

# Robert Campbell (1866–1920)

President of the Ulster Medical Society

1916–17

## Presidential Opening Address

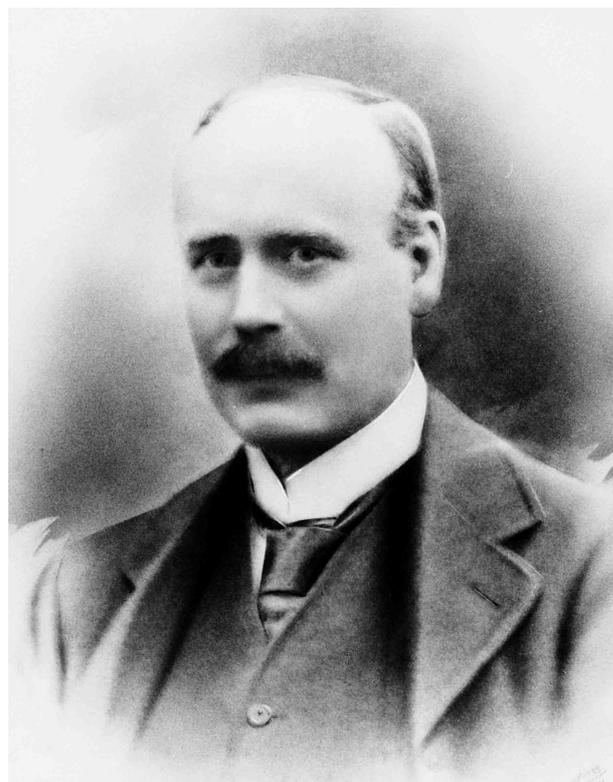
Ulster Medical Society

9th November 1916

### SOME SURGICAL PROBLEMS

Mr. EX-PRESIDENT, LADIES AND GENTLEMEN, My first duty is to express my sincere thanks to the members of this Society for having done me the great honour of electing me their President for the coming year. I hope that I shall be able to discharge the duties of the office in a manner worthy of my distinguished predecessors in the chair. I know that most of the work falls to the lot of the Secretary, and in spite of the feelings of distraction and unrest to which we are all victims during these troublous times, I trust that with the capable and energetic assistance of Dr. Irwin we shall have many meetings at which papers and discussions of interest and value will be provided. There is one point which I might mention. Although the Ulster Medical Society has been in existence for fifty-six years, my election as President is the first occasion on which a second member of the same family has been called upon to fill that office. My second duty is a sad and painful one. It is to record the loss of members by death which the Society has suffered during the past year. On November 21st, 1915, John Samuel Bryars died suddenly from Cerebral Haemorrhage at his residence, Mountpottinger Road. Having obtained the qualifications of the Royal College of Surgeons and Physicians of Edinburgh in 1886, he began his Professional work in West Hartlepool; but six years later came to Belfast where he soon acquired an extensive practice. For some time he was a member of our local Board of Guardians, and for two years he filled the position of Chairman of that Board with conspicuous ability and success. Dr. Bryars was a man of upright and honourable character who gained the affection and esteem of all his professional brethren. I knew him well and I never heard him say an unkind word of anyone.

On December 5th, 1915, John Johnston Austin died of acute pneumonia after a few days' illness. Having graduated M.D., M.Ch., in the Queen's University in 1882, he started practice in Larne, but after a few years moved to Belfast, where he rapidly



gained the confidence not only of the public but of the members of his profession. He was elected a member of this Society in 1889, and filled the office of President during the Session 1909-10. Dr. Austin was a general practitioner of the highest type. Although busily engaged in one of the largest practices in the city, he managed to attend the meetings of this Society frequently and to take part in our discussions. His death at the comparatively early age of 57 years has been a great loss to the entire community.

On 29th May, 1916, Edwin Field Nelson died at his residence, The Hill, Downpatrick. He graduated M.D., in the Queen's University in 1866, and in the same year became a Licentiate of the Royal College of Surgeons in Ireland. He held the position of Surgeon to the Downpatrick Union Infirmary, and was for a long period Medical Officer of the 5th Battalion of the Royal Irish Rifles, from which he retired with the rank of Surgeon-Major. Dr. Nelson was a man esteemed and beloved by all who knew him. His genial and kindly manner quickly aroused feelings of friendship among people of every class. It is only a few years since this Society suffered a deep loss by the death of his brother, Dr. Joseph Nelson of Belfast.

