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Treatment in Psychiatry

MAJOR F. E. COBURN, R.C.A.M.C.

TO-DAY, psychiatry stands in need of a de-bunking process. All too frequently in the public mind it is associated with some sort of magical hocus-pocus allied to crystal gazing or clairvoyance. It is of course none of these but rather a scientific medical discipline, one of the youngest of these disciplines but one which is quite rapidly increasing in stature and knowledge. At present it is very far from knowing all the answers but is prepared to do a great deal toward alleviating suffering.

We have certain basic assumptions in this branch of medicine, certain problems to solve and certain methods and tools developed to handle them. One of our most basic assumptions is that human behaviour follows a cause and effect sequence. This assumption is fundamental for without it there can be no science of human behaviour. If it were not true, we could never hope to learn why a person behaves as he does nor could we influence his behaviour in any predictable way by therapy.

Having accepted this basic assumption, we must find out from our research and experience what are the laws underlying behaviour and apply these to our patients. This task is far from complete and it is quite doubtful that it ever will be complete. The limitations of psychiatry are largely the limitations of our knowledge of these laws and their application.

The problem of psychiatry is to restore to normal people who are suffering malfunction, either of behaviour or of thought, or of body, due to what are called mental causes. This statement of our problem immediately raises other problems, for instance what we consider normal. We might attempt to define it as follows. Normal in function infers functioning to the height of ability and in a manner satisfactory to the individual and to the community in which he lives. In other words the main end of psychiatry is to teach our patients how to adapt themselves to their environment so that they are realizing their abilities, are themselves contented and are acceptable to those with whom they live.

There are certain broad types of variation from this "normal" and to these types psychiatric group names are applied. The psychoses roughly equal the lay-man's insanity and neurosis, his "nervousness." Behaviour disorders speak for themselves and psychosomatic disturbances will be described later.

Psychoses:

A person is psychotic whose thinking has become so disturbed that he has lost contact with reality and whose behaviour has so altered that he is a burden to those about him or dangerous to himself or others. Psychotic patients represent a tremendous social and economic problem. One type alone, schizophrenics, occupy more hospital beds than do all our tuberculosis patients. Yet it is relatively easy to get public monies for research and treatment for T.B. while schizophrenia is neglected. It would seem to me that a fine project for a society of this kind would be the "popularization" of schizophrenia—as tuberculosis has been popularized. Schizophrenia like tuber-

culosis strikes the young adult. Just after his family has gone to great trouble and expense to raise and educate him and just as he is on the verge of re-paying this expenditure, he is taken with this disease and all too often spends the rest of his days in an institution at the taxpayer's expense. Unlike tuberculosis, these patients do not soon succumb or recover but tend to live out nearly a normal life span.

The cause of schizophrenia is not clearly understood. It seems to come on in a person who finds life difficult and unrewarding as compared to fantasy which is pleasant and exciting. The patient gradually withdraws his interest and attention from reality and lives in a world of fantasy, delusions and hallucinations. Most of them require hospital treatment. The task is to recall the patient to reality and to teach him methods of dealing with it so that it will not again become overwhelmingly unpleasant. We have to find out what have been the stumbling blocks in his past. This is often very difficult in a withdrawn, inaccessible, even mute patient. However, with the use of Sodium Amytal we can frequently bring them back into contact for brief periods, long enough to discover underlying difficulties. The next step is to try and interest the patient in the real world. To this end we use "Total Push" method where the patient is kept busily engaged in some activity all his waking hours. Here occupational therapy, physical exercise, games and social contacts play an important role. This programme is difficult of execution and is successful in only 20%-30% of cases. The use of deep insulin coma treatment is held by many to increase this percentage. Electric shock therapy has also been used with very doubtful results. Neither insulin nor shock therapy is enough alone. They must be associated with training in handling life so that it does not again become unbearable.

Manic depressive psychosis is rather different. In many cases there seems to be no emotional cause for this illness. An apparently successful person may suddenly develop either a severe depression or an elation of mood far beyond normal limits. They recover spontaneously in a number of months only to have a recurrence one to fifteen years later and this recurrence may be either depression or elation. It may be that this illness is due to some physiological rather than emotional changes. The depressed type of manic-depressive psychosis responds very well to electric shock therapy, the manic or excited phase not nearly so well but most of them recover in six to nine months without specific treatment.

Involitional melancholia is another type of illness characterized by depression. It comes on later in life between 45 and 65 in women and 50 and 70 in men. It attacks people with rigid modes of behaviour. They are usually strict with themselves, have rigid routines and try to do everything they do perfectly. They appear unable to accept any feelings of guilt and avoid it by perfection. In later middle life they find they can no longer maintain these standards or are unable to adopt their routines to changed circumstances. They become deeply depressed, accuse themselves of heinous crimes and are frequently suicidal. It is for this type of illness that electric shock therapy is most successful. About 80% of these cases respond to it which is very fortunate as the spontaneous cure rate is only about 50% and then the patient has to go through two to five years of severe suffering before the spontaneous remission can be expected. Too much has been written about electric shock therapy and it has come to be considered as a panacea. In fact it is only in

cases of depression that it is clearly indicated. Claims have been made for it in excitements, schizophrenia and certain neuroses but these claims are of doubtful validity.

Cases of involuntional melancholia which do not respond to shock therapy and certain cases of schizophrenia are sometimes treated with a rather radical surgical treatment in which the prefrontal lobes of the brain are severed from the rest. This does not produce a normal individual but frequently makes an agitated distressed suffering patient into a happy contented one who can easily be cared for at home.

Organic Psychoses:

These are illnesses due to actual destruction of brain tissue. Brief ones are seen in every ward of a hospital in the form of delirium. These are temporary as the function of the brain cells is only impaired due to toxins and the cells themselves are not destroyed. A typical organic psychosis is seen in paresis—syphilitic encephalo-myelitis. Our treatment resources for this illness are good but it is essential to get the patient early in his illness before much organic damage is done because brain cells do not regenerate. To-day paresis is treated with penicillin, fever therapy and the old stand bys Tryparsamide and Bismuth. During the course of the acute phase of paresis frequently underlying personality difficulties are revealed and these must be dealt with when the acute phase is over.

Senile and arterio sclerotic organic brain disease is increasingly common because of increasing life expectancy. If far advanced before treatment is instituted, little can be done because too many brain cells have been destroyed. However, if taken early much can be done with extra rest, vitamin therapy, measures to improve circulation and education of the family how to deal with the patient.

Psychoneurosis:

This term is quite difficult to define. It is an alteration of feeling or thought accompanied by certain changes in bodily function without any distortion of reality, due to emotional events in the patient's immediate environment or his past, the relationship between the events and his symptoms being usually unrecognized by the patient.

Generally there are two parts to a psychoneurosis. There is a background of pernicious education and traumatic childhood experience sometimes called the infantile neurosis which makes the person susceptible to the slings and arrows of outraged fortune and in addition there are the present precipitating events that brought on the symptoms complained of.

Frequently the patient can be relieved of his symptoms merely by unearthing the present situation, demonstrating its relationship to the symptoms, revealing to the patient in what particulars he has failed to deal with it adequately and leading him to work out a solution. It is important that he work out his own solution rather than accept one provided by his doctor. This is superficial psychotherapy and can be done in three to six, one hour interviews. It is valuable because it is relatively inexpensive both of the patient's money and the doctor's time.

This superficial therapy is not always enough. In some cases we have to go back and root out the incidents and events of early childhood which laid

the neurotic basis which in turn forced the patient to respond this way in the present situation. This is much longer and requires from 100 to 500 or more hour-long sessions depending upon the type of analysis he uses. During this period the main techniques used are Free Association and Dream analysis which are carried out after taking an exhaustive history from the patient.

In free association the patient is made physically comfortable, usually on a couch, and taught to let his thoughts wander without direction—expressing each idea that comes into his mind. The emotionally important events in his life seem to act like a magnet and attract his thought to them. Using this technique we slowly and gradually unearth the events which were emotionally important both in childhood and adult experience.

There is considerable evidence that everyone dreams every night but fails to remember the content. We stimulate the patient to recall the dreams and write them down first thing on arising. These dreams are certainly the product of our patient's sleeping mental effort. While asleep he can think things which he couldn't bear to dwell on when awake but so that they don't disturb him too much and thus wake him up he may disguise his real meaning by using symbols, by attributing his own troubles to others and by condensing two ideas into one dream event. Thus, there is always some difficulty in interpreting the meaning of dreams. This can often be resolved by having the patient tell his dream and immediately begin to freely associate on it whereupon the meaning becomes clear.

By these two techniques we recall the forgotten emotionally disturbing events of childhood which frequently can quite easily be dealt with by the adult.

Recently Sodium Amytal and hypnosis have been used to shorten the time of analysis. They appear to be interchangeable and of almost the same value. In those cases where the background is fairly free of childhood neurosis and where the present symptoms seem to have been brought on by an overwhelming event that the patient could not face up to and has been forced to forget, Sodium Amytal or hypnosis appear most valuable. In the sleepy state induced by the drug or the hypnosis, the patient is urged to live again through his experience; all the while being encouraged and supported by his doctor. He is then reassured about the normal nature of his reaction and that he can face it now. Often one such treatment serves to remove severe neurotic symptoms such as severe tremor and palpitation, hysterical blindness, muteness, or paralysis.

Adults can have behaviour problems too but in psychiatry, the term is usually restricted to children. The problems presented are legion. Some of the commonest are lying, stealing, enuresis, temper tantrums, truancy, night terrors, etc.

When a child is brought to the psychiatrist, he must be given an extremely careful physical examination because the whole behaviour difficulty may be due to a physical disturbance such as pin worms, adenoids, thyroid or pituitary disease or mental deficiency. If these can be eliminated, the cause of the misbehaviour is in the environment. Now the psychiatrist becomes a detective. He picks up every clue that he can from school teachers, visiting nurses, social workers and parents to get as full a picture as possible of the child's home, school and play life. Usually the difficulty is found in the emotional reactions of the parents either to the child or to one another. You cannot hope to have

an emotionally stable child if the parents are not in harmony. If some such problem is found, the psychiatrist doffs his role of detective and has to become a diplomat because now his task is to treat, not the child, but his parents.

There are certain types of reaction frequently found. In the child who is not wanted by his parents; who is either neglected or actively rejected, we find all types of misbehaviour simply in an attempt to gain attention. Another type of difficulty arises in a child of whom too much is expected in school, athletics or conduct. The child finds that at home he is always criticized. He never seems acceptable. He compensates by "big shot" behaviour in his own social group. This often leads to anti-social behaviour such as stealing to impress his fellows of his toughness and superiority.

The neurotic child is frequently not brought to the psychiatrist at all. He is a timid, shy, child often fearful for his health. The background varies in these cases between two extremes. Often it is one of violence on the part of one or both parents. The child is frightened all the time and finds the world a fearful place in which it is best to do nothing. The opposite extreme may produce similar results. Where there is extreme over-solicitude, the child is told not to do this, it is dangerous; not to play with those children, you might get hurt; not to do that, it may make you sick. In this way this child also comes to feel that the world is a dangerous place and we have the makings of an unhappy neurotic adult.

If we could do just one thing in this generation toward mental hygiene, it should be to teach parents to bring up their children in a world free from bogies and fears, not to hand on their fears to their children.

Psychosomatic Disorders:

This is a relatively new field. For many years medicine has taught that the mental activity of a person affects his physical condition. The good general practitioner of the old school who frequently knew several generations of a family was well aware of this but it is only in recent years that careful scientific study has been given to the exact relationship between emotion and disease.

