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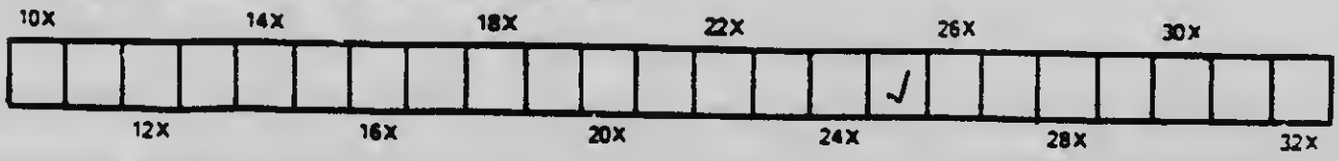

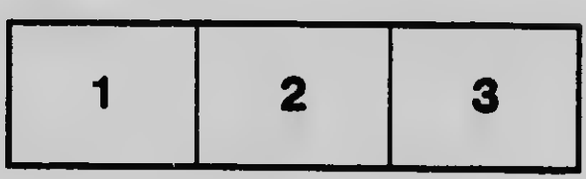

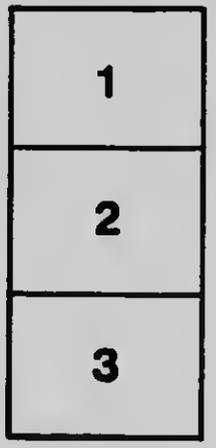

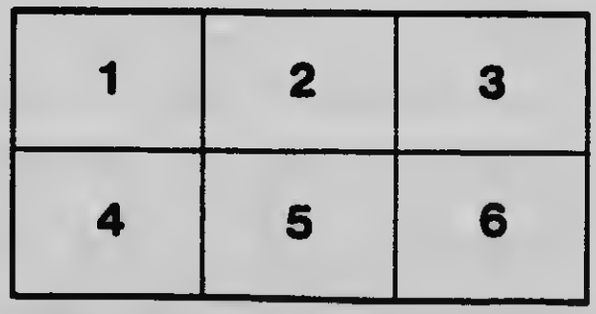

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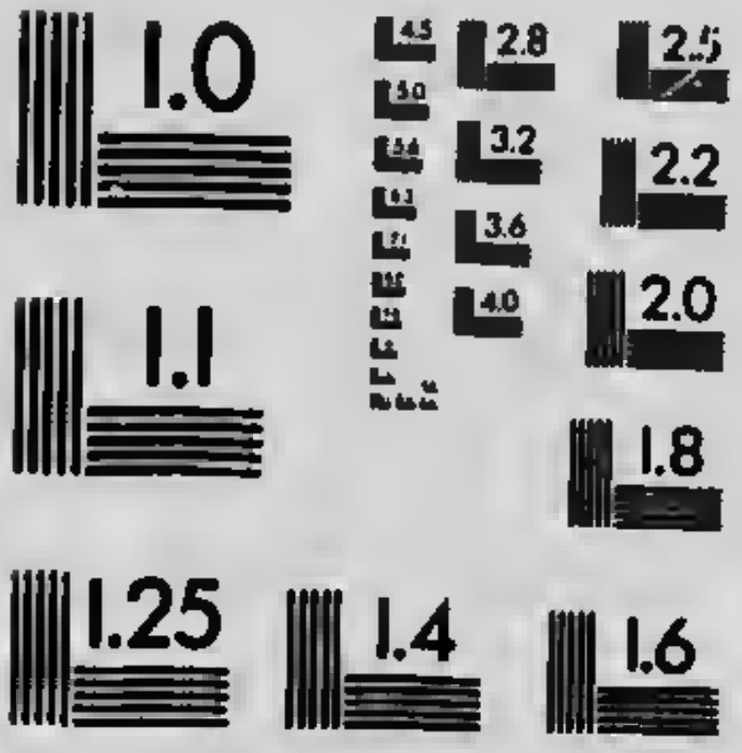

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ADDRESS ON SURGERY

BY FRANCIS J. SHEPHERD, M.D., LL.D., F.R.C.S.