# Robert Campbell

When considering the subject of my address, I first thought that I would take up some particular surgical affection of which I have had considerable experience; but on reflection I saw that a paper of this kind must of necessity contain a mass of minute details and arid statistics which might prove wearisome and uninteresting to many of the members. I, therefore, resolved to discuss a number of Surgical Problems of general interest, and in each of them to make some remarks which must necessarily be brief. If in these remarks, I say anything that does not commend itself to my audience, I hope that my opinions may stimulate some of the members to give us their views on another occasion.

**1. Acute Septic Infections.** – To state that Lord Lister, by the introduction of antiseptics, revolutionised surgery is a mere truism. He robbed accidental wounds of much of their danger. He gave a tremendous impetus to operative work. Indeed antiseptics combined with the aseptic methods of later date have enabled surgeons to undertake prolonged and extensive operations on any part of the body with little risk, provided the proper technique is observed with minute care and the patient does not contain within himself any autogenous source of infection. But there are still many septic conditions of accidental origin which hold antiseptics at bay. In widespread inflammation, such as cellulitis and acute osteomyelitis, it is hopeless to expect that an antiseptic however diligently applied could reach and destroy the micro-organisms in the invaded tissues. In such cases the surgeon is forced to rely mainly on large incisions and free drainage. This fact has been emphasised during the present war. The lacerated wounds produced by shell and shrapnel are favourite sites for the commencement of rapidly spreading and disastrous inflammatory processes. A consulting surgeon on leave from France has told me that in these cases it does not matter in the least what antiseptic is used. The only hope for the patient lies in free incisions and free drainage.

At the commencement of the war a spirituous solution of iodine held a high position as an antiseptic in the opinion of many surgeons. The younger members of our profession were inclined to regard its use for this purpose as a new departure, but those of us whose memories go further back looked on its employment as the resurrection of an old friend. Over thirty years ago Bryant extolled its virtues, and in that valuable work, "Erichsen's Surgery," it is described as one of the most potent of all antiseptics. In those days, however, the price of the drug prohibited its general use. That spirituous solutions of iodine are of

great value both for sterilizing the skin preparatory to operation and for disinfecting accidental wounds is certainly true; but I must confess that I have an honest doubt whether the sterilization of skin should be ascribed to the iodine or to the spirit in which it is dissolved. I have performed many operations in which the skin was cleansed by methylated spirits and many in which iodine was used for that purpose, and I have found that the wounds have healed as aseptically in the one case as in the other. Be that as it may, I am afraid we must admit that in the surgery of the battlefields iodine has not completely fulfilled the expectations which its success in civil practice had aroused. This failure has probably been to a large extent due to the depth of these wounds, and the consequent difficulty of bringing the antiseptics into contact with the whole infected area when the first dressing is applied. Many of these wounds, therefore, become very septic, and to deal with this serious complication bacteriologists and surgeons have been diligently searching for new methods of treatment. This search has resulted in another old friend, viz., Bleaching Powder, being dragged from obscurity into a place of honour. Those of you who possess the first edition of Sir William Whittaker's text book of "Materia Medica" will find that Liquor calcis Chlorinatae is therein described as being "used with advantage in foul sloughing wounds, ozoena, etc., and that half a drachm of the solution added to an ounce of water makes a good gargle in malignant scarlatina and diphtheria with foetid ulceration." Over twenty years ago part of the technique used in sterilizing the hands at the Samaritan Hospital in this city consisted in rubbing them well with bleaching powder and carbonate of soda moistened with sterile water to form a paste. This old method of cleansing the hands has been adopted by Dakin to the preparation of a solution of hypochlorite of soda which he recommends as an antiseptic lotion for the treatment of wounds; 140 grams of dry sodium carbonate are dissolved in 10 litres of water and to this 200 grams of chlorinated lime are added. The mixture having been well shaken is allowed to stand for half an hour when the clear supernatant fluid is syphoned off from the precipitate, and filtered through cotton wool. 40 grams of Boric Acid having been added, the solution which contains about 5% of sodium hypochlorite, is ready for use. Lorrain Smith and his collaborators prefer to dissolve 25 grams of a mixture of equal parts of bleaching powder and boric acid in a litre of water. The resultant solution, which contains hypochlorous acid, and bionate of calcium, and chloride of calcium has been named "Eusol." One cannot refrain from