It now becomes apparent that there is an intimate relationship between the personality of the patient and many diseases. In some cases, at least, emotional factors seem to be the actual cause of the disease. Such relationship is known to exist in functional dyspepsia, hypertension, urticaria and many other entities. This writer in the last 3 weeks has seen four cases of giant hives in 3 of which the emotional factor was at least the precipitating cause. In one of these patients who had not been free of hives for over a year, the promise of removal from a certain situation brought immediate relief. At our present stage we recognize these conditions to be due to emotion or personality factors—that is they are "psychosomatic" but our treatment has not caught up with our diagnosis. Many times, however, we can be successful. We investigate the patient's personality. This is largely a matter of getting him to talk freely about himself, his relations with other people, his attitudes, his resentments and what he does about these things. We usually discover resentments, hostilities, indecision and fears which our culture have not let him express. He keeps it inside setting up a chronic emotional state. Every emotional state produces alterations in smooth muscle, blood vessels, glands

of internal secretion, etc. If these changes are long continued, they lead to actual gross organic disease.

To treat, we re-educate the patient so that he can deal with his world so that he doesn't produce these fears and resentments or so that he can discharge these feelings in a socially acceptable manner.

Future of Psychiatry:

Much has yet to be done in the understanding of the basic laws governing human behaviour. Much has to be done in improving our methods of treatment to make them more precise and shorter and much has yet to be discovered about the relationship of emotion to disease and the use of that knowledge in treatment.

At present we have limited our science to the individual, his contentment and acceptability to his fellows. We are now faced with the necessity for a broader viewpoint and action. With the atomic bomb, modern warfare has become destructive of humanity as a whole. We must, therefore, seek to apply our principles of human behaviour on a national scale. We must seek to rid nations of those hatreds, suspicions, fears and prejudices that lead to war. We must try to bring up a generation which boldly faces the facts of this world, which knows the truth, and the whole of it, and whose thinking is not distorted by irrational fears, bogies and fantastic childhood tales. This is the problem of our generation, not only the psychiatrist but everyone; teachers, physicians, parents, the clergy and every citizen. This is not only our duty and obligation but it is an urgent necessity if we are to survive.

Malignancy involving the skin is more prone to develop after middle life but can and does occur even at a much younger age. There is little doubt however, in the judgment of experienced clinicians nowadays, that the far advanced hopeless stages are seen more frequently in the extreme age group. This is probably due to the tendency of these old people to entirely disregard or to make light of minor skin changes. It is the duty of the immediate relatives of these people to see that they are brought in for observation at the earliest signs. This would assuredly eradicate the hopeless cases still occasionally seen in both office and clinic practice. Prompt attention to these early manifestations is the surest safe guard.

Ten years ago, according to the United States Bureau of Census, 6 p.c. of deaths due to cancer in the United States were attributable to cancer of the skin and accessible parts. Better co-operation between patient and doctor is reducing this percentage but with the institution of the practice of periodic examination of the skin for suspicious lesions, especially past middle age, a complete control of skin cancer can and should be obtained.

In records kept at one Canadian clinic, the figures show that only 15 to 20 p.c. of the cases come before the specialists at a time when cancer can be controlled. 60 to 70 p.c. are first seen by the doctor in the second stage where the chances of cure are greatly reduced, and from 20 to 30 p.c. come for treatment when it is almost impossible to hold the diseases in check.

Forward War Surgery

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IT was my good fortune to command a Field Surgical Unit (F.S.U.) during the British Liberation Army campaign. It would take a volume to describe one's experiences in this war theatre, but I wish here to give only a brief outline of our activities. There were exciting and adventurous times, dull and monotonous periods, but on the whole the surgical work was extremely interesting and stimulating, though often arduous, testing one's stamina and endurance to the limit.

For those who are unfamiliar with it, I will attempt to outline briefly an "Advanced Surgical Centre," its function and administrative aspects, and discuss a few highlights and lessons learned from our surgical work.

A Forward Surgical Centre was a composite unit, consisting of a main or parent unit with its smaller subsidiary attached units, for the purpose of establishing or increasing its surgical potential. The parent unit or chief nerve centre of a forward surgical set-up was either a Casualty Clearing Station (C.C.S.) or a Field Dressing Station (F.D.S.) The officer commanding was responsible to the D.D.M.S. Corps or A.D.M.S. Division for administrative affairs and for the proper functioning of this centre. This larger unit provided shelter for post-operative cases, and personnel for their care and evacuation. The C.C.S. also provided X-ray and on occasions research facilities.

The smaller units consisted of F.S.U.'s and Field Transfusion Units (F.T.U.). These little units or teams were very mobile and quite self-contained except for rations and quarters for the operative cases. On the move these smaller units were provided with compo-rations and as the campaign progressed, they became quite proficient in the art of "scrounging" food and other supplies.

An F.S.U. had a total of eleven personnel (1 surgeon, the O.C.; 2 operating room assistants, 3 nursing orderlies, 1 batman and 3 drivers). The efficiency of the unit depended on team-work, for each individual had his particular job to perform. We were provided with four vehicles; two for ordinance equipment; one especially equipped lorry for surgical supplies and a personnel vehicle.

A Field Transfusion Unit had one medical officer and two orderlies. They were provided with a 60 cwt. truck fitted with a refrigerator for carrying blood, plasma and other fluids, and drugs required for resuscitation. The F.T.U. officer was responsible not only for resuscitation of operative cases but also very largely for the decision as to priority for operation, and for assistance with post-operative care.

In a planned action two C.C.S.'s were brigaded together and screened by an F.D.S., which took off lightly wounded, sick and exhaustion cases. This arrangement worked admirably, the two C.C.S.'s functioning in rotation, according to the number of admissions or, more frequently to the number of cases awaiting operation.

The Advanced Surgical Centre, popularized by the Canadians, was formed with an F.D.S. as the parent unit and two F.S.U.'s and one F.T.U. Its value in the rapid advance of mobile warfare became more and more

appreciated not only by the medical administrators but also by the army commanders. During static phases the C.C.S. set-up was ideal, but when advance was rapid, the smaller more mobile F.D.S. with its attached units was more suitable. Each C.C.S. carried 8-10 nursing sisters, and their work in post-operative nursing was beyond praise. When an F.D.S. formed the parent unit, two nursing sisters were attached per F.S.U., provided the tactical situation was favourable.

Forward Surgical Centres were sited as near the battle-front as was feasible, depending on a suitable location, lines of evacuation, and the type of battle in progress or anticipated. The ideal site was just out of range of enemy artillery fire and behind our own big guns. On a few occasions we worked with a divisional F.D.S. at a Field Ambulance Headquarter but we found this level rather noisy and disturbing both for the patients and the operators.

The first three months of the campaign from our landings in Normandy to the Boulogne-Calais "show" we worked in tents, and from then on until V-E day in captured enemy hospitals, schools, churches, etc.

During the campaign 21 Army Group had 181,700 battle casualties. Of these 50,000 were treated in the forward areas, and two-thirds of this group were serious major wounds, i.e. 15-20% required operation at the forward surgical level. (Porritt, Debenham, Ross). The type of case dealt with at this level became quite stereotyped; haemorrhages, severe multiple wounds, traumatic amputations, abdominal, thoracic and thoraco-abdominal wounds, severe compound fractures, especially femurs, and supra-pubic drainage of paraplegias. In addition we were forced to do a few cranial and maxillo-facial cases. High explosive missiles such as artillery, mortar, land and aerial bombs accounted for the vast majority of wounds. Furthermore they were usually multiple and more serious than from small arms fire.

At this stage it would be fitting to commend the work of the R.M.O.'s, stretcher-bearers, jeep-drivers, and Field Ambulance personnel for their efficient first aid and rapid evacuation of casualties. No praise is too high for these men who often worked under shell-fire in the most hazardous and difficult conditions.

During the campaign I operated on nearly 800 major (1st priority) and 200-300 minor (2nd or 3rd priority) cases. The following table will illustrate the major type of casualty dealt with, i.e. classified as to the main injury:

1. Skull (Comp. fracture)	(a) Penetrating Dura.....	14
	(b) Non-penetrating Dura.....	12
2. Maxillo-facial.....		17
3. Chest (Open and sucking, including 35 Thoraco-abdominals).....		123
4. Abdominals (All types).....		234
5. Amputations (Excluding digits).....		80
	Above Elbow.....	9
	Below Elbow.....	13
	Above Knee.....	22
	Below Knee.....	36
6. Fractures (Compound).....		238
	Spine (without cord lesions).....	4
	Spine (with cord lesions).....	13

Pelvis.....	40
Femur.....	58
Tibia and Fibula.....	50
Humerus.....	37
Radius and Ulna.....	36
7. Penetrating joints (major).....	46
8. Burns (major).....	4
9. Flesh wounds, multiple (without main nerve or vascular injury). 40	
(a) Involving main nerves.....	53
(b) Involving main vessels.....	61
10. Gas Gangrene.....	2
11. Miscellaneous.....	32
Total mortality of this major series.....	9.5%

1 *Skull or Cranio cerebral Injuries*

It was our policy to evacuate these cases in a prone or semi-prone position, with an adequate air-way, and good drainage of the naso-pharyngeal region. They were sent to a neuro-surgical team, usually located at the nearest base hospital. External haemorrhage was controlled with a "sulpha" dressing and gross shock treated if necessary before the long journey down the lines. They did remarkably well. Cases with severe concomitant injuries such as a penetrated abdomen or a compound femur were dealt with in the forward areas. In all we did 26 cases of which 14 had penetrated duras. The wounds were treated as any war wounds, by thorough excision and cleansing of the soft parts, and removal of bony fragments, pulped brain and blood clot. Haemorrhage was controlled and the dura closed. Sometimes a fascial or muscle graft was required. The defect was closed by using some form of plastic or relief incision in the scalp. The damaged brain area and wound were coated with "sulpha-pen" powder or a solution of penicillin.

2. *Maxillo-facial Injuries (Severe)*

Most of these cases required very urgent surgery, owing to respiratory distress caused by increasing swelling and oedema of the neck, and a continuous flow of blood and secretions into the larynx and trachea. Urgent tracheotomy was required in 14 out of 17 of these cases. This was done under local anaesthesia before the main operation began. Haemorrhage was controlled and the fractured mandible immobilized by elastoplast dressing or a plaster cap. When part of the jaw or cheek was shot away, suture of the mucous membrane to the skin was occasionally required.

3. *Chest Wounds (Open and Sucking)*

These formed our next largest series to severe extremities and abdominal injuries. Time interval to operation was the most important factor in determining a successful outcome. Most cases were extremely ill due to gross haemorrhage and respiratory embarrassment from a large open chest wound. They were extremely apprehensive, probably from cerebral anaemia and anoxemia. These cases required urgent resuscitation with whole blood and also the administration of oxygen by a B.L.B. apparatus. A patient with a

systolic B.P. below 80 mm. Hg due to loss of blood from an open chest wound rarely recovered unless treated within 2 or 3 hours. Even when the blood volume was restored and the sucking wound closed,, they sometimes failed to stabilize. Distressed paradoxical breathing continued with increased cerebral signs. In two such cases I re-explored the chest thinking I had missed a broncho-pleural fistula or a hole in the pleura leading to the mediastinum. One other case died suddenly 2 hours after operation. Post mortem revealed a small penetrating wound of the aortic arch.

