantages to either mother or child, although the mother in some instances is somewhat restless and excitable during pains, and that such can be controlled by the use of magnesium sulphate, 2 cc. of a 50% solution intramuscularly, or by the instillation of one and a half to two ounces of ether in olive oil into the rectum. They emphasize there is no method which by such a simple procedure as two or three hypodermic injections can result in such complete amnesia over a period of such considerable time, that enables such a high percentage of these cases to go through labor without its recollection.

Those less enthusiastic state that when compared with other methods, labor is somewhat prolonged, especially the second stage, owing to less co-operation on the part of the patient; that the incidence of operative deliveries is increased; that fetal asphyxia is increased, though rarely a serious factor; and that post-partum hemorrhage (i.e. over 300 cc.) is likewise increased.

## (2) Gwathmey's Ether-Oil Rectal Analgesia.

The original technic advocated by Davis and Gwathmey in 1924 has had many modifications, according to the likes and dislikes of the individual



accoucheur. Some, feeling that quinine has little or no value in maintaining uterine contractions would omit its use altogether, or, modify the dose originally prescribed; others, objecting to the use of magnesium sulphate hypodermically because of the possibility of abscess formation, or the temporary discomfort associated with the injection. Recently, Gwathmey and McCormick advocated new modifications in the obstetric technic and which are as follows:

- (1) The omission of magnesium sulphate by hypodermic injection, and the substitution of nembutal by mouth;
- (2) The rectal mixture, as now used, is ether,  $2\frac{1}{2}$  ounces (75 cc.), quinine alkaloid 20 grains (1.3 Gm.), alcohol 45 minims (3 cc.), Paraldehyde 2 drachms (8 cc.) and liquid petrolatum or olive oil sufficient to make 4 ounces (120 cc.).

These agents are mixed in the following order: (1) quinine and alcohol; (2) paraldehyde; (3) ether; (4) oil. The mixture is then stirred, strained through cotton, bottled and corked.

- (3) The substitution of the degree of the patient's suffering for the amount of cervical dilatation as a time criterion for the administration of the sedatives and the rectal installations;
- (4) The installation of the rectal mixture with the McCormick apparatus, which is completed within thirty seconds, falling within any pain interval, instead of with the funnel method, requiring from ten to fifteen minutes. (The McCormick apparatus is not essential. With one assistant the funnel method or an asepto syringe equipped with a catheter has proved quite practical);
- (5) The substitution of a five to ten percent (a heaping tablespoonful in a quart of water) solution of sodium bicarbonate enema for the usual soapsuds enema. It should not be given just before the rectal installation. If this is unavoidable, any remaining water is siphoned back before the rectal installation.

With the preliminary preparation of the patient completed, she is advised of the various steps in the procedure to be followed for her relief.

When the pains become uncomfortably severe, the patient is given 3 grains of nembutal by mouth. When the pains again become uncomfortable  $1\frac{1}{2}$  grains of nembutal are given plus one-sixth or one-fourth grain of morphine hypodermically, if the patient is a primipara in active labor. On the other hand, if the labor is not uncomfortably active, or if it is of the prolonged type, the second dose of nembutal may be repeated once or oftener before the morphine is given (not more than 10 to 12 grains of nembutal in twenty-four hours). When the effects of the morphine begin to wear off, the ether-oil quinine solution is administered by rectum and repeated as often as required, except that the quinine is omitted after the second instillation. Usually one instillation suffices. Morphine is omitted if delivery is anticipated within four hours and is rarely necessary if the patient is a multipara. If delivery is anticipated within a few hours, the nembutal and the ether-oil instillation are promptly given, simultaneously. From the beginning of the analgesia the patient should be kept quiet and the environment such as to favor her falling asleep and remaining undisturbed. She is given only the necessary attention. She must be watched while asleep, as she may turn from side to side during contractions and fall out of bed.



### The Rectal Installation.

The patient is placed on her left side, with the buttocks at the side of the bed. Seaweed or tragacanth lubricating jelly (not petrolatum) is liberally applied about the anus. A well lubricated 22F. catheter is inserted from six to eight inches into the rectum, making sure it passes the presenting part. The mixture is instilled between pains. During its administration the patient is told to breathe deeply, with her mouth open, and to draw up with the anal sphincter, as if trying to avoid expelling gas, thereby inducing reverse peristalsis and permitting the fluid to run in more rapidly. With the instillation completed, the catheter is clamped and gently withdrawn. Pressure is then made with a towel over the anus during the next three or four uterine contractions. She may then assume whatever position is most comfortable. The rectal instillation may be given at intervals of two and one-half hours if necessary.

At the time of delivery, nitrous oxide, ethylene, or ether is given by inhalation, but not chloroform. When the baby is born, if a gas-oxygen apparatus is used, all anesthetic is cut off, and 5 percent carbon dioxide and oxygen, under pressure, is given before the cord is cut.

The advocates of this method recommend it as the safest of all the satisfactory analgesic agents used to date, no maternal or infant mortality being attributed to its use. Its other advantages include:

- (1) A satisfactory analgesia in 85 to 95 percent of cases and a most gratifying amnesia as well, the patient rarely having more than a vague recollection of labor;
- (2) There are no major physical contraindications. It may be given with impunity to patients presenting cardiac disease, tuberculosis, acute bronchitis, nephritis, eclampsia and other complicating conditions;
- (3) It is used with equal facility in the home and in the hospital;
- (4) The patient is more co-operative than in twilight sleep or sodium amytal analgesia;
- (5) It requires but little equipment and experience and is readily administered by the general practitioner;
- (6) Labor is not appreciably prolonged and the second stage is frequently shortened;
- (7) It incurs no complications of labor or the immediate post partum period;
- (8) Operative deliveries are decreased in number, and lacerations are no more frequent than with other methods of delivery;
- (9) In performing a caesarean section under local anesthesia, it affords an excellent preliminary;
- (10) The baby suffers no ill effects;
- (11) It is available to practically every woman in labor, the cost being small.

Many series of cases have been reported within the past several years in which the barbiturates, either alone, or in combination with other drugs, were used as analgesics in obstetrics. Of these, pentobarbital sodium (nembutal) seems to enjoy the greatest popularity, the best results being obtained when it is combined with scopolamine, paraldehyde or rectal ether. Sodium



amytal has also been used considerably, but restlessness is more pronounced and the return to consciousness more prolonged, than with nembutal.

Isolation, speaking to or handling the patient, and examining her only when distinctly necessary, plus constant and careful observation will give the best results. A psychic appeal should be made for her cooperation. Some consider it unwise to administer the barbiturates to patients having definite organic heart disease, because of the restlessness sometimes encountered while in labor.

#### **Nembutal-Scopolamine Analgesia.**

Medication is started early when the pains become uncomfortably severe, or when one is certain labor has started. The initial dose of nembutal is  $4\frac{1}{2}$  to 6 grains by mouth which may be increased if desired. It is repeated three to four hours later in  $1\frac{1}{2}$  to 3 grain doses if indicated. Forty-five minutes after the initial dose of nembutal, one one-hundredth or one one-hundredth and fiftieth of scopolamine is given subcutaneously and repeated as soon as the patient begins to complain of pain.

This method enjoys considerable popularity because of the high degree of amnesia obtained with no untoward effects on mother or child, and the simplicity and ease of administration.