# Robert Campbell

admiring their business capacity shown by their recognition of the fact that the success of a drug on the market largely depends on its simplicity of preparation, and its possession of a distinctive name.

From personal experience I am convinced that hypochlorite solution is a valuable addition to our methods of treating septic wounds; but I have not had sufficient experience of its employment in really serious cases to express an opinion as to the position which it holds in relation to other better known antiseptics. It seems to me, however, unreasonable to expect that any chemical antiseptic locally applied can cope successfully with widespread and virulent infective conditions. The only method which holds out a promise of success, is to attack the causative micro-organisms through the blood stream. Intro-venous injections of Eusol have been tried, and have, I believe, been productive of good results.

To Sir Almroth Wright, our fellow-townsmen, belongs the credit of having introduced the most logical and scientific method of treating septic wounds which has yet been described. He advises that these wounds should be constantly irrigated with a 5 to 10% solution of Sodium Chloride, which being hypertonic to the blood, causes a continuous flow of fresh blood serum through the wound and the surrounding tissues. By the addition of citrate of soda to the salt solution lymph is prevented from coagulating on the walls of the wound. The normal blood serum is strongly bactericidal, and so the whole of an infected area can by this method of treatment be continuously flushed out with a natural antiseptic. Whether the normal serum may prove sufficiently germicidal, or whether its antiseptic properties may require to be reinforced by other means, Wright's lymph lavage of infected wounds rests on a firm logical foundation.

In a broad-minded profession like our own, one would have thought that such an excellent piece of scientific work would have at once received the recognition due to it. Unfortunately, some ardent disciples of Lord Lister who hold high positions in the surgical world and whose views have considerable weight with many medical men, seem so overpowered by the authority of their master that they are unable to even dream of any other method of treating an infected wound than by the application of a strong chemical antiseptic. One cannot help but admire their faithfulness to the precepts of their teacher, but while holding Lord Lister in the highest honour, and recognising him as the greatest benefactor of his race in the domain of surgery, we must not close our eyes to the limitations of his antiseptic doctrine. To fetter

one's intellect to one particular line of treatment is to ring the death knell of all mental progress. Surely we can at the same time honour the living and revere the dead.

**2. Cancer.** – If we have still much to learn about the treatment of Acute Septic Infections we have at least the satisfaction of believing that we really comprehend the ultimate cause of these conditions. But how do we stand in reference to Cancer?

Certainly, there are some facts, the fruits of long experience, which require our careful consideration. It is, for example, a disease of middle age, when the cells of the body are beginning to feel the effects of the physiological wear and tear of life. It prefers low-lying well-wooded districts where there are rivers to high and treeless moorlands with their tiny streams. The valley of the Thames has long been known as a cancer area, and in our own country the County of Armagh holds a similar evil pre-eminence. The disease also shows a partiality for particular dwellings. All surgeons who have been in practice for a number of years, must have come across instances of "Cancer Houses," in which not only have several members of the same family suffered from the disease, but when the tenancy was changed, one or more of the new occupiers have also fallen victims to it.

We have some evidence, too, that cancer can be communicated from one person to another by contact, although the number of reliable cases on record is small. On the other hand the relationship between cancer and chronic irritation is a well-established fact. The frequency with which the lip is attacked in smokers addicted to the use of a clay pipe is known to all, and the large number of cases of malignant disease of the breast which supervene in chronic mastitis cannot be overlooked. Lastly, the close connection between tertiary syphilis and cancer of the tongue is most remarkable. When working in the out-patient department of the Royal Victoria Hospital I saw many syphilitic patients suffering from ulcer of the tongue. In some instances the specific nature of the lesion was quite evident, but in all cases in which there was any doubt as to the clinical diagnosis the ulcer eventually proved to be malignant, although the patients gave a clear history of syphilitic infection, and the blood showed a positive Wassermann reaction.