All chest wounds were excised, removing rib fragments, and Metallic Foreign Bodies (M.F.B.'s) from the lung and pleural cavity. A severed intercostal artery was often the cause of marked haemorrhage, though it was occasionally severe from a large lung laceration. On one occasion I was forced to do a thoracotomy to control internal haemorrhage and found a small laceration of the left ventricle and a spouting vessel of the pericardium (peri-cardiophrenic). After suture of the wound and ligation of the vessel the chest was sucked dry and closed. He made an uneventful recovery. Later in the campaign I had a second successful heart case.

Most lacerations of the lung were sutured. Resolution was hastened and a broncho-pleural fistula prevented. Before closing the pleural cavity all blood and secretions were sucked dry. After closure, aspiration of air and intra-pleural instillation of penicillin 50,000 units was carried out before the patient left the table. Furthermore post-operative follow-up by aspiration of air and instillation of penicillin was a routine for all haemo-pneumothoracies. Tension pneumo-thorax was treated by an indwelling needle in the 2nd interspace anteriorly, connected by a rubber tube to a water-sealed bottle. Later in the campaign we held our chest cases 5 to 6 days before evacuation; a few earlier cases died suddenly from sudden secondary haemorrhage.

Except for the thoraco-abdominals we used pentothal and oxygen for all chest cases. We found it satisfactory. Re-expansion of a contused collapsed lung by positive pressure anaesthesia was not a practical procedure in our hands. Thoraco-abdominals were anaesthetised with intra-tracheal ether from the Oxford Vaporiser. These cases often presented the problem of exposure, whether it was better, via the chest, abdomen or both. Where the sucking wound was large, it was better to extend the wound, excising one of the ribs. Repair of the diaphragm was facilitated by this exposure. A damaged spleen was easily removed and even the stomach or small intestine could be repaired on the left side. On the right side the liver was easily sutured. If a large bowel lesion was present, it was clamped, returned to the abdomen and exteriorised through an abdominal incision, after repair of the diaphragm and closure of the chest wall. When the stomach had herniated into the left pleural cavity, it was emptied, by needle if necessary, and returned to its normal position. Thoraco abdominals were probably the most serious and heroic of all forward surgical cases. In a few, for adequate exposure, I extended the abdominal incision upwards, cutting through the costal cartilages and reflecting the costal margins aside.

4. *Abdomens*

In all there were 234 cases in my series. This included 21 acute abdomens and accidental cases with a mortality of 16.9%, before evacuation to base

in 10-12 days. In all these a laparotomy was performed. A "penetrating abdomen" was one where the peritoneum had been penetrated and lesions of hollow or solid viscera dealt with. A "non-penetrating abdomen" was one with extra-peritoneal lesions such as kidney, bladder or rectal injuries, or one where a laparotomy had been performed and only a retro-peritoneal haematoma or a little free blood found in the abdomen. For a more detailed account see my article "Forward Abdominal Surgery." C.M.J. Jan., 1946.

5. *Amputations*

The decision as to whether it was necessary to amputate a limb or not seldom presented itself. What was to be done was usually clearcut and obvious. The majority of these injuries were the result of land mine or artillery explosion. One tended to be conservative. The site of amputation was just above the pulped and devitalized tissues, saving enough skin for flaps but no sutures, (delayed primary suture in 5-10 days at base). The stumps were dusted with sulpha-penicillin powder and firmly dressed. Only rarely was amputation through a joint performed and then only in dire emergency. We did no guillotines. A bilateral thigh amputation was a formidable procedure. Delay in amputating the second limb by placing a tourniquet above the damaged area was tried in a few cases with gratifying results, later amputating above the fixed tourniquet as the patient's condition improved. I had one successful fore-quarter amputation and a triple amputation (both legs above the knee and one arm below the elbow). The majority of these cases, as well as severe fractures, were evacuated in 48 hours.

6. *Fractures (Compound)*

This series comprised our largest single entity. All wounds were thoroughly excised, removing all devitalised tissue, debris and loose bone fragments. Haemorrhage was controlled, adequate drainage established and relief of tension afforded. The wounds were dusted with sulpha-penicillin dressed with vaseline or dry gauze and encased in padded plasters. For all femurs, knee joint and upper tibia and fibula injuries we used the much popularized Tobruk splint; high circular split plasters for lower arm and leg fractures and the thoraco-brachial plaster for humerus and shoulder girdle injuries. The trained orderlies of my unit could apply a Tobruk plaster in less than ten minutes as the campaign progressed. Time of wounding and operation, a rough diagram of the injury, the possibility of major nerve or vascular injury, and the possibility of gas gangrene were usually marked on the plaster before evacuation.

7. *Penetrating Joints (Major)*

These cases were treated by careful excision, by suture of the synovial layers without drainage, by instillation of penicillin 25-30,000 units into the joint cavity and by careful immobilization in a Tobruk splint for evacuation. Porritt reported only 7 deaths in 1,365 penetrating knee joint wounds treated in the B.L.A. theatre.

8. *Burns (Major)*

Surprisingly few serious burns were encountered. These were treated with morphia, plasma, the burned surface dusted with sulpha-penicillin powder and covered with vaseline gauze pressure dressing or plaster.

9. *Severe Multiple Flesh Wounds*

These were often high priority cases. Massive tissue damage and haemorrhage produced a severe degree of shock. They required rapid resuscitation with blood and plasma, thorough wound excision and good drainage. Many extremity wounds resulted in severe vascular and nerve lesions. When identified the severed nerve ends were tacked together with one black silk suture and left long for identification at the later operation of repair.

Injury to major arteries often presented a problem. Major W. T. Mustard, O.C. No. 7 F.S.U. with whom I paired up for six months of the campaign did some meticulous and painstaking work on vascular lesions. It was thought that by receiving cases within a few hours of wounding it would be possible to repair small lacerations or restore the continuity of these vessels by some artificial means. Glass and Acrylic tubes were used, the rationale being to restore the circulation through the main vascular channels of a limb at the earliest possible moment, with the idea of removing the tube and carrying out definitive treatment, e.g. suture, venous graft, ligation, within a few days, when circulatory stability had been regained and collaterals opened up. Out of 16 cases of intubation two were successful, and a few others partly so. Some produced some disquieting secondary phenomena, e.g. the sudden washing of metabolites into the general circulation often produced a profound toxæmia. The administration of Heparin increased the tendency to secondary haemorrhage at the second operation. The conclusion drawn from this work was that ligation of main arteries remained the operation of choice.

I have performed ligation of the common carotid, subclavian and external iliac arteries each successfully several times. The femoral and brachial were ligatured on many occasions with good results. Ligation of the Popliteal gave uniformly bad results and amputation was usually required. When soft tissue damage was extensive, the possibility of a good collateral circulation was markedly diminished. In such cases particularly if there was a fracture or major nerve lesion, amputation was resorted to. A living patient with one leg was better than a dead one with two.

1. *Gas Gangrene*

In my experience this was a rare entity. I dealt with only two definite cases in my series, but saw a few others. Fortunately these were P.O.W.'s. The rarity of gas gangrene can be attributed to early thorough wound excision, relief of tension, dependent drainage and immobilization of limbs in plaster. Two other important factors which influenced a successful outcome of all cases were good resuscitation with blood and plasma and chemotherapy.

11 *Eye Injuries*

A conservative attitude was adopted and most cases were evacuated to a special Eye Centre. It was necessary to deal with a few serious eye injuries in the forward area. These were chiefly blast and bad burns from land mines and high explosive shells. Often the whole cornea was peppered with fine particles of debris, dust and powder. A few eyeballs were completely disorganized and others had penetrating wounds of all descriptions. We irrigated with a continuous flow of normal saline, and carefully picked away as many loose particles from the cornea as possible, instilled penicillin every hour and covered the whole eye with a vaseline gauze dressing. A few completely

disorganized eyes were removed. During my experience as a war surgeon I dealt with two cases of cavernous sinus aneurism or fistula. One was an accidental case with a basal skull fracture involving the sphenoid, and the other was from a small penetrating shell fragment in the left supra-orbital region. Both developed a typical pulsating exophthalmos, a bruit over the affected fronto-temporal area, cranial nerve paresis (2, 3, 4 and 6) and fundal changes.

The above paper briefly describes the organization of a forward surgical centre, and a cross section of my surgical experiences as a forward surgeon during the N. W. European campaign. I hope it may be of some interest.

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Observations on the Management of Chest Injuries from the Medical Aspect

J. B. MACDONALD, M.D., C.M.

ALTHOUGH injuries to the thoracic cage and its contents are not nearly as numerous in civilian life as in warfare, yet both non-penetrating and penetrating injuries do frequently occur in (1) the mining industry, from falls of coal and cave-ins, (2) in motor accidents where the individual is thrown, jammed, or run over, (3) in farming and stock raising, from blows of hooves and horns, (4) from firearms, accidental or intentional, (5) from other flying missiles, such as in boiler and other explosions.

The chest wounds may occur alone or in conjunction with other injuries. In some cases shock may be the immediate problem, while in others the interference with respiratory or cardiorespiratory function may be the thing which requires prompt righting. In most army medical installations, as soon as any necessary surgery was done, such as closure of defects in the chest wall, removal of foreign bodies and, more rarely, suturing or excision of lacerated lung tissue, the chest injuries were turned over to the medical side who looked after them from then on, unless complications made further surgical procedures necessary.

Just as in injuries of the extremities, sprains and severe contusions may be more painful than fractures, so in injuries of the thorax, contusions may be more painful than fractures and cause just as much interference with respiratory movements. There may also be damage to intra-thoracic structures without fractured ribs or any penetrating missile. In those closed injuries with fractured ribs there may be more damage to intra-thoracic contents than with penetrating and open injuries. Apart from the added features of introduced infection and foreign bodies (usually metallic or fabric) the degree of severity lies not in whether it is penetrating or non-penetrating, but in how much damage has been done to the lung and how much the respiratory movements and aeration have been interfered with, on account of (1) severely contused chest wall, so painful that any movement is agony, (2) introduction of blood or air or both into the pleural cavities, or blood into the pericardial sac, i.e. tamponade, (3) collapse or atelectasis, (4) laceration of the lung.

A happy outcome, speaking in the immediate and long term sense, may depend on prompt realization of the condition presenting and its correct treatment. The first word of caution should be that, in the resuscitation of patients with chest injuries, care should be exercised not to drown the patient with too much intravenous fluid. Blood, plasma, serum, glucose-saline, should not be used routinely, but of necessity. Twice or thrice concentrated serum is indicated where there are any signs of pulmonary oedema.

The first injuries that will be specifically mentioned are those painful contusions of the chest wall, where the force applied has been diffuse, so that no ribs have been fractured. There is much pain on inspiration, and respiratory movements are much interfered with. Furthermore any movements of the trunk produce pain. This type of injury may not result in much tissue damage, yet can produce serious complications, the most usual being

atelectasis (from mucous collection) and lower respiratory infections. This, of course, is especially liable to occur in those with recurrent or chronic bronchitis, bronchiectasis, or asthma. The necessity here is to relieve the pain without too much interference with respiratory movements. This may be done by infiltration of the intercostal nerves with novocaine and support to the chest wall, which limits somewhat, but not too much, the respiratory excursions. For this purpose a many tailed binder is probably the most satisfactory, and unlike adhesive, it can be adjusted to different degrees of tightness. In addition, oxygen should be administered where there is much dyspnoea and any cyanosis.