#### **Nembutal-Paraldehyde Analgesia.**

Medication is likewise started as soon as the patient begins complaining of the pains being severe. The initial dose of nembutal is  $4\frac{1}{2}$  grains by mouth. Fifteen minutes later 3 grains of nembutal are given by mouth. Fifteen to thirty minutes later, 4 to 6 drachms of paraldehyde in one and a half ounces of olive oil are instilled into the rectum. This is sufficient to keep the patient asleep from four to six hours or longer. When she shows signs of waking, gentle examination may be done to determine the progress being made. When the pains again become uncomfortable, nembutal is repeated in  $1\frac{1}{2}$  to 3 grain doses, and paraldehyde repeated in 2 drachm to 4 drachm doses if necessary. If the patient is too drowsy to swallow the nembutal, the capsule may be opened and dissolved in a small amount of saline and instilled per rectum, or, if paraldehyde is being repeated, administer the nembutal in it. Experience alone will guide one as to when and how often these drugs should be repeated, also, whether one, or both, should be given.

This method insofar as amnesia and analgesia are concerned, gives excellent results. It apparently exerts no deleterious effects on either mother or child. Labor is not prolonged. Hemorrhage is not increased. Restlessness, however, is sometimes a troublesome feature, but can be controlled by harmless restraining measures, or by the instillation of  $1\frac{1}{2}$  to 2 ounces of ether-oil. Pernocton in 2.2. cc. doses intravenously has also been used successfully to control the restlessness.

#### **Nembutal-Heroin Analgesia.**

This method is being used with considerable success on one of the services at the Grace Maternity Hospital. Occasionally a patient reacts unfavorably to even small doses of nembutal, and, with this in mind, a small initial dose is given as a test.

Early in labor the patient is given  $1\frac{1}{2}$  grains of nembutal by mouth. Three hours later this is repeated, though occasionally the second dose is 3 grains



depending on the effect of the first. The nembutal is repeated in  $1\frac{1}{2}$  to 3 grain doses at three hour intervals during the labor.

Heroin is given hypodermically in  $1/8$  to  $1/6$  grain doses when the patient becomes restless as the result of the strength of the pains. The dose given depends on the size of the patient, small patients receiving the smaller dose. The heroin is also repeated as indicated, but not less than three hours between doses, or within two hours of expected delivery. Heroin has long been recognized as superior to morphine in analgesic action, and is said to possess the additional advantages of not decreasing the intensity of the uterine contractions, and having no deleterious effects upon the child.

It is important to remember that the two drugs should not be given together, as both are respiratory depressants of considerable potency.

The method has been found of value in the home as well as in the hospital.

### **Pernocton and Numal.**

These drugs which are administered intravenously for obstetric analgesia have not been used at the Grace Maternity Hospital. They are included merely because of the gradually increasing statistics appearing, with satisfactory results, in selected cases.

Pernocton, which is a butyl-bromallyl barbituric acid, was introduced by R. Bumm in 1927 and used for surgical anesthesia. Since then a great deal has been written on its use in obstetrics, especially in Germany. It is slowly administered intravenously, in doses of 1 cubic centimeter for each 12.5 kilos (27.5 lbs.) of body weight, the usual dose being 5 cc. The effect of the drug is extremely rapid, changes being noted even after the injection of 1 cc. The patient interrupts her conversation, she becomes quiet, begins to yawn, her eyes close and she falls asleep. Almost complete amnesia is obtained, providing labor terminates within two to three hours, which it frequently does.

The disadvantages are: (1) In about one-fourth of the cases there is a stage of excitation and in some cases there is marked violence, hence they require close watching; (2) The anesthesia lasts only from two and a half to three hours. To overcome this some authors add scopolamine and others give an intramuscular injection of pernocton when the effect of the intravenous injection begins to wear off; (3) Not infrequently the strength of the uterine contractions is so impaired that one to two minim doses of pituitrin are necessary to overcome it; (4) It is not given until the patient is well advanced in labor when much pain and suffering have already been experienced; (5) Fetal asphyxia is said to be increased somewhat.

Numal, which is allylisopropyl barbituric acid, has also been used considerably in obstetrics especially in Europe. It is usually given intravenously in doses of 100 mg. per kilogram (2.2 lbs.) of body weight, the average dose being 5 to 6 cc. of a 10% solution. It is injected at the rate of 1 cc. per minute. At the end of about two minutes the patient becomes drowsy and usually does not remember the removal of the needle. This drug possesses no appreciable advantages over pernocton and most of the disadvantages obtain as well. It is especially advantageous in cases of multiparae having a rapid labor.

Drugs given intravenously for the relief of pain in labor enjoy little or no popularity in Canada and the United States, though used considerably in Europe. This is due, no doubt, to the disadvantages mentioned, and the



fact that, equally satisfactory results are obtained with more readily controllable methods.

The foregoing methods, with the exception of the last, represent fairly well the technics most commonly employed for obstetric amnesia and analgesia. The doses given have been found satisfactory and well within the range of safety for both mother and child. Numerous other drugs, among which may be mentioned sodium amytal, dial, pantopon and dilaudid, either alone or in combination with others, are being used in various places, but possess no advantages over those mentioned. Avertin, which a few years ago enjoyed a temporary popularity in some clinics, has now been more or less abandoned. Recently, small doses of benzyl alcohol, when combined with paraldehyde per rectum, has given very satisfactory results.

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### SUMMARY

No one method for the relief of pain in labor is recommended. The perfect analgesic agent or agents have not yet been discovered.

At the present time a combination of drugs seem to possess advantages over single agents in labor. The best amnesia is usually obtained with a combination in which scopolamine is used.

The most widely used analgesic agents are the barbiturates, among which pentobarbital sodium (nembutal) appears the most frequently used.

The barbiturates are given by mouth, their intravenous use has not become popular in Canada or the United States. They are frequently combined with paraldehyde by rectum or with scopolamine hypodermically.

Excitement accompanying the use of the barbiturates is best controlled by rectal ether.

Hyoscine-morphine seminarcoisis, next to the barbiturates, is probably the most common type of analgesia in use. It is believed by some to lengthen the duration of labor, particularly the second stage, and to increase the incidence of fetal asphyxia.

The new Gwathmey technic seems to possess distinct advantages over the original one, and will probably become more generally accepted than it.

A fair trial of one method should be given before changing to another. With added experience comes the best results.

The following form is the one in use at the Grace Maternity Hospital for studying the results of one method as compared with another.







## Bone Tumors—II.

C. M. JONES, M.D.

*Osteochondroma*—(Exostosis). A benign tumor of bone usually occurring between the ages of 10 and 25 years, picking as it's favorite sites the lower end of the femur and radius and the upper end of the tibia and humerus. When these tumors are found in adults they are probably of years' standing as symptoms are often absent. Tumors, histologically similar, but due to trauma or infection also develop in adults, e.g. the calcaneal spur of gonorrhoea.

Clinically, the history extends over five years or more. The patient comes to the doctor complaining of a slowly growing hard mass (most commonly near the knee) associated with rheumatic pains or stiffness in the nearest joint. This may be discovered accidentally when examining a part of the body after minor injury. There is no constitutional change.

On palpation, the tumor is very hard and firmly attached to the bone. Occasionally the top has a peculiar "rubbery feeling". The soft tissues move freely over it and no tenderness is elicited by deep pressure.

One patient, seen by the author, discovered a hard mass on the medial side of the thigh while rubbing his leg after a fall. Films showed an exostosis about 5" long arising from the abductor tubercle and extending up the medial side of the leg with the head just palpable between the abductor and extensor muscles. The patient has reported no change in the tumor in the last six years.