Of course all these are merely what our Text books call "Predisposing causes." The primary cause is still a mystery; but would a man be unreasonable if, after reviewing the facts, he were to state that there

# Robert Campbell

was a great similarity between cancer and other diseases which are known to be due to infective micro-organisms ? I think not. Pathologists have searched with diligence for a specific micro-organism and have found none. But look at the case of syphilis. For generations it was known to be a virulently contagious disease, and yet it was not possible, until recent years, to demonstrate the *Spiro-Chaeta Pallida*. Again, Typhus, our most infectious fever, has been practically eliminated from our midst without its primary cause being known. So completely has preventive medicine mastered the disease that, if its microbe should be discovered, as I hope in the interests of science it may, it would have become, as Lawson Tait once remarked, "an interesting personality and nothing more."

We hear much about cancer cells having a separate and specific origin. We are told that they arise, not from the ordinary tissues of the body, but from cells of an embryonic type, which occur as "cell rests," and are prone, for some unknown reason, to take on rapid and independent growth. This view is not supported by the work of some well-known pathologists. During his investigations into cancer of the breast, McCarty found that the overgrowth of cells in chronic mastitis is exactly similar to that in cancer. He points out that an acinus of the breast is lined with two layers of epithelium, a layer of functionary cells, and a layer of germinating or reserve cells. In the chronic irritation of mastitis the functionary cells suffer first and are gradually destroyed, but up to a certain point the cells destroyed are replaced by new cells derived from the germinating layer. Should the complete replacement of the special cells fail, the cells of the basal layer increase to such an extent that "they fill the lumen of the acinus, and are morphologically identical with the cells of cancer although none invade the stroma at this stage." This is what is called the precancerous stage of chronic mastitis. McCarty further states that "in 840 precancers of the mammary gland I have never seen the condition unless it was associated with a definite chronic mastitis. In 1,819 specimens of chronic mastitis I have found histology pictures which present changes, without demarcation, to and including the picture of early carcinoma." These observations go to prove that the proliferation of cells in both chronic mastitis and in cancer of the breast takes place in the basal or germinating layer of the epithelium of an acinus. For those who support the infective origin of cancer the most difficult point to explain is why secondary growths in distant parts of the body and in different tissues should almost always

show a remarkable similarity in structure to the primary tumour.

Turning now to the question of treatment we find that during the past ten years surgeons have made considerable advances in dealing with the disease. These advances have been due (1) to a recognition of the necessity for early diagnosis, and (2) to a more thorough and extensive removal not only of the tumour but of the tissues around it and of the lymphatic glands draining the area of growth.

As regards early diagnosis it is our duty to impress upon the public the necessity of having every tumour carefully examined as soon as it is noticed, and the folly of regarding a painless growth as a thing unworthy of attention. How often do we hear the remark, "Doctor, I thought it would not signify, as it did not pain me." It is also our duty to recognise our own limitations in clinical diagnosis and to bear in mind that many cancerous growths in their early stages give no visible or palpable signs of their true nature. Take a hard tumour of the breast, for instance. If we wait until puckering of the skin over it and retraction of the nipple have occurred we greatly reduce the chances of a successful operation. What surgeon of experience would undertake to state that a mammary swelling in a woman of 40 years of age was simply a chronic lobar mastitis and nothing more? Of all the cases of chronic mastitis in the Mayo Clinic only 37.3% were diagnosed correctly by the clinician. How are we to diagnose cancer of the breast in its early stages from chronic mastitis? The only course is to freely excise the tumour, and to have it carefully examined by a skilled microscopist. If he finds that the epithelial cells are invading the stroma of the breast, then the radical operation should be performed at once. Indeed in patients over 40 years of age, who are suffering from an apparent chronic mastitis, the immediate removal of the whole breast is advisable, as such cases tend eventually to become malignant. A tertiary syphilitic lesion of the breast is often exceedingly difficult to diagnose from cancer. Syphilis is so often found skulking about in the garb of an entirely different ailment, that I think it must rank among the criminal classes of disease. Sometimes it presents itself as innocent little acne. Another time it poses as aristocratic eczema of gouty origin. Again it may simulate the appearance of poor and weak but respectable tuberculosis. Now and then it puts on the garb of that terrible fellow cancer whose very name makes all human flesh quiver and quake.