IT is one of the privileges of age to be reminiscent, and when asked to give this address I thought it would he interesting to look hack and sec what changes have taken place in the science and art of surgery since I entered as a medical student in the fall of 1869.

It is well for the present gsneration of surgeons to he aware of the condition of affairs in the pre-antiseptic days and to have some conception of the dangers and difficulties of surgery at that time. What is easy to the present generation was a source of difficulty then and it is well to know that surgery was not born thoroughly equipped as was Minerva, the Goddess of Wisdom and War, Arts and Sciences, when she sprang full grown and completely armed from the hrain of Jupiter.

The efficiency of surgery has been arrived at hy a slow process of evolution. There had been hut little advance in surgery for some time before I entered medicine. Lister was just heing heard of in Glasgow as applying Pasteur's germ theory to surgery and trying to find some substance which would destroy the organisms he was convinced were the cause of sepsis and suppuration. But the germ theory was not yet admitted hy surgeons in general and especially were the London surgeons opposed to it and even made fun of Lister's antiseptic efforts.

I remember my first experience of surgical responsihility was sitting up at night after an amputation of the thigh, so as to be present and apply a tourniquet in case of secondary hæmorrhage. At that time only one end of the silk ligatures was cut short, the others hanging out of one corner of the flap, chiefly they said, for drainage. During my student days it was rare to have an amputation of the thigh live until the ligature came away on the fourteenth

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Read before the Ontario Medical Association, May 27th, 1915.

day, they usually died of shock or pyæmia the first week; I do not think I ever saw an amputation of the thigh high up recover.

Surgical operations then consisted chiefly in removal of external tumours, amputations for injury or disease, cutting for stone and opening abscesses. The abdomen was a "*mare clausum*" and if by accident the peritoneal cavity was opened the fate of that patient was sealed and the church was his only salvation. Still the surgeons of that day were most skilled operators as they had learned their business in pre-anæsthetic times and it was a common thing to see an amputation of the leg or thigh done in sixty seconds and a complete lateral lithotomy under two minutes. I remember Sir William Ferguson, of King's College Hospital, London, operating in a dress suit with much expanse of shirt front and cuffs and being so clean an operator that he prided himself on never getting a drop of blood on his white shirt. Most operators used an old frock coat which was never cleaned and so was soaked in the gore of many victims. Some washed their hands, others did not, the field of operation was rarely cleansed unless the wound caused by injury was full of dirt. All compound fractures of the leg were amputated at once so as to avoid certain death from sepsis, the only exception was that when the bone had made a punctured wound the wound would be closed by congealed blood and healed in that way under clot.

In my last year of studentship Professor William Fraser, who had spent the summer in England, introduced Lister's method of opening abscesses under lint soaked in carbolic oil. At this time there was no such thing as trained nursing, any old person was employed who thought they had a gift that way, and did their best; many of them imbibed, for at that time every patient was given an allowance of beer, whisky, or port wine daily and the night nurses especially were seldom sober. I remember in the seventies paying a visit to a patient in the hospital on whom I had that morning operated for strangulated hernia. I could not find the nurse at all (she supervised three flats), but my patient I found sitting out on the verandah in his night shirt smoking a pipe and all the obstreperous or delirious patients strapped to their beds. It was a cool evening in the autumn and my patient died of pneumonia some days afterwards.

I do not want to imply that we had no successes for I have seen very many brilliant successful lithotomies, removal of tumours and amputations, and I have even seen healing by first intention. But it was strange that one of our surgeons, a very skilful operator,

but who after operating visited his patients but seldom, had better results than his colleague, a much more conscientious man who also was fond of pathology, and liked to see the post mortems on his patients and fussed a good deal over his cases. Needless to say the latter's results were not remarkably good.