Another osteochondroma was found in a patient who got the worst of an argument with a horse. A short bony tumor arising near the attachment of the soleus and extending down the back of the calf of the leg had been fractured by the kick. The patient was a compensation case but the horse who had done the most of the work did not collect a fee. These cases are cited to show how, in adults, such a tumor often gives rise to no symptoms.

However, due to its situation, the tumor is often subjected to repeated apparently negligible traumata. Many of them, arising from the connective tissue forming the joints, have small bursae over the top protecting the soft tissues. Skilled fingers can in these cases elicit some fluctuation specially when inflammation has been set up by the slight trauma. Symptoms are now rather definite with severe pain and tenderness over the swelling.

Again, these tumors may press on arteries causing severe pain and oedema. Cases have been reported where such a tumor caused a popliteal aneurysm. Pressure on large nerve trunks has caused neuralgia and in those arising in the vertebrae, paralysis. These last, however, are more common in the congenital type, to be discussed below.

There is one important phase in the history of these tumors which must be stressed, namely, malignant degeneration or change. The growth of the exostosis is slow and often appears to be at a standstill for years. A sudden increase in the rate of growth, with pain and tenderness, is evidence of malignancy and the fact that the history is of long duration does not exclude this probability. It is an error into which one occasionally falls with disastrous results. About 8% become malignant.



In the radiograph the tumor will be seen to be composed of two distinct parts. The base has the structure of normal bone and may be a long thin spike or a broad flat mass, the latter usually in the flat bones. The cortex of the base merges evenly with that of the bone on which it is situated and the medullary canals are continuous. The cap is the neoplastic portion of the tumor and varies from a thin layer of a cartilage to a huge cauliflower-like mass showing scattered areas of calcification. Above this may be seen a bursa when it has calcified. It is the cap which should be carefully studied when malignancy is suspected. When the cap is poorly defined and appears to fade away into the soft tissues and the base is granular and fragmented, a diagnosis of secondary chondrosarcoma is in order.

The gross specimen shows nicely the normal cancellous bone overlaid by the translucent cartilage of varying thickness. The whole is covered by fibrous tissue which is usually continuous with the tendon near the site of the tumor. Under the microscope the cartilage is of the adult type except for very small areas where the fetal cells show active cartilage and bone proliferation and in these areas which should be carefully examined. It will be noted that these areas are associated with the fibrous tissue septa from the capsule and this point gives rise to the interesting theory of the etiology of the osteochondroma.

As mentioned before, the skeleton arises from primitive connective tissue. One part of this goes ahead rapidly to form bone but the other portion forms the joints, linings, bursae and the ends of tendons. This tissue however retains its power of producing bone and in the case of large tendons a bony anchor is formed, e.g. the abductor tubercle. Thus it will be seen that the tendon is fastened directly to bone through an opening in the periosteum.

Trauma, which plays a large part in the etiology of bone tumors, or infection, may alter the normally balanced conditions at this point in two ways. First the periosteum which blends with the tendon and limits the growth of the underlying bone may be damaged and the now unchecked bone proliferation bulges through the gap. Again the trauma or infection may stimulate the latent connective tissue of the tendon with the formation of cartilage which covers the mass of bone protruding through the hole in the periosteum. The proportions of base and cap will depend on the amount of damage to the periosteum and the intensity of the stimulation of this connective tissue in the tendon.

*Treatment.* Unless the tumor is producing symptoms due to pressure or affecting the function of the neighboring joint it should be left alone. If removed, it should be thoroughly chiselled from the bone and dissected away from the tendon, the gap in the periosteum being closed tightly. The 5% recurrence is due largely to neglect of these principles.

When malignancy is established immediate amputation offers a favorable prognosis—40% cure.

*Hereditary Deforming Chondrodysplasia.* This is a variety of the osteochondroma characterized by multiple exostoses and deformities of the limbs. It is hereditary and transmitted equally by males and females. The tumors, being congenital, interfere with the growth of the bones, and the patient is seen early in life. He is short in stature, may even be a dwarf, with crooked arms and legs. The hands and feet are often deformed and the limbs are of unequal length. The crookness of the limbs is due to union of the two bones of the forearm and the lower leg. The ulna and fibula then develop more



slowly than the other bones and the limbs becomes bowed. The exostoses are more common in the spine and produce all the manifestations of pressure on the nerve roots and cords to complete paralysis. Pain and other pressure symptoms appear from the involvement of the arteries and large nerve trunks.

*Diagnosis.* The multiple osteochondromata with the wide metaphyseal ends of the bones and the deformities are characteristic.

The cause of this interesting condition is not known but the theory is that the periosteum fails to mature properly leaving many areas of primitive connective tissue behind to form tumors and gaps in the periosteum thru which they can grow.

*Treatment.* Those tumors causing pressure symptoms should be excised. The fact that many of the exostoses retrogress and disappear postpones all operative measures for the correction of deformities till after puberty.

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•Dr. Channing Frothingham, Chief of the Medical Service of the Faulkner Hospital at Jamaica Plain, Mass., who is interested in the organization of "community hospitals so that they offer physicians an opportunity to practise medicine well" will speak on this subject at the annual Refresher Course. Dr. Frothingham will also hold two medical clinics, and the title of his other lecture will be announced later.

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#### The Summer-Time Use of Mead's Oleum Percomorphum.

During the hot weather, when fat tolerance is lowest, many physicians have found it a successful practice to transfer cod liver oil patients to Mead's Oleum Percomorphum.

Due to its negligible oil content and its small dosage, this product does not upset the digestion, so that even the most squemish patient can "stomach" it without protest.

There are at least two facts that strongly indicate the reasonableness of the above suggestion: (1) In prematures, to whom cod liver oil cannot be given in sufficient dosage without serious digestive upset, Mead's Oleum Percomorphum is the antiricketic agent of choice. (2) In Florida, Arizona and New Mexico, where an unusually high percentage of sunshine prevails at all seasons, Mead's Oleum Percomorphum continues increasingly in demand, as physicians realize that sunshine alone does not always prevent or cure rickets.

Mead Johnson & Company, Evansville, Indiana, invite you to send for samples of Mead's Oleum Percomorphum for clinical use during the summer months to replace cod liver oil.



# Ankle Joint Fractures\*

E. F. Ross, M.D.

FOR some time it has been our custom to class all fractures of the ankle joint as Pott's fracture with the occasional addition of Dupuytren's or Cotton's fracture as the rare occurrences. In 1922 it was suggested by Ashurst and Bromer that a classification of such fractures based on the method of production would be more rational and also of more practical value. Although a strict classification as described by them is liable to lead to scientific clarity only, nevertheless some practical points particularly in treatment do evolve themselves.

A brief view of the anatomical arrangement of the ankle joint will recall that it is a mortise formed medially by the internal malleolus, above by the inferior surface of the tibia and laterally by the external malleolus. The astragalus fitting in this mortise and articulating with the tibia. The internal and external lateral ligaments complete the lateral and medial supports.

The classification according to Ashurst and Bromer is then—

- (1) External rotation: (2) Abduction or fibular flexion: (3) Adduction or tibial flexion: (4) Upward thrust.

The external rotation and fibular flexion fractures although differing slightly in the method of production and the type of fracture are discussed together because their treatment is essentially the same.

In the external rotation fracture there is either external rotation of the foot beneath a fixed leg or internal rotation of the leg on a fixed foot; the fibular flexion or abduction fracture is caused by the sudden transfer of weight to the inner side of the foot and consequently flexion on the fibular side. The resultant fractures then as a result of the astragalus turning in its mortise may be—

A. On the fibular side—

- (1) Fracture through external malleolus;
- (2) Fracture of fibula three to four inches above external malleolus;
- (3) Fracture of fibula below its head.