The same principles of treatment apply in those cases where along with contusion of the chest wall, there are fractured ribs, without haemo-thorax or pneumothorax. Haemothorax or pneumothorax or both may result from fractured ribs with damage to the intercostal vessels or the lung. A haemothorax of any size is generally from an intercostal vessel. Contusion or laceration of the lung is indicated by haemoptysis, which is usually small in amount and seldom lasts more than 5-6 days.

Haemothoraces vary from a few cc.'s in the costophrenic sinus to 2000 +cc.s, filling the whole pleural cavity and giving mediastinal shift and dyspnoea. The haemorrhage may occur immediately on the injury or it may be delayed several days. Many of the small haemothoraces are missed, where the attention is concentrated on the broken ribs and not on the costophrenic sinus. Generally speaking, where the costophrenic sinus only shows filling with no encroachment on the lung field, at least 100 cc. of blood can be obtained on aspiration. While the missing of a small haemothorax may not be serious, it may, after organization, interfere with diaphragmatic movements. This, I believe, especially applies to those cases where from former disease the pleura is thickened so absorption is decreased. Therefore, when there is any evidence of any blood, aspiration should be done and the blood removed; furthermore where the initial examination does not show blood, the possibility of delayed intrapleural bleeding should not be forgotten. It is an unpleasant surprise to discover at the end of a fortnight or so that the pleural cavity is half filled with blood, which may in the interval have become loculated or clotted. Aspiration should be done daily until the blood has been removed. It is common, after a pleural cavity has been freed of blood, for a serous effusion to develop on top of this, which may also require several aspirations.

One saw quite a number of patients, who after being on the ward for 7-10 days with fracture of one or more of the upper ribs, began to complain of pain at the base of the lung on inspiration. On examination these showed a friction rub at the base with obliteration of the costophrenic sinus. A small haemothorax had occurred into the costophrenic sinus, fibrin had been deposited and was retracting giving the friction rub. A few cc.'s of serum could be obtained on aspiration.

Where a pneumothorax has occurred alone, the necessity for removal of air depends on the intra-pleural pressure and mediastinal shift. It may be advisable not to remove all the air, if there are ragged ends of ribs, which have pierced the pleura and may dig into the lung giving haemoptysis and

causing lung damage. Cases are seen of fractured ribs with pneumohaemothorax, where after removal of some blood and air the patient suffers severe pain from movement of bone ends; collapse and shock may be quite alarming; aspiration should be discontinued at once and not attempted again for 3-4 days and then slowly. This type is seen in chests where 3-4 ribs have been fractured in line and there is over-riding.

Where there is a pressure pneumothorax, repeated aspiration of air will be necessary, or where this is not sufficient, a needle may be fixed in the pleural space anteriorly, just infraclavicularly with tube under water or, if preferred, an intercostal catheter with ball valve. An ordinary 2 cc. hypo syringe makes a good pressure gauge, providing the cylinder moves freely in the barrel; the needle is inserted into pleural cavity, the syringe is put on the needle with the cylinder half withdrawn; if the pressure is positive, the cylinder will be pushed out, if negative it will be drawn in.

It was found that for aspirating a chest, the simplest apparatus was the most satisfactory. A size 14 to 16 needle, a 50 cc. syringe with an 8" piece of rubber tubing with connection on each end, one to fit the needle, the other the syringe, and a haemostat to pinch off the tube at each emptying of the syringe. Where there is no air in the pleural cavity, care should be taken not to introduce any, as air tends to increase loculation and clotting. Where there is already air, remove all you can. Patience is required sometimes, where the layer of blood in the pleural cavity is thin. There may be much stopping and starting, but it is well worth while to continue at it until no more can be obtained, i.e. remove all the blood at each sitting.

As regards the instillation of penicillin into the pleural cavity after aspirating a haemo-thorax in a closed case, there are those who claim it unnecessary. However since it is quite possible for the pleural cavity to be infected from the lung, it is good prophylaxis to instill 50-100 thousand units of penicillin, whether the haemothorax has occurred in a closed injury or in a penetrating one. In the latter case, penicillin should also be used intramuscularly for the first 4 days as a prophylactic measure.

When there is contusion to the lower right side of the chest anteriorly or anterolaterally, where the patient is shocked, anxious, and complaining of more pain than appears likely with the injury, damage to the liver should be thought of. A white count is useful here in the early stages, where one cannot be certain of fluid in the abdomen. With haemorrhage into the peritoneal cavity, there is quite a polymorphonuclear leucocytosis often in the 20,000's. Unless a tear in the liver is thought of early the attendant may be surprised to suddenly find that the patient is becoming very much distended, that there is shifting dullness, that he has a paralytic ileus and is soon beyond even attempt at aid.

The question arises of further surgery in those cases of haemothorax where the blood in the pleural cavity becomes clotted and loculated. Some feel that at the end of 3 weeks, if there is much remaining material in the pleural cavity, which cannot be aspirated, the surgeon should be asked to clean out the clot and fibrin, strip and free the pleura of the splinting material. No dogmatic rule can be given here. It is surprising what absorption can take place in some, while in others the picture is unchanged after months. If an experienced chest surgeon is available, it is probably wise to have him

clean out the clots and fibrin after 3 weeks. In an uninfected, but clotted and loculated haemothorax, it is useless and asking for trouble simply to put in an intercostal tube, or resect a rib. Nothing is accomplished and infection may be introduced. Exposure must be adequate for adequate removal, and loculations should be broken down.

An infected haemothorax (in effect an empyema) may be successfully dealt with by aspiration followed by instillation of penicillin, if there is not loculation; in short if it can be successfully drained by aspiration, and if the organism is penicillin sensitive.

In right sided thoraco-abdominal gunshot wounds, the liver may be nipped and one may find the pleural cavity filled with bile colored fluid, as much as 1500 cc. a day may have to be aspirated. This is mixed bile and serous effusion from the irritative effect of the bile on the pleura. It may seal off or require surgery.

When there is laceration of the liver with subdiaphragmatic collection of blood, there may be a reactive serous effusion into the right pleural cavity, just as happens in a subdiaphragmatic abscess. This effusion clears when the subdiaphragmatic collection is drained.

As regards the rehabilitation of those with haemothorax, breathing exercises should be started just as soon as bleeding stops, which is usually within the week of injury. If there are no other injuries to prevent it, the patient should then be got up and around. High protein diet and iron should be given. The patient should be given reassurance that he will not be an invalid.

In closing, some less common injuries will be briefly mentioned. There may be a traumatic haemopericardium, as well as a haemothorax. This will require aspiration in the usual way, i.e., parasternally about an inch (to avoid the internal mammary) in the 4th or 5th I.S., or going upward and backward close to costal margin from the left costo-xiphoid angle. One case was seen where the patient had a penetrating chest wound, with haemothorax and haemopericardium. He had praecordial pain persisting after aspiration of the haemopericardium and an E.C.G. suggested (traumatic) coronary infarction. This E.C.G. soon returned to normal.

In X-Ray Films, haemotomata in the lung along the course of a missile may be mistaken for abscesses. These collections assume round or oval shapes, usually quite circumscribed. They absorb quickly.

Blast injuries to the lung were not very commonly seen; the X-ray appearance is that of fine mottling from haemorrhage into the alveoli. These require strict rest and oxygen where indicated. Obviously intravenous fluids have to be administered with caution in these cases.

Though not strictly within the subject of this paper, which has dealt with mechanical injuries, a chemical injury to the lung, which has been called welders lung, was seen. This followed welding in a confined space, using a zinc salt as a flux. The X-ray appearance was that of a diffuse bronchopneumonia. There was considerable respiratory distress with substernal pain. The recovery clinically and radiologically was rapid, a matter of a few days.

In the same category as the above, were those cases of aspiration pneumonia, which followed sudden catapulting into water, e.g., into a canal from

a swerving truck. Substernal distress was marked. There was rapid pulse and febrile reaction, with increasing mucopurulent sputum. Penicillin and sulphadiazine was given and these soon cleared up. Finally another case of aspiration pneumonia was seen in a lad who went to syphon some gasoline from the gas tank of an army vehicle. He suddenly got a large mouthful, coughed violently and aspirated it. He had a diffuse bronchopneumonia and gasoline could be smelt on his breath for 2 days. Recovery was slower than in the other aspiration pneumonias seen.

Summary

Chest injuries from medical aspect have been briefly discussed. (1) Caution should be exercised in resuscitatory measures, so that the patient is not drowned. (2) Interference with respiratory and cardiorespiratory function must be overcome. (3) The pleural space must be drained dry and kept so. (4) Breathing exercises should be initiated at the earliest possible moment, when bleeding has stopped, and the patient should be let up, where other injuries do not prevent. He should have iron, high protein diet, and reassurance.

Experiences in a 600 Bed Hospital in Normandy

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ALTHOUGH this article may conflict with many others in this or other bulletins, nevertheless, I would like to give readers a picture of the set-up, and the work done in a 600 bed Canadian General Hospital during the first six months of the invasion of France, when the Canadian Medical Services really had an opportunity to "deliver the goods," so to speak. If you will bear with me, I shall take you along with us and try to give you the picture of our arrival in France, and the way in which our unit functioned.

The day we sailed from England was beautiful—sunny and warm—and our ship was the luxurious, though small, *Princess Astrid*, a channel steamer used in peace-time to carry tourists between England and France, but now harnessed into war service.

Our officers were quite fortunate in that they bunked with members of the ship's crew. I was lucky, having drawn the ship's doctor as a cabin mate. Food was of the highest order and we enjoyed the complete hospitality of the ship.

We had a very pleasant crossing during the night, accompanied by three British destroyers as escort, plus a hospital ship, on which the nursing sisters of the unit travelled in comfort. We arrived near the French coast on July 13th, a little over one month after "D" Day.

We slowly approached the beaches in the morning and had our first view of the battle torn stretches of sand and water, with the corpses of landing craft and other mechanisms of war scattered to the right and the left of us, as far as the eye could see. Our first thrill came when we were informed that the tide was on the way out and we would have to transfer to an L.S.I. (Landing Ship Infantry). So we all piled into the smaller ship, with two sides, and a bottom but no top, and slowly slid towards the shore. Our next surprise came when word was passed around that we would have to transfer to a floating raft in order to get to shore. This we did and with the aid of this metal frame, supported by oil drums, and propelled by an oversized outboard motor, we landed at the floating metal dock and disembarked without even getting our feet wet.

A short distance from the shore we assembled in a small field, surrounded by trees and hedges, and waited for further instructions. Very soon, a British officer, who was in charge of this disembarkation point, informed us that we would march to another area about three miles away to await transport to take us to our future destination.

We arrived at our next stop, which was situated on a high, rolling hill, overlooking the sea and the surrounding Normandy countryside. This hill was supplied with slit trenches and a cookhouse tent, the latter staffed by British personnel. We ate there at noon, and immediately afterwards, had the good fortune (?) of watching a "dogfight", high in the air over our "parking lot". The Spitfire was successful and the Gerry bailed out, his parachute opening and allowing him to descend safely to the ground. He was forthwith taken into

custody by the ground crew attached to the Spitfire squadron. However, during the "show" we made good use of the slit trenches on two or three occasions.

Sometime later, a noise in the distance heralded the arrival of a convoy of trucks which were to take us to our final destination. We climbed aboard and finally arrived at what was to be our home for the next few weeks—a group of four adjoining smooth grassy fields to the left of the main road leading from Bayeaux to St. Lo—this was to be known later as "Hospital Road."

We unloaded our personal equipment and began to arrange our living quarters. This consisted of finding a spot under a hedge where we could set up our camp cots and safari beds, and construct lean-tos covered with ground and gas capes. This done, we ate for the first time from our 24 hour emergency ration box.