If we have reason to suspect that a tumour of the breast may be syphilitic, we can call to our aid the Wassermann test; but we should always remember

# Robert Campbell

that in the breast as in the tongue malignant disease may occur in a syphilitic subject. A positive Wassermann test will, however, strengthen our resolve to adopt energetic antisiphilitic treatment for a fortnight. The failure of such treatment to produce a decided and definite improvement in the disease points clearly to malignancy. The difficulties of making a diagnosis of early cancer of the breast and the consequent postponement of operation are, I believe, the chief reasons why the extensive and thorough removal of the disease practised at the present day has had such disappointing results. Like other surgeons I can point to cases of cancer of the breast, stomach and rectum treated by radical operation, in which the patients after 15, 10, and 9 years are still in excellent health without any trace of recurrence of the disease. I wish I could say that such results are common. Twenty years ago it was laid down as a clinical rule that if a patient whose breast had been removed for Cancer, showed no evidence of a return of the trouble at the end of three years, that patient might be regarded as cured. To-day we cannot take such an optimistic view.

According to the most recent statistics at my disposal it appears to be true that 60% of patients operated on die within three years; but experience shows that we have no right to assume that the 40% who have passed that period of time without signs of recurrence should be regarded as permanently cured. It is quite a usual thing to find that after a thorough removal of a breast cancer a patient may remain in perfect health for five, six or more years, and then begin to lose weight and strength. Often no trace of disease is found at the site of operation, but secondary growths in the mediastinum, the liver, the bones, or even the membranes of the brain are detected. It is one of the mysteries of cancer why such a length of time elapses between the removal of the primary growth, and the clinical manifestation of secondary deposits. In the complete and thorough removal of cancerous growths we have almost reached the limits of our art; and yet we cannot take much pride in our results. If early diagnosis does not lead to a very great improvement in our operation statistics cancer will remain, as it is now an opprobrium of Surgery.

In cases, whether primary or recurrent, where the extent of the tumour or the condition of the patient contraindicate operation, we may resort to treatment by X-rays, radium emanations, or even Coley's Fluid. While it must be admitted that X-rays frequently relieve pain, and cause a fungating growth to assume a more healthy appearance, in the light of

our present knowledge we are compelled to regard the employment of any of these agents as a mere placebo.

**3. Surgical Tuberculosis.** – Eighteen years ago I joined the staff of the Belfast Hospital for Sick Children. At that time tuberculosis of lymphatic glands, bones, joints and peritoneum formed a very large proportion of the cases seen in the Surgical Out-patient Department and Wards. During these eighteen years there has been a marked decrease in the number of such cases. To what has this decrease been due? It cannot be ascribed to any change in the dwellings of the people, or to any great improvement in their standard of living. It may reasonably be argued that the isolation of many phthisical patients in Sanatoria has had an appreciable influence. There is, however, one outstanding fact which I present for your consideration without comment. It is that the decrease in cases of Surgical Tuberculosis has definitely coincided with the increase in operations for the removal of enlarged tonsils and adenoids. During the same period our methods of treatment have undergone a great change. Kocher used to teach that a tuberculous lesion should be removed with the same care and thoroughness as a malignant growth. There was a fallacy in this argument, viz., that whereas a malignant growth so far as we know is a primary lesion, a tuberculous bone or joint is secondary to similar trouble in cervical, mediastinal or mesenteric lymphatic glands. However, most operators followed Kocher's lead and consequently extirpation of glands, erosion or excision of joints, and free removal of carious bones formed a large part of the operative work of a surgeon attached to a Children's Hospital. During the past two years I have not erased or excised a single tuberculous joint in a child, and my operations for complete removal of glands have been comparatively few. The cause of this great revolution in practice has been the introduction of vaccine treatment. From long experience I am convinced that in most cases of Surgical Tuberculosis in children the best results are obtained from Bovine Tuberculous Vaccine. In this connection I might record an observation made many years before the employment of vaccine. It has been my lot to see many children suffering from multiple subcutaneous tuberculous gummata. I have found that the prognosis in these cases is almost invariably good. Patients so affected appear to possess the power to produce an autogenous vaccine. Without any treatment beyond puncturing the gummata when they suppurate, these cases as a rule make a complete recovery.