B. On the tibial side and dependent upon the severity of the injury—

- (1) Tear or tear fracture of internal lateral ligament;
- (2) Fracture of internal malleolus usually transverse in type;
- (3) Fracture of posterior tubercle of the tibia with the preceding fracture or by itself.

The tibial flexion or abduction fracture is produced in exactly the reverse manner to that of the fibular flexion or abduction fracture, viz.: the sudden transfer of weight to the outer side of the foot, and the latter is consequently *adducted*. The resulting injury may be—

A. On the fibular side—

- (1) Tear or tear fracture of the external lateral ligament;
- (2) Fracture of the external malleolus.

\*Delivered before a meeting of the Lunenburg-Queens Medical Society, May, 1936.



## B. On the tibial side—

A vertical fracture extending through the internal malleolus and the tibia.

Included in upward thrust fractures are those where the injury causes the astragalus to be thrust upward between the tibia and fibula, and also some of the types of dislocations.

The important point of differentiation really lies between the external rotation and fibular flexion fractures on the one hand and the tibial flexion on the other. In many cases this is not possible by clinical examination although accurate history of injury may cause one to suspect the type that is present. *X-ray examination* can, however, determine the nature of the fracture in practically all cases. Considering the method of reduction of the tibial flexion fractures the importance of its recognition will be seen.

*Treatment.* As in most fractures early reduction usually means more accurate restoration anatomically.

The external rotation and fibular flexion fractures are of course reduced by adduction of the foot to correct the deformity and maintenance in this position.

The tibial flexion fractures on the other hand are reduced by abduction of the foot and maintenance in this position.

Dorsiflexion of course should be obtained in either fracture.

Plaster of Paris offers an excellent means of permanent retention.

In those patients who present themselves with very marked swelling I should like to recommend the use of the pillow splint; a large soft pillow used as a splint and not as merely a soft support for the foot. By the firm application of this article which is moulded about the leg and fixed by safety pins to its free edges, and by the use of the free end of the pillow case likewise fixed with safety pins to the body of the pillow so as to produce either abduction or adduction of the foot, the ankle joint fracture may be reduced and maintained in position. The firm pressure of the pillow, which is readjusted when looseness occurs, together with elevation of the foot of the bed, causes subsidence of swelling after a week or ten days, and the foot and leg may be encased in its permanent Plaster of Paris cast. At this point I should like to mention the use of protected weight bearing or the walking cast. When all swelling has subsided the cast is applied over a minimal amount of padding either (1) stockinette: (2) a lady's silk stocking as recommended by Gurd of Montreal: (3) no padding whatsoever—Boehler. The plaster for ankle joint fractures extends from the tips of the toes to below the knee. After it has thoroughly dried a walking heel is applied in the form of Saddlers felt strapped to the plaster with adhesive. As an alternative to this method a walking iron, as recommended by Boehler, may be incorporated in the heel of the plaster. It is generally felt that protected weight bearing not only stimulates bony union but also greatly minimizes, if not entirely prevents, the occurrence of bone strophy. The plaster is of course worn for a period proportionate to the severity of the injury. As a convalescent measure following the removal of the plaster the use of the Thomas heel is recommended to elevate either side of the foot by the addition of a lift of leather to the shoe. Hot saline baths, motion and massage all play a part in the further treatment of ankle joint fractures.



## RESUME OF FRACTURES OF OS CALCIS\*

A brief classification of fractures of the os calcis is the following—

- (1) Fracture of posterior superior part of tuberosity or separation of the epiphysis beneath the point of attachment of the tendon achillis;
- (2) Fracture of the sustentaculum tali, displacement not being usually marked.
- (3) *Fractures of the body* of the os calcis. In these fractures, to which our attention is particularly directed, considering that the method of production is usually a fall on the heel, we find that (a) there is impaction of the upper and lower surfaces; (b) the posterior inferior part of the os calcis is driven upwards and the posterior pillar of the longitudinal arch is flattened; (c) the os calcis is consequently widened.

The end results of fractures of the os calcis left untreated might be the following—

- (1) Flattening of arch of foot;
- (2) Lateral displacement of heel and change in mechanics of weight bearing;
- (3) Involvement of the sub-astragaloid joint and resultant interference with the lateral movements of the foot and *pain*, particularly when walking on an uneven surface.
- (4) Exuberant callous on the outer aspect of the foot impinging on the external malleolus;
- (5) Spur formation on under aspect of os calcis.

The active treatment of fractures of this bone should not be begun until all swelling has subsided. The aims in the treatment of fractures of the os calcis, particular reference being paid to those of the body are—

A. To correct lateral displacement by—

- (1) Manual moulding;
- (2) Use of the wooden mallet as advocated by Cotton;
- (3) The screw clamp.

B. To correct upward displacement of the posterior tuberosity—

- (1) This may be accomplished as lateral displacement is corrected;
- (2) By traction, using Kirschner wire, Steinman pin or the Schmerz traction as recommended by Boehler. The wire being inserted into the upper border of the tuberosity and when satisfactory reduction has been accomplished, the foot and lower leg are enclosed in a walking plaster over a minimal amount of padding as recommended for ankle joint fractures. Here again one may use either the walking iron heel incorporated in the plaster or the felt heel strapped to the cast. The patient is encouraged to walk from the earliest time possible. It is recommended that severe fractures be immobilized for a period of three months.

\*Also read before the same meeting of the Lunenburg-Queens Medical Society, May, 1936.



## "Something Must Be Done"

J. E. LEBLANC, M.D.,  
West Pubnico, N.S.

MUCH literature has been written of late upon the question of Medical Relief and the subject is still becoming a very important problem as we go on every day with our routine work. Not only our future is at stake but the medical youth of our land is to meet very perplexing difficulties if nothing is done from an economic point of view. We who have come before the depression and seen "booming times" must do something" to prepare the way", so to speak, for our young "confreres" in the medical profession. Otherwise, the health of the citizens of Nova Scotia, particularly in some sections of our Province, will be seriously jeopardized.

The purpose of this paper is not to lay down "hard and fast" rules with regard to Medical Relief, but merely to express an opinion upon the subject so earnestly requested by our much esteemed and devoted Secretary, Dr. H. G. Grant.

We read in the Report of the Committee on Economics of the Canadian Medical Association published in June, 1934, the following extract on Nova Scotia:

*Pre-Depression*—The Municipal Council may pay for the care of a certain number of patients as they may see fit."

The City of Halifax makes a grant towards the Dalhousie Public Health Clinic which is open to all the indigents in Halifax.

*Depression*—"There has been no change made in Nova Scotia since the depression for the care of indigents."

*Attitude of the Province*—"The situation in Nova Scotia is urgent."

From this it is obvious that our Municipal Councils have to some extent contributed to assist our "indigents", in some municipalities of our Province. Many have done so in a most heroic way but after sometime they have realized that they could not cope with the situation because of lack of financial means. Hence we see before us patients compelled to return home from the Sanatorium some "moderately advanced", others "advanced", still a victim of the disease of tuberculosis and a source of spread and infection in the household. We also see staring us in the face patients who, on account of poverty, are resolute to suffer for the rest of their days because they are unable to go to the hospital for treatment. Hundreds of cases of diseased tonsils are left unattended from lack of financial assistance. This list is unlimited.