We had hoped that our 1098 and 1248 stores would be here in the morning, but no such luck. Six days later this equipment finally arrived—over three hundred tons of it and we began to assemble the tents and stores. Now the interesting part of our extra-curricular work began.

Each Medical Officer was in charge of a ward—the ward consisting of an "E" block of tents—hospital extending—including the office. Each "E" block held 75 beds, apart from the main office for each ward; the latter a square tent, consisting of two "ends", held the nursing sisters, and the M.O.'s office, kitchen, linen stores, and utility room in each of the four corners. This portion was situated in the centre of the "E" block, and the three arms of the "E" housed the 75 beds.

One officer was in charge of the ground plan for the whole hospital set-up and he, with his measuring tape and crew of men, would map out with stakes the large field on which the hospital would be erected. Another officer was in charge of the tent crew. They had previously taken "tent erection" courses in England and were certainly adept at their job.

In a very short time, the hospital began to take shape. Seven "E" blocks and an Officers' Ward; Admission and Discharge Tent; X-ray; Operating Tent; Resuscitation, Post-Operative Tent; Laboratory Tent and Dental Tent; Paymaster's Tent; Quarter-master's Tent; O.C.'s and Matron's Tent; Mail Tent; Chapel and Morgue, were soon erected and the equipment for each installed.

The signal corps installed field telephones, and our electricians ran wire to all tents and installed lighting equipment. Out of odds and ends of scrounged lumber and metal, the carpenter built a mobile hut to enclose our sterilizers for the operating room, and a separate 160 pound tent was erected to house the plaster materials—barrels of plaster and bales of crinoline. The nurses and orderlies, with the aid of a few patients, made our own plaster bandages.

Now, before the above was completed, a most disconcerting thing happened. The field telephone rang in the registrar's tent, and we received information that a convoy of ambulances loaded with wounded men, fresh from the fields of battle were on the way to our hospital. The tempo of activity was increased to get the operating room tents and sterilizers functioning and the wards prepared to receive the first group of wounded men. Soon the roar of a D.R. on a motorcycle was heard, and we watched a long convoy of ambulances

drive up and stop at the reception tent. For us, leisure had come to an end and the real work was about to begin.

Quickly the registrar and his staff sorted out the casualties, who were dispersed to the resuscitation tent or wards, depending on the urgency of the case. Abdomens and chests went to the resuscitation tents where whole blood, plasma, or saline transfusions were started; while the compound fractures and flesh wounds were transported to the wards—there to receive shock treatment where necessary.

All who showed marked shock due to loss of blood received immediate whole blood transfusions. Two, four or six bottles, if necessary, were used to revive the patient, and to bring his blood pressure up to 100 mm. of Hg., or more before being subjected to operation. There was no time for laboratory tests such as chloride loss, protein loss, CO₂ combining power, etc., and even a urinalysis among the surgical cases was a rarity unless clinical evidence pointed to damage to the genito-urinary tract.

Abdomens and chests received first priority in the operating room, then came the compound fractures, large thigh, and other flesh wounds, and finally the smaller wounds.

As the cases in the resuscitation ward were brought back from near death, they would be x-rayed, and then taken to the operating tent where immediate surgery would be performed to stop bleeding; repair holes in the small bowel; exteriorization of large bowel wounds; closure of sucking chest wounds, etc. All the while the blood transfusion would be kept running and a full bottle was always available as soon as the previous one emptied.

Rapid blood replacement was paramount, because haemorrhage was the greatest cause of shock and even if the blood pressure were to rise enough to cause increased haemorrhage, the surgeon's knife and haemostat were immediately available to save life and limb.

General anaesthesia was used for abdominal injuries, closed anaesthesia with intratracheal intubation for chests; and Pentothal for all others. This routine gave exceedingly satisfactory results. At times no anaesthesia at all was used when doing suprapubic drainage operations, for cases of spinal injury with cord involvement, producing paralysis of the lower half of the body. Just to show that the stretcher bearers were on their toes, I heard one explain "My God, Doc., aren't you even going to give him a local?" I then explained the case to him and he was noticeably relieved.

All abdominal cases had the continuous suction apparatus set up before operation. Every single patient received penicillin on the ward or in the operating room as a routine. Penicillin in large dosages, was injected into the pleural cavities, and the joint spaces. The latter were tightly closed (the only places, apart from scalp, where complete closure was used near the front line.)

Shattered and mangled arms and legs were saved, if at all possible—the criterion being a good, moderate, or even questionable blood supply to the portion of the limb below the injured site. Every possible attempt was made to save the whole limb.

Wounds of large arteries were treated by ligature of both artery and vein, and then carefully controlled postural treatment. Femoral arteries and veins were ligated, and the patients nursed on their faces, the end of the bed being

raised and lowered at intervals, to aid collateral circulation—especially the gluteal vessels. I have seen gangrene of the limb follow neglect of the above.

A number of attempts were made at one Casualty Clearing Station to suture femoral arteries, and to use veins for bridging gaps. The patient was heparinized, and during the first post-operative week or more seemed to give the promise of success; but later on, when heparin was stopped, the end results were disappointing and several amputations were necessary. No doubt further study and experimentation will lead to better methods with greater success.

The use of the Tobruk Splint and the Thoracobrachial Box for transportation purposes played a large part in the safe, simple and comfortable removal of arm and leg cases to England by ambulance and plane.

All wounds were treated by debriement, haemostasis, sulph powder, vaseline, gauze pack, plaster, penicillin, and rapid evacuation to the United Kingdom. Foreign bodies, such as shrapnel, battle dress, gravel and contents of pockets, and even portions of letters, were removed during the debridement. Loose bits of bone unattached to periosteum were also removed. Nerve injuries were not treated at the front line. If a large nerve was found divided at the bottom of the wound, a single thread stitch was placed in the sheath only of each end and the thread brought out of the wound. This to enable future surgeons to locate the ends for later nerve suture. The possibility of infection prevented all primary nerve suture.

Fractures were treated as ordinary wounds, no prolonged attempt being made at accurate opposition. This was left for later on.

All chest cases were treated post operatively by the medical chest specialist in conjunction with the surgeon—an excellent arrangement which gave most gratifying results. Aspiration of the blood from the pleural cavity; penicillin intrapleurally; blood transfusion; oxygen and carbon dioxide, etc. were the treatments employed.

Head injuries with brain laceration were transferred to the Neurosurgical Unit, and facial injuries were treated by the plastic surgery units. Front line facial surgery consisted of thorough cleansing of the wound but no attempt was made to remove or excise skin. One or two sutures were placed to approximate the skin edges to prevent an excess of scar tissue forming which would prejudice future plastic surgery. The blood supply to the face is so adequate, that very little tissue was rendered non-viable.

The Dental Surgeon and the Plastic Surgeon worked together, and their results have been outstanding.

The co-operation between the medical men, sisters, surgeons, orderlies, and general duty men was of the highest order. No complaints were heard from anyone. (They were too busy). Day and night staffs carried out their work equally well, although how the general duty men and attached personnel were able to transport wounded men on stretchers eighty to one hundred yards in the black of night, without the aid of flashlights, (at times), and get them safely to and from the operating room, I'll never know. They did a superb job.

The nursing sisters were wonderful. They carried out their duties perfectly and no matter how busy they were and how hard they worked, never during the three busy months did any complain. Their presence gave confidence and boosted the morale of the patients to great heights, and the credit goes to them for this high morale of the wounded and the desire "to get well quick," and get back to their unit again as quickly as possible.

Well, I have rambled on, and must finish this very quickly, but I cannot close without making a few observations on the result of this forward surgery.

It was my good fortune to spend four months in a Canadian General Hospital in England before returning home, and I was able to follow some of the cases from the time they were wounded till they were well again.

Back in England, the wounded arrived at the base hospital where a rapid check on their condition was made. Those with low haemoglobin were given blood transfusions and penicillin routine continued. Between five and eight days from their first operation they were taken to the operating room, given an anaesthetic and their plasters removed.

Then and there did one see the effect of all the modern types of treatment in this war. Practically 90 p.c. of all wounds were clean, healthy, pink, free of infection, odorless, and in excellent condition. The majority of cases were fit for secondary suture. After insufflation with sulpha powder, the muscles were brought together with one or two catgut sutures, and the skin was undercut and closed tightly with deep end on silk mattress sutures. No drainage whatsoever. Where great tension was produced by the closure, relief skin incisions with raising of skin flaps relieved this tension. Skin grafting was delayed till healthy granulation tissue was formed in some cases. In others, immediate skin grafting was carried out. The limb was again placed in a light plaster whether or not a fracture was present. In from twelve to fourteen days, the plaster was bivalved, sutures were removed, and the non-fracture cases were sent to the physiotherapy department for muscle reeducation and exercises. This routine resulted in a large percentage of men being fit for duty in one or two months with soundly healed wounds and normally functioning limbs. The majority, however, had their category lowered and were returned to Canada.

Editorial

The Canadian Cancer Society*

Dr. GEORGE S. YOUNG

EIGHT years ago this month the Canadian Society for the Control of Cancer obtained its charter. The name was somewhat cumbersome. In conversation it was generally called the Canadian Cancer Society and recently this designation has been adopted officially. Next month (April) the Society will conduct a national campaign for funds and it is intended that a similar appeal will be made annually. The time coincides with the American Cancer Society's campaign.

It is fitting to recall here that the Society owes its existence to the Canadian Medical Association. The latter did the planning and set up the organization. Of necessity the beginning of the Society was modest. For the operation of a national body there was little money available. The first secretary, Dr. C.C. Ross, called at the outset for the annual budget of \$25,000, but less than half of that amount could be found the first year. However, the Society has carried on successfully and since the close of the war its activities have been greatly expanded.

The experience gained by the Canadian Cancer Society in the last eight years shows clearly that the fight against cancer cannot be waged successfully without the annual expenditure of a large amount of money. The charter of the Society grants it wide powers, but so far its finances have permitted only two lines of activity, viz., organization and public education. Fortunately these are of basic importance in arousing public interest, moulding public opinion and influencing governments. It is safe to say that the Cancer Society can take considerable credit for what has been accomplished in some of the provinces in the last two or three years.

The scope of the Society's activity during the ensuing year must of course be limited by the amount raised during the campaign next month. The money raised in each province will be spent in that province. Each Provincial Branch of the Society will have to decide on its most urgent needs in dealing with the Cancer problem. In some cases the first charge on the funds may be a paid secretary, travelling and organizing expenses, literature, moving picture films, etc. Other Branches may be already prepared to consider expenditures on clinics, treatment, transportation, maintenance, "follow-up" measures, laboratory equipment, x-ray machines, radium, scientific, in fact, on any measures which will help in the fight against cancer. It would be a great thing for Canada if the disease could be attacked simultaneously on all fronts, but this must wait until the country is ready to provide sufficient money.

* From the Canadian Medical Association Journal, March, 1946.

It is a fortunate fact that most cancers are preceded by various forms of chronic irritation, many of which we can detect and eliminate and thus prevent cancer. What the scientists mean by the cause of cancer is the ultimate cause of malignant cell growth, and this we shall probably never know. What people want to know are the effective, exciting factors in cancer, and of these we have much useful knowledge . . . For, unlike tuberculosis, cancer is not a single disease, but a great group of diseases of very different causation and course . . . There are possibly as many different diseases in the field of cancer as outside of it. There are scores of infectious diseases and scores of malignant tumors, each arising under different conditions and requiring different preventive measures. (James Ewing, M.D., *The Forum*, March, 1927).