**4. The Surgery of Gall-Stones.** – Since that

# Robert Campbell

great surgeon, Lawson Tait, performed the first operation for the removal of gall-stones, our technique has gradually improved to such an extent that an operation on the gall-bladder has become a comparatively safe instead of a serious surgical procedure. At the present day we are concerned not so much about the difficulties and dangers of removing the gall-stones as about what should be done with the gallbladder after their removal. Should it be drained or should it be excised? In certain cases there is no room for doubt. When the gall-bladder is acutely inflamed, when it has become gangrenous, when it is so distended that its walls are no thicker than those of a toy balloon, and when it has become so thickened and indurated that it has lost all its elasticity, it must be excised. But when we find gall-stones in a gall-bladder which presents no macroscopic pathological changes, what are we to do? If we turn to the question of risk, we get no guidance from that. My own experience like that of others, goes to show that cholecystectomy is as safe as cholecystostomy. There are, however, other points, that weigh down the scale in favour of cholecystectomy. (1) The period of convalescence is generally longer in cholecystostomy owing to drainage. (2) As we now know that gall-stones are a sequel of cholecystitis, we have reasonable grounds to fear that a gall-bladder which has been drained may again become the site of inflammatory trouble with consequent reformation of stones. (3) Now and again a sinus persists for a considerable time after cholecystostomy. (4) A gall-bladder that has been drained may become so fixed by adhesions that its capacity for dilating or contracting may be practically abolished. It will be observed that all these arguments in favour of cholecystectomy pay no regard to the functions of the gall-bladder. Most of us have been taught as students that the gall-bladder acts as a reservoir for the bile. When we consider the size of the liver, the fact that from 30 to 40 ounces of bile are secreted in twenty-four hours, and the capacity of the gall-bladder which only amounts to 1 or 1 1/2 fluid ounces we must agree with the Mayos that this explanation of the function of the gall-bladder is not very convincing. They suggest that its main use is to relieve tension in the hepatic and common bile ducts during the period of vigorous secretion by the liver. This view would explain an awkward circumstance which I have observed in two cases after cholecystectomy. These patients complain that at irregular intervals, but always an hour or so after a hearty meal, they are attacked with pains in the right hypochondrium which reminds them of their

sufferings when a stone tried to make its way along the cystic duct. At first I thought that these attacks must be due to gall-stones having been formed in the hepatic ducts, but the pain is not so severe as gall-stone colic and passes off completely after a short time. In fact it closely resembles the cramp felt in the oesophagus, when too large a quantity of fluid is suddenly gulped down. The possibility of spasm at the pylorus also occurred to me but it was difficult to explain why this should develop after cholecystectomy. I now believe that the pain is due to cramp of the hepatic and common ducts which, during the vigorous secretion of bile by the liver after a hearty meal, became overdistended. The gallbladder having been removed, the relief of tension can only be obtained by the gradual passage of the bile into the duodenum. There is another point which I would suggest for your consideration. We know that the passage of food from the stomach into the duodenum is intermittent owing to the periodic contraction and relaxation of the pylorus. We know also the entrance of food into the duodenum excites the liver to secrete bile. The secretion of bile must therefore be more or less intermittent. Consequently, it seems to me that the gall-bladder not only relieves the tension in the hepatic and common ducts, but also tends to convert the intermittent flow of bile into a more or less continuous stream. In other words it acts in the same way as the rubber bulb in the air pump of a throat spray or Junker's inhaler. The structure of its walls which contain much elastic tissue and possess only a feeble muscular layer, shows that the gall-bladder is rather a resilient than an actively contractile organ, and gives some support to this view of its action. There is another function of the gall-bladder which must be considered. That is the secretion of mucus. What exact purpose this mucus serves we cannot say. Experiments have, however, brought out one interesting point. It has been found that bile taken direct from the liver and injected into the pancreatic duct of an animal sets up acute pancreatitis, but if it is mixed with mucus from the gall-bladder, no such injurious effects are produced.