We could go on to enumerate a number of other cases of a similar nature. They are too familiar to us all. Suffice it for me to say that with what evidence we have at hand, the economic conditions are such that no longer can the physician stand the stress of the times without assistance of some kind. Surely some scheme can be devised whereby our "indigent sick" can be helped. State Medicine has been highly spoken of—as a solution to the problem; also



Health Insurance, which appears to have taken a strong foothold in Europe, particularly in Germany. We cannot speak with authority upon these Systems as their results in Canada have not yet been widely known. We do believe, however, that if assistance by way of Medical Relief was advocated, the Medical Profession in Nova Scotia would be greatly relieved; we mean Relief to the "indigent sick" to whom Dr. Lovett of Bear River so well referred in the last issue of the BULLETIN.

The question then arises; What is an "indigent"? We quote again from the Report of the Committee on Economics: "An indigent is defined as a person who is needy or poor. Those who administer laws dealing with indigents have many different interpretations of the definition, some broad, some narrow. Indigence is difficult to define rigidly and fairly, but it should be clear that a person need not be actually destitute to be indigent from the point of view of medical care. A married man with a family who is earning ten or twelve dollars a week is indigent in so far as medical care is concerned, because after he has attempted to house, feed and clothe his family, he is certainly without the means of obtaining medical care. At whatever level we define indigence, from that point up the economic scale, we have the middle class, until we come to another level which is equally hard to fix, that at which the middle class merges into the state of the well-to-do. For our purpose middle class would include those who have something more than the bare necessities of life, but not enough to meet a severe or prolonged illness without economic difficulty."

These are some thoughts we wish to submit to the medical profession at this time of the year before we meet in September. We do not propose to offer the only scheme which will solve the problem, but endeavour to prepare the work for future study and discussion.



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and the Secretaries of Local Societies

It is to be distinctly understood that the Editors of this Journal do not necessarily subscribe to the views of its contributors, except those which may be expressed in this section.

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## COME TO THE REFRESHER COURSE

**I**N the old Royal Reader there was a story about Arkwright, the inventor of the spinning-jenny who, in his earlier days, ran a barber shop bearing the sign: "Come to the subterranean barber: he costs but a penny!" If you substitute Dalhousie Refresher Course for 'subterranean barber' the same holds true. But this year there is the special attraction that the course will run concurrently with the annual meeting of the Nova Scotia Medical Society at which subjects of great moment to our future will be on the carpet.

The Committee running the Refresher Course, however, are offering a clinical week that can stand on its own. It will have three outside men, Dr. Channing Frothingham of Boston, and Drs. Farquharson and Couch of Toronto, an internist, a therapist and a surgeon respectively. In addition to these he usual facilities will be provided by the local clinicians. Dr. Schwartz and his associates on the Committee have gone to a great deal of trouble to ensure that the local performance will be bigger and better than ever.

The BULLETIN makes a special plea to the younger men of the profession to follow in the footsteps of such habitues as Dr. Dan Murray of Tatamagouche, and develop the yearly habit of attending this brush-up. For this is certain: the medical man who cannot give one week a year to refurbishing his intellectual and clinical stores should give up medicine and go working on the roads—since lacking such a brush-up it will only be a matter of time before he is unfit for much else.

H. D. A.

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Dr. Ray. F. Farquharson, Professor of Therapeutics, University of Toronto will speak on "Diagnosis and Treatment of Conditions associated with Jaundice" and "Differential Diagnosis and Treatment of enlargement of Superficial Lymph Glands" at the annual Refresher Course.



## Programme of Combined Meeting Medical Society of Nova Scotia and Dalhousie Refresher Course

August 31st to September 4th, 1936, inclusive

Daylight Saving Time.

### Monday, August 31st.

- 9.00 - 10.00 a.m. Surgical Clinic, Dr. C. E. Kinley, Dr. A. L. Murphy.  
Victoria General Hospital.
- 10.10 - 11.20 a.m. Urological Clinic, Dr. F. G. Mack, Dr. G. A. Winfield.  
Victoria General Hospital.
- 11.30 - 1.00 p.m. Clinics by the Staff of the Public Health Clinic.
- 2.30 - 3.30 p.m. Chairman: Dr. J. R. Corston.  
(a) "The Problem of Maternal and Infant Welfare." Dr. A. L. McLean.  
(b) "The Care of the Mother during Pregnancy and the Puerperium."  
Dr. H. B. Atlee.
- 3.30 - 4.30 p.m. Film: "Spinal and Intravenous Anaesthesia." Dr. W. L. Muir.  
Discussion on Anaesthesia to be led by Dr. C. E. A. deWitt, Woltville  
Dr. D. A. Campbell, Bridgewater, Dr. K. M. Grant, Halifax.
- 7.30 p.m. Special Lectures and Demonstrations.  
Exhibit by the Department of Pathology.  
Dr. R. P. Smith, Dr. G. McCurdy, Dr. N. H. Gosse, Dr. C. W. Holland.
- 8.00 p.m. Meeting of the Executive of the Medical Society of Nova Scotia.

### Tuesday, September 1st.

- 9.00 - 10.20 a.m. Surgical Clinic, Dr. W. A. Curry, Dr. E. F. Ross.
- 10.30 - 11.50 a.m. Gynaecological Clinic, Dr. H. B. Atlee, Dr. W. G. Colwell.
- 12.00 - 1.00 p.m. Medical Clinic, Dr. Channing Frothingham, Physician-in-Chief of the  
Medical Service at the Faulkner Hospital, Boston, Mass.
- 2.30 - 3.30 p.m. Chairman: Dr. K. A. MacKenzie.  
"The Organization of a Community Hospital for the best of Service."  
Dr. Channing Frothingham,
- 3.30 - 4.30 p.m. "The Present Maternal Mortality Rate with Special Reference to Labor."  
Dr. E. K. Maclellan.
- 5.00 p.m. Special Lectures and Demonstrations.  
"Principles and Practice of Radiation Therapy." (Part I.)  
Dr. S. R. Johnston.
- 8.00 p.m. Business Session, Medical Society of Nova Scotia.

### Wednesday, September 2nd.

- 9.00 - 10.20 a.m. Medical Clinic, Dr. Channing Frothingham.
- 10.30 - 11.50 a.m. Surgical Clinic, Dr. N. H. Gosse, Dr. J. A. Noble.
- 12.00 - 1.00 p.m. "The Present Status of Endocrine Therapy." Dr. Channing Frothingham.
- 3.00 p.m. Golf, Halifax Golf and Country Club. "Ashburn."
- 8.00 p.m. Dinner, Nova Scotian Hotel, Medical Society of Nova Scotia.  
(Dress informal).



**Thursday, September 3rd.**

- 9.00 - 10.20 a.m.** Medical Clinic, Dr. K. A. MacKenzie, Dr. J. R. Corston.
- 10.30 - 11.50 a.m.** Clinic by the Staff of the Children's Hospital at the Public Health Clinic.
- 12.00 - 1.00 p.m.** "Differential Diagnosis and Treatment of Enlargement of the Superficial Lymph Glands." Dr. Ray F. Farquharson, Professor of Therapeutics, University of Toronto.
- 2.30 - 3.30 p.m.** Chairman: Dr. G. H. Murphy.  
"Recent Advances in the Treatment of Fractures," (with slides and models), Dr. J. H. Couch, Fellow in Surgery, University of Toronto.
- 3.30 - 4.30 p.m.** "Infant Mortality and its Prevention." Dr. Gordon Wiswell.
- 5.00 p.m.** Special Lectures and Demonstrations.  
"Principles and Practice of Radiation Therapy." (Part II).  
Dr. S. R. Johnston.
- 8.00 p.m.** Business Session, Medical Society of Nova Scotia.