The Nova Scotia section of the Canadian Cancer Society is bestirring itself after an enforced rest due to the recent war. About the time war was declared the plans for organization were being formulated but had to be set aside to meet the greater threat.

You will remember that in 1935 a campaign with the dual purpose of raising a fund for cancer investigation and to celebrate the Silver Jubilee of King George V was carried on by a non-medical group. The amount subscribed was much less than was anticipated and insufficient to properly carry out the proposed objectives. At this point the Canadian Medical Association suggested to the Committee in charge that the interest on the money collected be used by a cancer control committee which our Association was willing to appoint and furthermore recommended that a lay body be organized to devote its energies to the non-professional activities of a society for the control of cancer. Thus came into being the present Canadian Cancer Society—fathered as it were by the Canadian Medical Association.

We hope that a medical advisory committee will be appointed at the next annual meeting of The Medical Society of Nova Scotia to give guidance to the provincial branch of the Canadian Cancer Society in its efforts to modify the ravages of this scourge. The success of this lay-organization's work is not something for which the doctor is responsible, as a doctor. His obligation is that of any other public spirited citizen. True, his special knowledge gives him a leading place in the Society's councils, but it will probably be wiser for him to avoid accepting an office in this lay body.

As men engaged in the daily practice of medicine what can each one of us do in his fight against cancer? By keeping the subject of cancer ever in mind. It is our duty to treat seriously any sign or symptom that may be even vaguely suggestive of the onset of some form of cancer and to keep such an individual under close observation. No person in a community occupies so favourable a position as the doctor for the dissemination of knowledge bearing upon the prevention and treatment of cancer. We should be clean cut, definite and insistent on our patients returning to hospital on the date requested. We can support the Canadian Cancer Society by encouraging our patients to support

the movement, both by becoming members and carefully reading the literature supplied. We can help our local Committee of this Society by speaking and advising when requested.

H. W. SCHWARTZ
Chairman, Cancer Committee
Medical Society of Nova Scotia
R. P. Smith
V. O. Mader
S. R. Johnston

Certain peculiarly susceptible individuals may develop potentially malignant changes in their skin, by irritation from ill-fitting eye glasses or from spectacle bridges.

Case Report

Post-partum Tuberculous Salpingitis with Terminal Miliary Tuberculosis and Hemiparesis

H. C. READ, M.D.

THE following case is being reported because of the interesting and diagnostically problematic sequence of complications throughout its entire course.

Case Report:

Female, white, age 21 years, single. Admitted to the Victoria General Hospital, February 17th, 1946, died March 15th 1946.

Complaints:

1. Fever and chills.
2. Pain in left side of abdomen.
3. Blood tinged vaginal discharge.

History of Present Illness:

On January 11, 1946, the patient, apparently quite healthy, had a normal delivery of a healthy baby at the Grace Maternity Hospital. Approximately two days later she developed fever and chills. Physical examination at that time was essentially negative except for the uterus which was somewhat larger than is usual two days post-partum. During the following two weeks her temperature ranged from 100: to 103: F. but investigation revealed nothing diagnostic. This included:

1. Catheter specimen of urine—negative.
2. Hgb. 78%, R.B.C. 3,650,000. W.B.C. 5,550.
3. Sedimentation rate—very fast.
4. Blood culture—negative.
5. Negative tests for (a) B typhosus.
(b) B paratyphosus A. and B.
(c) B abortus.
(d) B proteus x 19.

6. X-ray of chest (January 23) negative.

During this investigation, courses of penicillin and the sulfa drugs were tried but with no response.

On January 26th, before the diagnosis was established, the patient left the Grace Maternity Hospital against the advice of the attending staff. Though still running a high temperature, she attempted, for 3 weeks, to carry on her home duties and the care of the baby but progressively got worse with temperature ranging from 102° to 104° F. and the development of a thick, foul, yellowish vaginal discharge accompanied by pain and tenderness across the lower abdomen, the maximum in left lower quadrant. During the week prior to admission to the Victoria General Hospital the pain and tenderness in the left lower quadrant of abdomen became very acute and the vaginal discharge became blood tinged.

Past and Family Histories—non-contributory.

Physical Examination:

General—a pale, thin, feverish and toxic appearing young female of 21 years.

Systemic—Essentially negative except for abdominal and pelvic findings.

Abdomen and Pelvis—Generalized tenderness of lower abdomen with localized acute tenderness and rigidity in left lower quadrant overlying a firm, fixed, small but palpable mass.

Per vaginam—no definite mass palpable; cervix slightly eroded and containing muco-pus; hanging-drop—negative for Trichomonads.

Temperature 102 F.; Pulse 98/min.; Respiratory Rate 20/min.; Hgb. 70%; R.B.C. 3,320,000; W.B.C. 10,000; B.P. 115/82.

Progress:

A tentative diagnosis of pelvic peritonitis, probably tuberculous, was made but pending further investigation and confirmatory evidence, an intensive course of sulfathiazole therapy was started.

February 18-23—Patient's condition showed little or no change. High swinging fever ranging from 99° to 103° F. continued.

Investigation Revealed:

1. Urinalysis—albumen 1+, 8-10 pus cells/H.P.F.
2. Cervical Smear—negative for Gonococci.
3. X-ray chest (February 18)—Slight infiltrative changes in the apices suggestive of early tuberculous infection.
4. Wasserman and Kahn—negative.
5. Sedimentation Rate—slightly elevated.
6. Examination of eye-grounds—negative for pathology.

February 24—Sudden hemiparesis developed. The patient awoke in the morning to find complete paralysis of left arm and lower part of face with marked weakness in left leg and left shoulder girdle. Examination of the left arm and leg confirmed this paresis and, in addition, revealed increased deep reflexes, knee and ankle clonus, negative Babinski, Oppenheim and Gordon signs and no sensory disturbances. The facial nerve paralysis was of the typical supra-nuclear type but all remaining cranial nerves were intact. The patient was mentally clear with no headache, no neck rigidity, no papilloedema and negative Kernig, Hoffman and Brudzinski signs. The examination of heart and lungs was negative and the abdominal findings were unchanged.

Comment by medical consultant was as follows: "History of sudden onset in a young person suggests embolism. However there is no definite evidence of cardiac disease and the pulmonary lesion reported in X-ray would not account for it. Sudden onset is against pyaemic abscess or tubercle. The pelvic condition would likely be source of embolus but to get to the brain the latter would likely be a 'paradoxical' type."

February 25 to March 5—Considerable improvement in weakness of left leg and slight improvement of left facial and arm paralyses. Otherwise condition remained stationary. High fluctuating temperature 99: to 104: continued. Pelvic examination revealed no change. An intensive course of penicillin was tried but, as with sulfathiazole, there was no response.

Complete Blood Picture (February 26) showed a moderate degree of hypochromic microcytic anaemia but otherwise no abnormalities were noted. R.B.C. 4,220,000, Hgb. 64%, color index 0.76, W.B.C. 6,750 (Differential Schilling Count—Juveniles 1.0%, Band Forms 4.0%, Segmented Polymorphs 62.0%, Lymphocytes 21.0%, Large Monos 8.0%, Eosinophiles 3.0%, Basophiles 1.0%).

Spinal Fluid (March 1st)—Pressure 110 mm. water, Queckenstedt—normal response, fluid clear, cell count 75, sugar normal, protein 65 mg., colloidal curve 02210000, Kolmer Wassermann negative, R.B.C. none, cells chiefly mononuclear.

March 6-15—Patient began to complain of intermittent headache which, within a few days became continuous and was accompanied and followed by the progressive development of neck rigidity, vomiting, positive Kernig's sign, papilloedema and all other signs of meningitis.

Re-X-ray of chest (March 7) showed no change in the appearance of the lungs. X-ray of skull (March 7) was negative, showing no evidence of increased intracranial pressure.

Spinal Fluid (March 11th)—Pressure 210 mm. water, Queckenstedt—normal response, appearance—fluid clear with coagulum, protein 600 mg., chlorides 590 mg., sugar none, numerous cells, one acid fast bacillus seen.

Patient's condition steadily and rapidly deteriorated and on March 12th she lapsed into coma and expired on March 15th.

Summary of Post-mortem Findings:

1. Tuberculous salpingitis with abscess formation (left).
2. Tuberculous peritonitis and adenitis.
3. Miliary tuberculosis (1) lungs; (2) spleen.
4. Autolytic softening right internal capsule (Ischaemic, non-tuberculous).
5. Tuberculous meningitis.

Comment:

Tuberculous salpingitis as a post-partum complication is relatively rare but, as this case demonstrates, its possibility must be borne in mind.

The lack of physical signs of meningeal involvement at the time of hemiparetic development and the relatively normal spinal fluid a few days later suggests that the tuberculous meningitis was a later and distinctly separate complication and as such represents an interesting sequence of events.

An interesting feature of the facial paralysis in this case is deserving of mention. As stated, the left sided paralysis was of the typical supra-nuclear type in that the volitional movements of the lower part of the face on that side, e.g., raising the corner of the mouth and pursing the lips, were markedly impaired while volitional movements of the upper part of the face, e.g., raising the eyebrows and closing the eyelids, were impaired to a much lesser degree. This is, of course, the usual observation and the explanation advanced by the physiologists is that the part of the facial nucleus governing the latter movements probably receives fibers from both hemispheres. The interesting feature of the case was the presence of a much less commonly observed association in that emotional expressions, e.g., laughing, smiling or crying, though involving the same muscles which failed to respond to voluntary efforts, showed little departure from the normal. Here, the explanation proposed by the physiologists is that the impulses from the controlling centres, probably in the thalamus and hypothalamus, of these more automatic movements of facial expression apparently travel by other than pyramidal pathways.

The development of a sudden hemiplegia or hemiparesis in an acute abdominal case is a rare occurrence and invariably precipitates considerable speculation as to the explanation of the phenomenon. This case was no exception in this regard but finally the hemiparesis was considered to be an embolic

phenomenon of a "paradoxical" type, the embolus arising in the pelvis and reaching the brain by a somewhat hypothetical and poorly understood route, possibly, as suggested by the anatomists, through some vertebral arteriolo-venular anastomatic channels. The post-mortem and histological findings, though strongly supporting this embolic theory of causation, make it appear, however, that the more logical origin of the embolus was probably the miliary—studded lung on the assumption that the latter condition was present for some time though not demonstrated, as is frequently the case in the early stages, by X-ray.

Finally, this case affords another example of the significance of "failure of response" to the sulfa drugs or penicillin and so it might well be emphasized here that whenever such occurs, one should immediately be on the alert and begin to exercise his diagnostic acumen to the fullest.

LOCUM TENENS AVAILABLE

A promising young doctor entering a Montreal hospital on July first as a resident wishes to do a locum from the tenth of May until the first of July. For further information apply to the Office of the Nova Scotia Medical Bulletin.

Abstracts From Current Literature

URINARY LITHIASIS IN CHILDHOOD. Winkel Smith, C. C.: *Act. Chirurg.* 1944, 90: 179.

The material presented by Winkel Smith comprises 71 cases of urinary calculi in children up to the age of 14. The ratio of boys to girls was 3 to 1. The duration of symptoms before the diagnosis indicates that two-thirds presumably have had the stones before the age of 5. The greatest majority of these children had either renal or ureteral stones, only a few had vesical and urethral calculi. Spontaneous passage of stones was observed in 26 cases, and in 12 of these there was no recurrence. Fifty-three of the patients underwent 63 operations. Primary nephrectomy was done in 7 cases, simple lithotomy in 36, and 9 of the patients were subjected to several operations. There was only one surgical fatality. The recurrence percentage was 29 in infected and 11 in aseptic cases. Urinary lithiasis in childhood is not as rare as is generally assumed. Surgical intervention is advisable irrespective of age, because considerable damage to the urinary tract is likely to result.