I think I have said sufficient to show that we cannot entirely ignore the functions of the gall-bladder, and that we have still something to learn about the surgery of gallstones.

**5. Strangulated Loops of Intestine.** – When a strangulated loop of intestine has been set free, should it be excised or returned to the abdomen? If we turn for guidance to a Text Book of Surgery we are informed that the question must be decided entirely by the condition of the piece of bowel involved. If it

## Robert Campbell

presents a smooth glistening surface, retains its natural elasticity, emits no faecal odour and gradually resumes its normal colour after the strangulation has been relieved, then, we are told, it is capable of regaining its vitality, and can be safely returned to the abdomen. According to this teaching the whole question is an exceedingly simple one; but unfortunately many patients die after operation for acute intestinal obstruction when this advice is carefully followed. Even when Grieg Smith's rule of emptying the distended bowel above the obstruction is adhered to, the mortality is not greatly reduced. What surgeon of experience has not met with cases like this? A young and vigorous patient has suffered for two days from acute intestinal obstruction. The temperature and the pulse are normal, and the abdomen is not much distended. At the operation a loop of bowel is found strangled under a band. When it is set free, it presents all the signs of being able to regain its vitality; and it is consequently returned to the abdomen. After the operation flatus is passed, or the bowels act, showing that there is no paralytic obstruction. But the pulse rate rapidly rises and the patient dies in twelve hours or so with all the signs of toxic absorption. What is the meaning of this?

I think it only admits of one explanation. When the bowel is strangulated its circulation becomes impaired and its vitality lowered. The septic micro-organisms in its contents not only multiply within its lumen, but penetrate into the sub-mucous tissue and even the muscular coat. There they generate toxins in considerable quantities. While the strangulation continues, these toxins are confined to the affected loop of bowel because not only is the circulation of blood through it checked but lymphatic absorption also is in abeyance. When, however, the strangulation is relieved, the blood once more passes freely through the tissues of the bowel wall, and absorption by the lymphatics is restored, with the result that a large amount of toxic material is poured quickly into the circulation and poisons the patient. If he accepts this teaching, the surgeon can no longer regard the appearance of a piece of bowel as being the deciding factor whether it should be returned to the abdomen or excised. He must rather endeavour to form an estimate of the amount of toxic matter within its walls. The longer the duration of strangulation the greater will be the amount of toxins as the bacteria will have had more time to invade the bowel wall. The tighter the constriction, the more rapidly will toxins be generated, as the more quickly the vitality of the bowel is lowered, the sooner will it fall a prey to bacterial invasion. The greater the length of the

strangulated loop, the wider will be the field for bacterial growth. Without paying any attention to this capacity of the bowel for regaining its vitality, the surgeon will, therefore, excise a tightly strangulated loop at an earlier stage than one less severely constricted, and above all he will excise a large strangulated piece of bowel when he might return to the abdomen a small portion which had been constricted for the same length of time. If the surgeon accepts this teaching he will also have to admit that there is not much support for Grieg Smith's statement that the patient is poisoned by the putrid contents of the distended bowel above the obstruction. In the first place the adoption of the plan of emptying this distended bowel has not greatly lowered the mortality, even when practised by an expert operator like Grieg Smith himself. In the second place it is hard to conceive how these contents can become very putrid in a few days. Experience of cases of acute intestinal obstruction in which the bowel is blocked at only one point, *e.g.*, by a kink or transverse bend, shows that patients can live for many days without signs of toxæmia, although the bowel above the obstruction is greatly distended. I have on several occasions operated on patients who have suffered from complete acute obstruction of this nature from eight to fourteen days, and who have recovered when the obstruction was relieved, in some instances without the distended bowel being emptied. Although I highly approve of Grieg Smith's dictum that "no operation for intestinal obstruction is complete if the patient leaves the operating table with a greatly distended abdomen;" I do so, not because I have any fear of fatal toxæmia from the contents of the bowel above the obstruction, but because I believe that by emptying the bowel the overstretched muscular coat is given an opportunity of regaining its tonicity, and embarrassed respiration is relieved.