**Friday, September 4th.**

- 9.00 - 10.20 a.m.** Surgical Clinic, Dr. H. K. MacDonald, Dr. V. O. Mader.
- 10.30 - 11.50 a.m.** Medical Clinic, Dr. M. J. Carney, Dr. G. R. Burns.
- 12.00 - 1.00 p.m.** "Injection Treatment of Varicose Veins and Haemorrhoids,"  
Dr. J. H. Couch.
- 2.30 - 3.30 p.m.** Chairman: Dr. J. G. MacDougall.  
"Diagnosis and Treatment of Conditions associated with Jaundice,"  
Dr. Ray F. Farquharson.
- 3.30 - 4.30 p.m.** Clinico-pathological Conference, Dr. R. P. Smith and Clinicians.



# Department of the Public Health

## PROVINCE OF NOVA SCOTIA

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

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

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

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 Kelley, H. E., Middleton (Mcpy. & Town).

Murray, R. L., North Sydney.  
 Townsend, H. J., Louisburg.  
 Gouthro, A. C., Little Bras d'Or Bridge, (Co. North Side).

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 MacKinnon, W. F., Antigonish.

#### COLCHESTER COUNTY

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 Havey, H. B., Stewiacke.  
 Johnston, T. R., Great Village (Mcpy.)

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 Morrison, J. C., New Waterford.  
 Martin, H. J., Sydney Mines.  
 McNeil, J. R., Glace Bay.  
 McLeod, J. K., Sydney.  
 O'Neil, F., Sydney (County), South Side.

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Bliss, G. C. W., Amherst.  
 Drury, D., Amherst (Mcpy.)  
 Gilroy, J. R., Oxford.  
 Stewart, Chas. E., Parrsboro.  
 Eaton, R. B., River Hebert (Joggins).  
 Walsh, F. E., Springhill.



**DIGBY COUNTY**

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Pothier, H. J., Weymouth, (Mcpy.)  
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Chisholm, A. N., Port Hawkesbury, (M.H.O. for Mulgrave).  
Sodero, G. W., Guysboro (Mcpy).  
Moore, E. F., Canso.  
Monaghan, T. T., Sherbrooke (St. Mary's Mcpy.)

**HALIFAX COUNTY**

Almon, W. B., Halifax.  
Forrest, W. D., Halifax (Mcpy.)  
Glenister, E. I., Dartmouth.

**HANTS COUNTY**

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

**INVERNESS COUNTY**

Chisholm, A. N., Port Hawkesbury.  
Boudreau, Gabriel, Port Hood, (Mcpy. and Town).  
MacLeod, F. J., Inverness.

**KINGS COUNTY**

Bishop, B. S., Kentville.  
Bethune, R. O., Berwick (Mcpy.)  
de Witt, C. E. A., Wolfville.  
Morash, R. A., Berwick.

**LUNENBURG COUNTY**

Marcus, S., Bridgewater (Mcpy.)  
Reh fuss, W. N., Bridgewater.  
Morrison, L. N., Magone Bay.  
Zinck, R. C., Lunenburg.  
Zwicker, D. W. N., Chester (Chester Mcpy).

**PICTOU COUNTY**

Blackett, A. E., New Glasgow.  
Chisholm, H. D., Springville, (Mcpy.)  
Bagnail, P. O., Westville.  
Crummey, C. B., Trenton.  
Dunn, G. A., Pictou.  
Benvie, R. M., Stellarton.

**QUEENS COUNTY**

Ford, T. R., Liverpool (Mcpy.)  
Smith, J. W., Liverpool.

**RICHMOND COUNTY**

Digout, J. H., St. Peters (Mcpy.)

**SHELburne COUNTY**

Brown, G. W. Clark's Harbour.  
Fuller, L. O., Shelburne. (Town and Mcpy).  
Wilson, A. M., Barrington, (Barrington Mcpy.)  
Lockwood, T. C., Lockeport.

**VICTORIA COUNTY**

MacMillan, C. L., Baddeck (Mcpy.)

**YARMOUTH COUNTY**

Hawkins, Z., South Ohio (Yarmouth Mcpy).  
Burton, G. V., Yarmouth.  
Lebbetter, T. A., Yarmouth (M.H.O. for Wedgeport).  
Chiasson, B. I., (Argyle Mcpy).

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

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

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

**Report on Tissues sectioned at the Provincial Pathological Laboratory from June 1st, 1936, to July 1st, 1936.**

During the month, 203 tissues were sectioned and examined, which with 25 tissues from 4 autopsies, makes a total of 228 tissues.

Tumours, malignant.....	27
Tumours, simple.....	10
Tumours, suspicious.....	2
Other conditions.....	164
Tissues from 4 autopsies.....	25



**Communicable Diseases Reported by the Medical Health Officers  
for the month of June, 1936.**

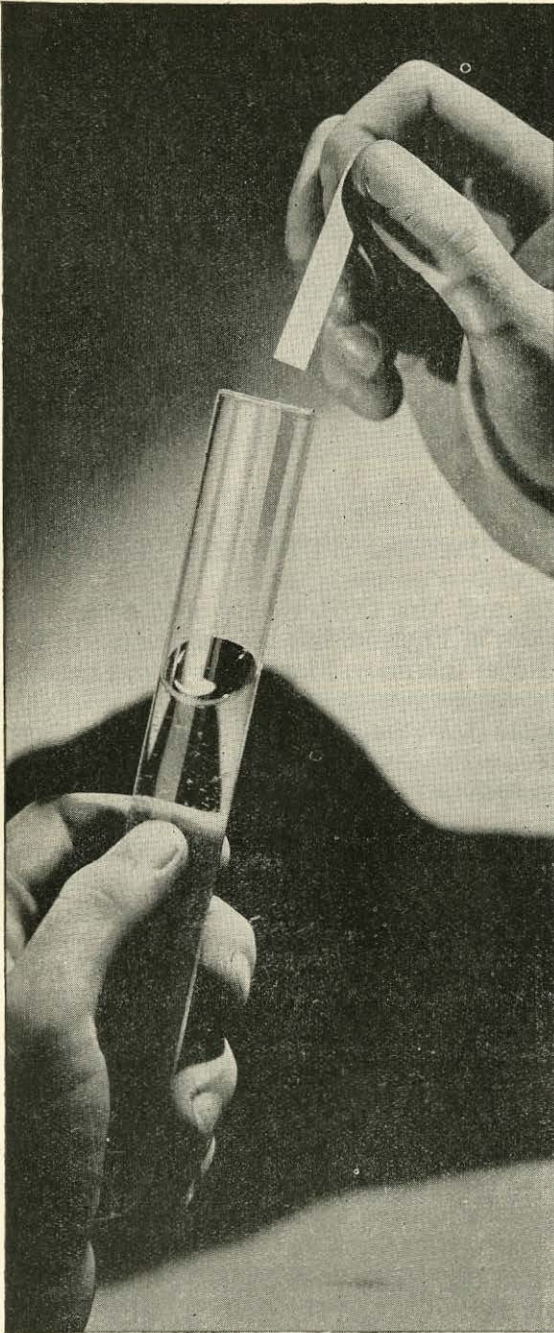
County	Chickenpox	Diphtheria	Cerebro Spinal Meningitis	Influenza	Measles	Mumps	Paratyphoid	Pneumonia	Scarlet Fever	Typhoid Fever	Tbc. Pulmonary	Tbc.-other Forms	V. D. G.	V. D. S.	Whooping Cough	Erysipelas	German Measles	Pink Eye	TOTAL
	Annapolis.....	..	..	..	..	6	..	..	1	..	..	..	..	1	..	3	..	23	..
Antigonish.....	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Cape Breton....	..	5	..	4	..	..	..	..	6	..	..	..	..	..	4	..	..	..	19
Colchester.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cumberland....	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Digby.....	..	1	..	..	..	13	..	2	..	..	2	..	1	..	..	..	21	..	40
Guysboro.....	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Halifax City..	1	3	..	..	1	..	..	16	..	..	5	..	..	..	9	..	..	..	35
Halifax.....	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2
Hants.....	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Inverness.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kings.....	7	1	..	8	..	..	..	3	..	..	..	..	2	1	1	..	..	..	23
Lunenburg....	10	..	..	..	25	..	1	1	..	3	..	1	1	10	..	..	..	..	51
Pictou.....	6	..	..	7	..	..	1	7	..	1	1	1	..	..	..	..	..	..	23
Queens.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Richmond.....	..	..	1	4	..	..	..	1	..	..	..	..	1	..	..	..	..	..	7
Shelburne.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Victoria.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yarmouth.....	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
<b>TOTAL.....</b>	<b>24</b>	<b>12</b>	<b>1</b>	<b>27</b>	<b>7</b>	<b>38</b>	<b>..</b>	<b>10</b>	<b>33</b>	<b>..</b>	<b>11</b>	<b>..</b>	<b>6</b>	<b>2</b>	<b>27</b>	<b>..</b>	<b>44</b>	<b>..</b>	<b>242</b>