PREGNANCY AND DIABETES. Palmer, L. J. and Barnes, R. H.: *West. Jour. Surg., Obs. and Gyn.*, 1945, 53: 195.

Palmer and Barnes discuss 68 pregnancies occurring in 41 diabetic women treated at the Mason Clinic during the fourteen years previous to June 1944. The majority of the observations were made during the past six years. Thirty-seven of the pregnancies terminated under their care and 31 terminated elsewhere. Among the 37 pregnancies there were 26 fetuses which reached the age of viability, and there were 22 living children. This number represents 60 per cent of the 37 pregnancies terminated under their care, and 84.6 per cent of these pregnancies which reached the age of viability. Eleven of the 37 pregnancies terminated spontaneously or were terminated intentionally before viability. The authors think that unless future use of substitution endocrine therapy changes the present situation, cesarean section at the thirty-sixth week will be the method of delivery which will produce the highest percentage of fetal survival. They stress that the very wide variation in the percentage of fetal survival is not totally explained by a difference in the manner in which the pregnancy and the diabetes were conducted. There are deeper and more fundamental reasons, and they emphasize that the greatest fetal and maternal (especially the former) risk occurs in the juvenile diabetic patient. Cerebral anoxemia frequently due to edema is the commonest cause of neonatal death, which is related directly to the diabetes. Control of the diabetes during pregnancy is usually relatively simple but must, if possible, be guided by frequent blood sugar determinations. Hormonal imbalance is rapidly becoming recognized as the most common cause of high fetal mortality and maternal morbidity. This imbalance is present in 60 to 70 per cent of pregnant diabetic women.

RESULTS OF CONCLUSIVE SHOCK. Wolfe, P. S.: *West. Jour. Surg., Obs. and Gyn.*, 1945, 53: 203.

Wolfe reports experiences in treating 1,021 patients over a six year period. These patients received a total of 1,313 courses and 11,104 individual shock treatments. Metrazol was used in 4,430 and electric shock in 6,674 treatments. Metrazol has been supplanted largely by electric shock because of its economy and convenience of administration but there are occasional instances in which metrazol is still preferred. In selecting cases for treatment it is best to avoid those of long standing, and the affective reaction types are preferred to the schizophrenic patients. Many mental illnesses featured by depression respond well to convulsive shock therapy. Behavior problems in chronic psychiatric illness can be improved with shock therapy. It is desirable to try more conservative methods of management before resorting to shock treatment. Prolonged courses of about fifteen seizures are suggested for schizophrenic patients and for the maniac patients who are slow to show improvement. For the sluggish schizophrenic patients, metrazol is more effective than electric shock. After shock treatment an observation period of at least two weeks is advised in which time psychotherapy is most effective, and in this period occupational and recreational therapies can be arranged. If a relapse is going to occur, it usually appears during this time. In manic patients a month of observation with a nonstimulatory regimen will prevent some relapses. Repetition of treatment following a relapse is worth consideration in manic depressive psychosis, especially in the depressive type, but it is of questionable value in schizophrenia. The cardiovascular system must be carefully evaluated for cardiac reserve and for evidence of toxic myocarditis before deciding to administer shock. Phlebitis, even if resolving, is a contraindication to treatment. The death rate in this series was 0.49 per cent. The results were best in the affective reaction types, the depressed manic patients responding even better than the manic types; in those with involuntal depression and with senile depression the results were fairly good, while in those with schizophrenia with involuntal paranoia and with psychoneurosis they were disappointing. Curare is a valuable aid in preventing fractures and dislocations, in allowing treatment in otherwise too risky patients, and it presents little additional hazard, especially if the antidote, neostigmine, is kept at hand.

PROLONGED BLOOD CONCENTRATIONS AFTER ORAL ADMINISTRATION OF MODIFIED PENICILLIN. Welch, H., Price, C. W. and Chandler, Velma L.: *Jour. of Amer. Med. Assoc.*, 1945, 128: 845.

Price and his associates say that a method of oral administration of penicillin modified with either aluminum hydroxide or magnesium hydroxide results in prolonged blood concentrations of this drug. Blood levels of from 0.03 to 0.19 unit per cubic centimeter may be obtained for as long as twenty-four hours after the administration of 100,000 units in four doses of 25,000 units each. In some persons, serum concentrations of 0.06 unit were obtained thirty hours after the administration of 100,000 units in four doses of 25,000 units each. Following each dose there is a pronounced increase in the blood concentration level of penicillin, and this blood level may be increased with subsequent doses. Relatively high levels of penicillin may be maintained in

blood by increasing the frequency of the doses of penicillin-aluminum hydroxide. Since the modified penicillin may be prepared at the time of use, no stability problem is involved. After oral administration of the modified penicillin, relatively small amounts are excreted in the urine. The penicillin is apparently largely inactivated within the body. It appears that some absorption through the stomach wall is obtained followed by further slow absorption from the small intestine. Because of prolonged penicillin concentrations in the blood following this method of oral administration, this dosage form may have some prophylactic value.

FERROUS VS. FERRIC IRON. Editorial: Jour. of Amer. Med. Assoc., 1945, 127: 1056.

Since the latter part of the seventeenth century it has been known that the red blood cell contains iron; this element forms part of the molecule of hemoglobin and with it is associated the remarkable ability of this pigment to carry oxygen. One of the most direct therapeutic technics is the administration of salts of iron in certain types of anemia; when the condition is due largely to low iron intake or to defective utilization of iron, and when a trace of copper is present, regeneration of hemoglobin follows such treatment. Once it was believed that iron in organic combination is superior to inorganic iron salts. Likewise the debate regarding the efficacy of ferric or trivalent iron salts like ferric ammonium citrate, as compared to that of ferrous or divalent iron such as is present in ferrous carbonate, has persisted. Part of the difficulty has undoubtedly arisen from the variation in criteria employed for judging the comparative behavior of the two types of iron salts; again certain of the experimental devices are doubtless rendered less reliable because of the difficulty in analyzing tissues for iron quantitatively.

Studies on the human being generally indicate that ferrous iron is superior to ferric iron. Thus the chloride and sulfate of ferrous iron were more effective in infantile anemia than ferric iron. On the basis of increase in the iron of the serum, Moore and his associates observed better absorption of ferrous iron than of the trivalent form. From the point of view of iron in nutrition, McCance and his co-workers showed that ferrous iron was absorbed better than ferric iron and that the phytic acid in cereals interfered with the utilization of ferrous iron to a lesser extent than with ferric iron. Experiments with mice, rabbits and pigs have also been cited in favour of the superiority of ferrous iron. Many studies with experimental animals, however, have indicated little, if any, superiority of one form of iron over the other on the basis of absorption.

The dilemma with respect to the preference of one form of iron over the other in therapy seems to be cleared somewhat by the recent investigation of Moore and his associates, in which radioactive iron was used as the indicator and the speed of its appearance in the circulation erythrocytes after a test dose was the criterion of utilization. In human subjects the divalent iron (ferrous) was distinctly superior, whereas in dogs no regular distinction between the two forms was demonstrated. Although ferrous iron is likely to be tolerated better by human patients than is the more soluble ferric salts, there appears, from the most recent evidence with labeled (radioactive) iron, to be a real difference in the utilization of the two forms of iron in man. In experimental animals, on the contrary, the distinction seems much less obvious.

ANEMIA THERAPY. Teeter, E. J.: Jour. of Amer. Med. Assoc., 1945, 127: 973.

According to Teeter, the choice of anemia therapy from among many preparations developed in the past eighteen years can be facilitated by consideration of the following factors: (1) Oral versus intramuscular extracts. (2) Intramuscular liver extracts are more surely absorbed and, by the same token, more effective, particularly in the acute stage of primary anemia. (3) Oral extracts are more convenient both for the physician and for the patient and can be used effectively for maintenance. (4) Stomach and liver extracts standardized according to the requirements of the United States Pharmacopeia should be prescribed. (5) Any iron salt suitable as a therapeutic agent can be prescribed. Ferric salts require two or three times as much daily as is required of ferrous salts. (6) Size of the daily dose of anti-anemic therapy cannot be judged in terms of units or grains. Red blood cell count and hemoglobin determination are safe guides, and enough therapy should be prescribed to produce the desired results.

INTERNAL FIXATION OF FRACTURES OF NECK OF FEMUR. Boucher, D. W.: Can. Med. Assoc. Jour., 1945, 52: 31.

Two operative procedures have been advocated for the introduction of the three flanged nail in the treatment of fractures of the neck of the femur. These are the intra-articular technic and extra-articular method. Boucher's experience is limited to insertion and nailing by the extra-articular technic, which in his opinion is much less hazardous than the intra-articular method. The extra-articular method involves less shock and less danger of sepsis. None of the 47 cases reviewed here showed signs of sepsis, and the wounds healed without discharge. The author followed the method suggested by Hey-Groves and Watson-Jones, with slight personal changes. The main features of this method of introducing the nail are accurate measurements of its length and accurate introduction of the guide wire well into the head, leaving the guide in position until the nail has penetrated so far into the head that one is absolutely certain that no rotation can take place if the nail is inserted farther and the guide has been withdrawn. The guide wire is localized in the neck by anteroposterior and lateral X-ray plates, after it has been inserted with the aid of Hey-Groves guides and the sense of sight and touch. The patients treated ranged in age from 54 to 89 years, most of them being in the eighth decade. Nineteen patients had complications on admission that influenced the end results. The fractures were more common in women than in men, the ratio being 5: 1. The end results were good in 34 patients, fair in 4 and bad in 4; 5 patients died.

DISAPPEARANCE OF RENAL CALCULI AFTER USE OF SOLUTION G. Hamer, H. G. and Mertz, H. O.: J. of Urology, 1944, 52: 475.

Hamer and Mertz show that the recent announcement of solutions G and M have stimulated renewed interest in attempts to dissolve alkaline urinary calculi. The formula for solution G is monohydrated citric acid 32.25 Gm., magnesium oxide (anhydrous) 3.84 Gm., sodium carbonate 4.37 Gm. and water sufficient to make 1,000 cc. Lack of complete success with the use of these solutions seems to be dependent on one or more of the following factors: (1) failure of the solution to bathe the calculous mass completely;

(2) variations in the chemical composition of different portions of the stone; (3) changes in the character of the surface of the stone occurring during treatment and (4) insufficient treatment. The authors discuss these different factors. Solutions M and G influence only stones composed of calcium phosphate, or carbonate or magnesium ammonium phosphate. They have no appreciable effect on uric acid or calcium oxalate stones. Insufficient treatment may be due to inability of the patient to tolerate the solutions. Solution M is not so acid or so irritating as is solution G, nor does it have so great a solvent action. The amount of solution varies from 1,500 to 3,000 cc. each twenty-four hours. The duration of treatment has been from ten days to three or four months. The size of the pelvis will govern the amount of fluid injected at each treatment. When the hand syringe method of injection is used, available nursing care will govern the interval of the injection, which should not be longer than one or two hours. The pelvis and the calices should be filled with the solution four to six times at each treatment. Successful treatment with the hand syringe will require more time than will treatment with an apparatus such as Kinsell has designed, as the more constantly the stone is bathed by the solution the shorter will be the treatment. Hamer and Mertz report the case of a woman, aged 27, who had alkaline renal calculi. These had been present since a pyelolithotomy performed three years previously. The principal stone mass was removed at a second pyelolithotomy, and several clusters of calculi left behind were dissolved by the persistent use of solution G. Ten months following dismissal from the hospital the kidney function was improved and the X-ray remained negative for stone shadows.