For the past fifteen years, I have been preaching this doctrine, *viz.*, that when a patient dies after a strangulated loop of intestine has been liberated and returned to the abdomen the fatal result is almost always due to rapid absorption of toxins from the piece of bowel involved. Experience has confirmed this view. The practical deduction from it is that all strangulated loops of bowel should be excised at an early stage and that no attention whatever should be paid to the so-called viability of the bowel. In fact I am convinced that if excision were performed in all such cases of twenty-four hours or more duration, the mortality of this form of acute intestinal obstruction would be reduced to the level of that of operations of election upon the intestine.

# Robert Campbell

**6. Acute Appendicitis and Acute Appendicular Obstruction.** – Six years ago at one of our medical meetings I ventured to express the opinion that there were two acute affections of the appendix, namely, Acute Appendicitis and Acute Appendicular Obstruction. This opinion was received by the surgeons present, in some cases with scepticism, in others with strong opposition. Further experience has only strengthened my views. As it is of great importance that the general practitioner should be able to recognise a case of Acute Appendicular Obstruction, should foresee its termination and should be prepared to impress on the patient the urgent necessity for immediate operation, I shall, for the third time, briefly contrast the two conditions.

(a) **Acute Appendicitis.** – The patient has a feeling of malaise, a chill, or even a rigor. The temperature goes up to 101°F. and sometimes as high as 104°F. The pulse rate is markedly increased. A stabbing or cutting pain is felt first at the umbilicus, but in a few hours is located at the site of the appendix. The pain is accompanied by a feeling of nausea or vomiting. It is increased by any movement of the abdominal muscles, *e.g.*, by deep breathing, coughing, sneezing, or even turning in bed. Contraction of the psoas muscle also may make it worse. There is well marked rigidity of the abdominal muscles overlying the appendix and there is very definite tenderness on percussion or palpation over the same area. In other words the patient presents all the signs and symptoms of a localised peritonitis. Later, a swelling is felt in the right iliac fossa. This may gradually disappear or it may increase and suppurate. The abscess so formed generally bursts into the bowel, but may leak into the peritoneal cavity.

(b) **Acute Appendicular Obstruction.** – The patient is feeling quite well, when he experiences a slight colicky spasm in his abdomen. This passes off quickly but in an hour or so it returns. Gradually it increases in frequency and severity and causes a momentary feeling of nausea. He locates it in the appendicular region. The temperature and the pulse are normal. Movement of the abdominal muscles causes no pain. He often continues to go about his ordinary work. There is faint rigidity of the abdominal muscles over the appendix. It is so ill defined that it may escape notice. There is slight tenderness on deep palpation. It is better elicited by percussion. At the end of twenty-four hours or so the attacks of pain begin to be less frequent and less severe. Finally the pain ceases entirely. The patient asserts that he feels much better. The pulse rate will, however, be

increased by 10 or 20 beats. The temperature goes up to about 100°F. Careful examination shows that there is a little more rigidity and tenderness. Suddenly there is severe abdominal pain, the pulse runs up to 120, there is great tenderness and rigidity all over the abdomen, vomiting is frequent, and the facial expression is changed from that of perfect health to that of severe general peritonitis.

I do not wish to labour this subject unnecessarily; but to allow an acutely obstructed appendix, which is lying free in the abdomen to gradually become gangrenous, then suddenly burst, and empty its virulent contents into the general peritoneal cavity is productive of such disastrous results, that the gravity of the issue at stake is sufficient excuse for my trespassing on your good nature. I am convinced that it is wise to remove as soon as possible any appendix which is giving trouble; but at the same time I would ask you to recognise the fact that an acutely obstructed appendix left in the abdomen will certainly give rise to a widespread and fatal peritonitis, while a case of acute appendicitis left to nature has a sporting chance of recovery owing to the omentum, appendix, and intestine being closely glued together by the plastic lymph poured out around them.