Positive cases Tbc. reported by D. M. H. O's. 59.

**RETURNS VITAL STATISTICS FOR MAY, 1936.**

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis.....	12	16	19	11	8	0
Antigonish.....	12	19	4	10	9	3
Cape Breton....	106	109	37	30	40	7
Colchester.....	28	25	19	11	4	0
Cumberland....	47	43	11	5	10	3
Digby.....	22	19	7	8	9	0
Guysboro.....	10	9	2	11	5	0
Halifax.....	91	81	45	68	52	16
Hants.....	23	27	10	17	6	1
Inverness.....	18	15	7	10	14	1
Kings.....	23	14	20	4	6	1
Lunenburg....	23	18	23	19	21	1
Pictou.....	42	40	12	25	21	6
Queens.....	12	11	6	8	5	0
Richmond.....	11	10	6	5	7	1
Shelburne....	8	4	7	9	4	0
Victoria.....	4	6	2	1	4	0
Yarmouth.....	26	20	6	13	13	3
	<b>518</b>	<b>486</b>	<b>243</b>	<b>265</b>	<b>238</b>	<b>43</b>





# CYSTITIS

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## Personal Interest Notes

DR. and Mrs. H. E. Killam, accompanied by Miss Winnifred Killam and Mr. and Mrs. P. A. Killam, left Lakeville, Kings County, recently on a motor trip to Boxford, Mass. They will attend the annual reunion of the Killam family. This gathering of the clan, descendants of Alice and Austin Killam, is attended by members of the Killam family from all over the United States and Canada.

Dr. L. R. Meech of North Sydney has been appointed town coroner and D. S. C. R. representative, succeeding the late Dr. J. W. McLean.

At the recent annual meeting of the Windsor Rotary Club, Dr. F. R. Shankel was appointed President, and Dr. O. B. Keddy, Vice-President. Dr. Shankel has also been appointed President of the Windsor Tennis Club.

Dr. George Keddy, son of Dr. and Mrs. O. B. Keddy of Windsor, who has been taking post-graduate work in England, has been appointed to the surgical staff of the Manchester Royal Infirmary, Manchester City, England.

Dr. A. H. Sangster, son of Judge H. W. Sangster of Windsor, paid a short visit to his home during the early part of June. Dr. Sangster has returned to London to continue his studies in surgery.

Dr. H. E. Kendall of Windsor sailed by the "Empress of Britain" recently from Montreal as a Nova Scotia delegate to the Empire Fruit Conference, London, England.

The marriage took place on June 22nd at Wilmette, Illinois, of Dorothy, daughter of Mr. and Mrs. Edwin Leland Duncan, and John Hugh MacLennan only son of Dr. and Mrs. S. J. MacLennan of Halifax. Mr. and Mrs. MacLennan left by motor for the east and will later come to Nova Scotia where they will spend the summer holidays at Bedford, making their home in the Autumn in Montreal, Mr. MacLennan being a member of the staff of Lower Canada College.

Congratulations are extended to Dr. and Mrs. E. I. Glenister, Dartmouth, on the birth of a son on June 5th.

Dr. G. D. Tulk, who graduated this spring from Dalhousie University, has been appointed House Surgeon at the General Hospital, St. John's, Nfld.

Dr. Alexander MacDonald, son of Dr. Dan MacDonald of North Sydney has returned to his home and we understand will shortly take up residence in Sydney and establish himself there in practice.

Dr. H. L. Scammell of the Victoria General Hospital, Halifax, is spending a two week's vacation at his home in Pictou County.



# MENINGOCOCCUS ANTITOXIN

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"Meningococcus Antitoxin has reduced by approximately 50 per cent the deaths from meningococic meningitis at Cook County Hospital."

*Journal of the American Medical Association,  
Volume 104, page 980, March 23, 1935.*

THE introduction of Meningococcus Antitoxin is a significant contribution to the therapy of contagious diseases. Extensive biological and clinical research has led to the development of this true antitoxin, markedly effective in lowering the mortality in meningococic meningitis.

Accepted for inclusion in New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association.

*Parke, Davis & Co. Walkerville, Ont.*



On May 27th the marriage took place at Bridgewater of Miss Ruth McDougald, daughter of Town Manager and Mrs. McDougald and Dr. Hugh A. Fraser, son of Rev. and Mrs. A. L. Fraser of Bathurst, N. B. Dr. and Mrs. Fraser spent their honeymoon visiting American and Upper Canadian cities, and are now residing in Bridgewater where Dr. Fraser is practising in partnership with Dr. F. R. Davis. Previous to his marriage Dr. Fraser was entertained by the medical men of Lunenburg-Queens Counties at a stag party and informal dinner at the Fairview Hotel, when he was presented with a combination smoking stand and reading lamp. Dr. Fraser graduated from Dalhousie University in 1929, and then proceeded to Cleveland, Ohio, where he spent three years in post-graduate work at the Cleveland Charity Hospital.

Dr. and Mrs. F. R. Davis, of Bridgewater visited New York and other American cities during the month of June.

Dr. J. A. F. Young who graduated in Medicine this Spring from Dalhousie is supplying for Dr. T. W. McLean of Scotsburn during his illness.

We are glad to learn that Dr. J. S. Munro of North Sydney who underwent an operation at the Halifax Infirmary the latter part of June is making a satisfactory recovery.

#### Halifax Infirmary Graduates Fourteen Nurses.

The graduating exercises of the Halifax Infirmary School of Nursing were held in the School for the Blind on June 24th. Dr. G. R. Burns presided and the Rt. Rev. Charles McManus, vicar capitular, presented the prizes and diplomas. The graduates were addressed by Mr. Justice Carroll and Dr. G. H. Murphy.