E. DAVID SHERMAN, M.D.

Abstract Editor

An event unique in Canadian medical history furnished living proof that cancer *can* be cured when 100 women were the guests of Dr. Gordon E. Richards at a dinner, at the Royal York Hotel in Toronto on April 2nd.

These women, ranging in age from 35 to 86, are members of the Cured Cancer Club and this was their first meeting. When the dinner was planned it was decided to limit the guests to those who had been cured of a certain type of cancer—cancer of the uterus. It was found that there were almost 250 women eligible, but the hotel limited the guest list to 100, so only those within a radius of about 60 miles of Toronto were invited. All these women were known to have had cancer and to be in excellent health. They were cured from 5 to 17 years ago. They had all been treated at the Institute of Radio-therapy of the Toronto General Hospital. Dr. Richards is head of the Institute and Managing Director of the Ontario Foundation which is conducting a two million dollar fund raising Campaign in conjunction with the Canadian Cancer Society.

Dr. Richards asked the Club members to be good neighbours and tell their friends not to be frightened of the word cancer. "The person who has cancer is involved in a battle," he said. "If you have the courage it is possible to win—unless you have the courage, you are sure to loss."

Correspondence

Nova Scotian Hotel
Halifax, N. S.
March 7, 1946.

Dr. H. G. Grant
Dean of Medicine
Dalhousie University
Halifax, N. S.

Dear Dr. Grant:

I am obliged for your thoughtfulness in forwarding me a copy of the February Medical Bulletin in which you reproduced my letter concerning air travel arrangements. I hope the information was of interest to those of your members who are planning to attend the Canadian Medical Association Convention at Banff in June.

Even at this early date we have received several reservation requests and I hope that limitations of space will make it apparent that others wishing to fly to the convention will not delay too long in acquainting us of their requirements.

It is quite possible that some will desire stopovers enroute, or alternate routing privileges, depending on their travel plans. Shown below is a sample through itinerary based on present schedules:

Leave Halifax	5.50 p.m. (Atlantic Time)—one of 4 flights
Arrive Montreal	8.45 p.m. (Eastern Time)
“ Toronto	11.45 p.m. (Eastern Time)
“ Winnipeg	6.40 a.m. (Central Time)—next morning
“ Regina	8.05 a.m. (Mountain Time)—next morning
“ Calgary	11.50 a.m. (Mountain Time)—next morning

. . . similar convenient schedules are possible via any selected routing and I shall be glad to assist with individual requirements of any of your members direct or through their local travel agent or nearest TCA office.

Yours very truly

STEWART S. SIME,
TCA City Traffic Manager.

P.S. Fares from Halifax to Calgary—\$179.50 one way; \$323.15 return.

Halifax, N. S.
April 16, 1946

Dr. H. G. Grant
Dalhousie Public Health Clinic
Halifax, N. S.
Dear Sir:

Further to my letter of January 23rd, quoting first class return fares Halifax to Banff, Alberta.

I now wish to advise that the Canadian Passenger Association have authorized an Identification Convention Certificate covering the return trip Halifax to Banff at a reduced fare. All delegates must present Canadian Passenger Association Form 80, in order to take advantage of this reduced fare which is \$146.55, this quotation includes tax.

Trusting you will find above quotation satisfactory and if I can be of any further assistance, do not hesitate to call me.

Yours very truly

(Sgd.) J. J. LEYDON
Acting District Passenger Agent

Men are just as likely to develop and die of cancer as women. Exclusive of cancer of the breast, which is not common among men, more men than women die of cancer.

Supporting this statement are some of the latest figures from the Bureau of Vital Statistics, for 1944.

Site of Cancer	Male	Female
Buccal and pharynx cavity.....	446	98
Digestive Organs.....	4,047	3,184
Respiratory System.....	628	237
Urinary Organs.....	470	248
Skin.....	136	64
Breast.....	22	1,318
All Sites.....	7,159	7,056

One of the tragedies in the realm of modern medicine is to see the late stages of a devastating skin cancer. Death from cancer arising primarily from the skin should indeed be a thing of the past. The skin is so apparent and accessible to diagnosis and treatment that only gross negligence or ignorance on the part of the individual could bring such an unhappy ending.

More startling is the comparison between cancer and war as a killer. During the war years twice as many Canadians were killed by cancer as by all Canada's enemies combined. Yet the money contributed annually throughout the country for the battle against cancer would not buy a single tank.

Plans Announced for 1946 Clinical Congress of American College of Surgeons in New York

The American College of Surgeons announces that arrangements have been completed for the holding of its Thirty-second Clinical Congress at the Waldorf-Astoria, New York, September 9 to 13 inclusive. Plans include the usual extensive program of demonstrations, scientific sessions, panel discussions, symposia, forums, Hospital Standardization Conference, medical motion pictures, business meetings, and educational and technical exhibits, which will be held in the headquarters hotel, and operative and non-operative clinics in the local hospitals.

This will be the first Clinical Congress since the meeting in Boston in 1941. Since that time, 2,744 surgeons have been received into fellowship in absentia, and to them in particular the Convocation on the opening night of the Congress will be a long anticipated event. Many of these new Fellows will have recently returned from service with the armed forces. The formal initiation ceremonies, always impressive, will be exceptionally so this year because of the large number of new Fellows admitted during the past four years who are expected to be present.

Officers, Regents, and Governors have remained in office since 1941 because of the cancellation of annual meetings of the Fellows. Especial interest will also therefore be attached to the installation of the officers elect, headed by Dr. Irvin Abell, Chairman of the Board of Regents, as President. Dr. W. Edward Gallie of Toronto has been President since November, 1941. Dr. Gallie will give the Presidential Address at the Presidential Meeting and Convocation on the evening of September 9 in the Grand Ballroom of the Waldorf-Astoria.

Dr. Howard A. Patterson and Dr. Frank Glenn of New York City are Chairman and Secretary respectively of the Committee on Local Arrangements. Dr. Henry Cave of New York, a member of the Board of Regents of the College, is also active in directing the local plans for the meeting, attendance at which is usually around five thousand surgeons and hospital representatives.

Summer Diarrhea in Babies

Casec (calcium caseinate), which is almost wholly a combination of protein and calcium, offers a quickly effective method of treating all types of diarrhea, both in bottle-fed and breast-fed infants. For the former, the carbohydrate is temporarily omitted from the 24-hour formula and replaced with 4 packed level tablespoonfuls of Casec. Within a day or two the diarrhea will usually be arrested, and carbohydrate in the form of Dextri-Maltose may safely be added to the formula and the Casec gradually eliminated. One to three packed level teaspoonfuls of a thin paste of Casec and water, given before each nursing, is well indicated for loose stools in breast-fed babies. For further information, write to Mead Johnson & Company, Evansville 21, Indiana.

Obituary

IT was with deep regret that his many friends in Nova Scotia learned of the death of Dr. A. G. Nicholls in Montreal on March 3.

Born at Shotley Bridge, England, in 1871, Dr. Nicholls came to Montreal at an early age and graduated from McGill University first in Arts and in 1894, in Medicine, being Gold Medalist in his final year. Some years post-graduate study were spent in England, Germany, Austria and finally at McGill where he obtained the degree of Doctor of Science. He won the appointment of Assistant Professor of Pathology and Bacteriology at McGill and Assistant Pathologist to the Royal Victoria Hospital which he relinquished in December, 1914, when he came to Halifax as Professor of Pathology and Bacteriology at Dalhousie and Provincial Pathologist for the Province of Nova Scotia. He occupied these positions with great success and in 1927 he returned to Montreal to become editor of the *Canadian Medical Association Journal* from which he retired in 1943.

Dr. Nicholls came to Halifax with his reputation as a top ranking pathologist already firmly established; the standard reference book on Pathology in the English language being *The Principles of Pathology*, by Adami and Nicholls. This reputation was quickly enhanced by his skill as a medical consultant but perhaps most of all by his ability as a teacher in Pathology. His lectures, delivered in an easy unhurried style with perfect diction, were models of clarity and orderly development of subject matter. His kindly interest, manifested equally in his lecture theatre and in his home, will long be remembered by his students. During the first World War, in addition to his other duties, he found time to serve with the R.C.A.M.C. in various posts in Halifax, among which was the organization and direction of the laboratory service in the Cogswell Street Military Hospital. As Provincial Pathologist he advocated for many years the enlargement of the Pathological Institute and the present building, erected in 1924, is a monument to his energy and vision.

With so many urgent duties there could have been but little opportunity for leisure and hobbies. Yet Dr. Nicholls found time for extensive reading and published many articles of great charm and deep insight in his favorite hobby, that of Medical History and particularly that phase of Medical History pertaining to the Herbalists. He was a member of the "Osler Club" in Halifax, a medico-literary group formed for the study and appreciation of the classics of medical literature.

Of his success as editor of the *Canadian Medical Association Journal*, little need be said. The *Journal* speaks for itself and much of the high reputation of that publication is due to his painstaking attention to detail and editorial wisdom.

He is survived by his widow and three sons.

Facts Everyone Should Know

1. Cancer kills more than 33 Canadians *every* day.
2. Young and old are victims.
3. One out of eight persons over 40 dies of cancer.
4. Over 13,000 Canadians die annually from cancer.
5. As many as 6,000 lives could be saved by early detection and treatment.
6. More children 5 to 19 years of age die each year from cancer than the deaths from the following *combined*:
Scarlet fever, infantile paralysis, typhoid, peritonitis, dysentery and diarrhoea.

The Canadian Cancer Society is sponsored by the Canadian Medical Association. It was originally organized because the doctors of Canada recognized that the whole-hearted support of the general public was essential before the cancer problem would be effectively tackled. The Society was incorporated in March 1938, and at that time it was known as the Canadian Society for the Control of Cancer. It is non-political and works in close cooperation with all government health agencies.

Campaigns against venereal disease and tuberculosis have had their effect in the past. A campaign against cancer would do the same. The medical profession warns against old superstitions connected with cancer, and urge that the public learn the truth about it.

Thousands of persons are dying annually, many of whom could have been saved had they known the elementary facts about cancer. It is to acquaint the public with the facts and to extend the research work and to provide greater facilities for treatment that the Cancer Campaign is being launched. It is almost unbelievable that last year the public donated less than \$15,000 to the Canadian Cancer Society—the only national organization working to control cancer—and the Society's only other source of income was a \$7,000 grant from the Canadian Medical Association which represents half of the interest from the King George V Cancer Fund. This is a record in which Canada—a nation that could find billions of dollars for war purposes—can take no pride.

There are definite indications that the death rate from Cancer is now decreasing and that all the thought and work and effort is beginning to win the fight. A larger international insurance company reports that, in the ten-year period between 1934 and 1944, the death rate from cancer among female policy-holders gas decreased 11 p.c. Among male policy-holders, the same degree of improvement has not yet been observed, but the upward trend which was evident in the first quarter of the present century has been checked and the rate has remained stationary for the past ten years.

A registry of cancer patients maintained in the United States had, by 1943 more than 39,000 cases of proven cancer successfully treated without recurrence for periods of five years or more.