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## OBITUARY

THE BULLETIN regrets to announce the death of Dr. Alexander P. McKay at Southcott Hospital, Newfoundland, early in June. Dr. McKay was born in Merigomish, Pictou County, and received his education at Pictou Academy and Dalhousie University, later taking his degree of Doctor of Medicine at Jefferson University. He went to Newfoundland in 1880 and began his practice at Bay Roberts, later moving to Catalina where he continued his work until advancing years compelled him to retire. The late Dr. McKay was a man of culture and refinement and won a place in the hearts of all. Anything that would help Newfoundland or advance her people found a strong supporter in Dr. McKay and he has left a record of faithful service. Dr. McKay was a first cousin of the late Professor Howard Murray, Dean of Dalhousie University. The funeral of Dr. McKay was held at Barney's River where interment took place.

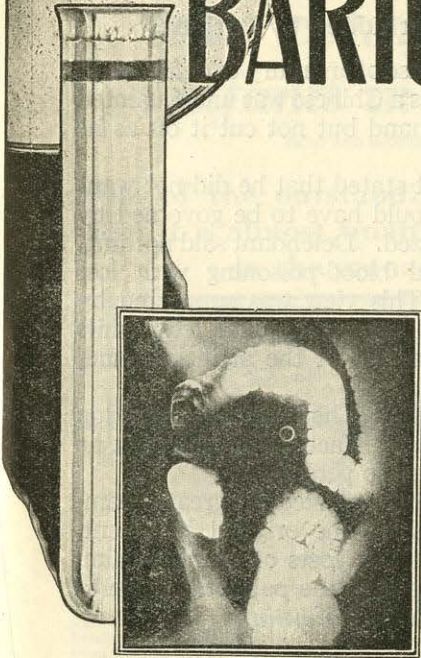


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## LEGAL CASES OF INTEREST TO THE PROFESSION

**Liability of a Surgeon for Operation Forbidden by Patient.**

Plaintiff a surgeon was called to hospital because of an injury to defendant's hand in a motor-car accident. Defendant who was a Chinese was unacquainted with the surgeon. He asked plaintiff to fix up hand but not cut it off as he was going to home town for further attention.

Again when in the operating room defendant stated that he did not want hand amputated, but plaintiff replied that he would have to be governed by condition when examined when patient anaesthetized. Defendant said nothing.

On examination plaintiff decided to avoid blood-poisoning with loss of hand, it were better to amputate at once. This view was supported by two other attending physicians. Plaintiff sued for professional fees, while defendant counter-claimed, for damages, for the cost of the artificial hand, loss of wages and general damages.

The trial judge dismissed the action for fees, though he found the operation necessary and stated that it was done in a highly satisfactory manner; but he allowed the defendant \$50.00 damages for trespass to person.

The surgeon appealed the case and the patient appealed for greater damages namely \$400. The court of appeal sustained the original judgment, dismissed the action with costs and gave the patient costs of counter-claim. The surgeon had no right to trespass on the person of the patient. (Alberta Supreme Court Appellate Division.)—*Alberta Medical Bulletin*.

**Hospitals Liability for Negligence of Nurses, and Other Employees  
Whether Interne, Agent of Patient**

(Beatty vs Sisters of Misericorde.)

When an hospital, even though the hospital in question is a charitable institution, is sued by a patient for damages caused by the negligence of its employees it is in exactly the same position as other employers, and the question whether the patient can succeed, depends on the facts of the particular case.

In the present case it was found that the nurses had been negligent, the hospital contended in respect to the negligence of one of them in adjusting a tube, without informing the patient's doctor, as the patient requested, of the latter's condition, that when she attempted to adjust it, she was acting under the orders of the interne who should be deemed to have been acting temporarily, as a substitute for the plaintiff's surgeon and therefore the plaintiff's agent for giving instructions to the nurse. *Held*, that what the interne said to the nurse should not be regarded as instructions; but merely advice she was not obliged to accept and in any event he was, under the circumstances, the agent of the defendant hospital, by whom he was employed, and the main negligence was that of the nurses in not disclosing the actual facts to him.

The patient after being given a hypo, was not carefully watched, fell out of bed, was found immediately unconscious, when restored to consciousness, found the tube had partly slipped out asked that her doctor be informed. This was not done but an interne consulted who advised that the nurse push back the tube. In doing this pain was caused, and results of previous opera-







tion upset. The patient sued the hospital for damages and succeeded. It was found that the nurse in attendance should have more carefully watched the patient after getting the hypo, and further when the accident occurred and the patient asked that her surgeon be informed, it was not done, and the skilled attention to which she was entitled was withheld. The interne who was consulted by the nurse was in no way the agent of the patient. (Supreme Court of Alberta.)—*Alberta Medical Bulletin*.

### MORE ADEQUATE AID

In the course of a meeting of the Canadian Tuberculosis Association held in Toronto Dr. David A. Stewart summed up the difficulty of a really effective campaign against that disease in a pungent sentence. He said: "We would never have eradicated smallpox if a man had had to mortgage his farm to pay for the treatment."

Dr. Stewart knows what he is talking about, since he is head of the sanatorium system in Manitoba. He knows, better perhaps than anyone not in his position can know, the hopelessness of trying to fight a stubborn and deep-seated fire, which has an unlimited amount of fuel to burn on, with a bucket brigade, however hard-working and enthusiastic it may be. He and other specialists know that tuberculosis, taken in its early stages, is quite controllable and curable. But, unfortunately, they also know—as too many victims of the malady do—that control and cure is a slow process, to be carried out only under supervision and in special circumstances. Finally he and his specialised confreres know what an apparently hopeless struggle it is, even at the best of times, to keep the cost of hospitalisation in cases of tuberculosis—including not only actual bed-cure but a measure of isolation and supervision—down to a point where any other than well-to-do people will not have to "mortgage the farm" to secure it.

Sooner or later—and Heaven knows it ought to be sooner rather than later—the problem of combatting and eventually overcoming all these great killer-diseases will be recognised for what it is, a wholly national one and not one to be tackled here and there, with much energy at one spot and with little or none at another. Some of these diseases, like smallpox and diphtheria, can be handled by quick and inexpensive treatments: others—chief of which is tuberculosis—take a long time and patient nursing for their cure. But, recognising this, must not national provision be made for far, far more general and generous assistance to the sanatoria, hospitals, clinics, social and anti-tuberculosis organizations and agencies than any single Province can now afford? After all, the sanatorium or the hospital can do just so much with the money it has. It must, to keep its doors open at all, get the last possible dollar it fairly can from its patients, but if its income were stepped up to where it should be by assistance from new sources it could "nail its doors wide open," in Dr. Stewart's phrase, to the indigent, or to those of straitened means who cannot afford even the lowest rates these institutions are now compelled to demand.

There have recently been great gatherings of health authorities from all over Canada. From them should come a policy which will enable the anti-tuberculosis fight to be carried on on a scale so wide that no farms need be mortgaged, figuratively or literally, before a sick person can hope for aid. —*The Montreal Daily Star* July 6, 1935.



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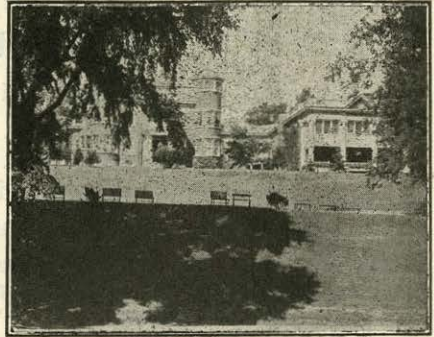
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