We knew nothing about germs at that time and thought that putrefaction was caused by the oxygen of the air. When Pasteur demonstrated that putrefaction was caused by microbes, Lister by his previous work, from his student days under Sharpey, was prepared to welcome this discovery and he says in his Third Huxley Lecture: "Thus was presented a new problem; not to exclude oxygen from wounds, which was impossible, but to protect them from the living causes of decomposition by means which should disturb the tissues as little as is consistent with the attainment of the essential object." Since then it has been proved that putrefaction is not the only cause of serious mischief in wounds, for there are microbes which are odourless and yet produce profound septic effects.

At this period, and for some time after, it was a common thing for the operating room orderly to be also orderly in the post mortem room. Hence the better results of operations performed in the country or private houses than those performed in hospitals. When I visited London in 1873, I found the results of the surgeons fairly good, in fact London and English surgery was always clean and the results excellent for that period, and this is one of the reasons why antiseptic surgery made such slow progress in London. In Germany the surgery of that time was very dirty, and neither personal cleanliness nor the cleanliness of hospitals a distinguishing feature; the results were accordingly bad, hence Listerism was adopted with avidity and the change to antiseptic surgery revolutionized the German methods with such amazing improvement in the death rate that soon they out-Listered Lister.

When I was in Vienna in 1874-5 antiseptics had not yet been introduced and surgical mortality was tremendous. I never saw an operation for strangulated hernia recover, and sepsis prevailed everywhere, even the great Billroth had often disastrous results. Twelve years later when I visited Europe again what a change had taken place! Hospitals and operators clean to excess; operations never hitherto attempted performed successfully, a very low surgical mortality, and surgery invading every region of the body and annexing territory which formerly was thought to be the exclusive domain of the physicians.

In 1874 I visited Edinburgh to see Professor Lister's work, and a great impression it made upon me. John Chiene was then his house surgeon and if I remember aright he manipulated the hand spray of carbolic solution which was used during the operation and dressings. What struck me most was the excessive care of Lister in his dressings, the great attention to detail and cleanliness; and in operating, his great deliberation. The spray was used on the supposition that most of the germs which infected wounds came from the atmospheric dust; when Lister found that the atmosphere was comparatively harmless and that the organisms were on the skin of the patients and the hands and implements of the operator he abandoned the spray. As many of you may remember, the hand spray was replaced by a steam spray. In Germany this was furnished by a large boiler placed in an adjoining room which poured forth carbolic acid spray into the operating room and covered everybody with a thick Scotch mist; in fact one could scarcely see across the room and to protect oneself waterproof clothing had to be worn. This, of course, was German excess. Later von Bruns led a crusade against the spray and *"fort mit dem Spray"* was the cry, and soon the spray was replaced in Germany by irrigation. Niagaras of water were poured over the patient and the field of operation, so much so that the floors were flooded and the onlookers had to get on chairs whilst the operator and his assistants waded through the flood in long rubber boots.

Soon irrigation became out of fashion and aseptic and dry dressings were adopted which in ordinary surgery are used to the present day. In military surgery asepticism is impossible and resort is once more being had to antiseptics with the best results.

The scope of surgery in comparison to what it was forty years ago is enormous—no cavity of the body is now shunned by the surgeon; had such advances been prophesied in the middle of last century the lunatic asylum would have been thought a fit place for the prophet.

As I have said before, one of the great troubles after amputation was secondary hæmorrhage—one saw hanging out of one corner of the stump a number of waxed linen or silk threads; some were on small vessels, others on large, and the surgeon making his rounds looked at the stump and pulled at one or other of these threads to see if they had ulcerated sufficiently to come away. Very often with the ligature came a gush of blood. This secondary hæmorrhage required the reopening of the stump and the vessel secured, no easy matter with the instruments then in use and on a suppurat-

granulation surface. Sir James Y. Simpson, to do away with ligatures and their dangers introduced what he called acupressure, a method to compress arteries by means of metallic needles introduced in various ways. At the same time Lister began to cut both ends of his ligatures short and leave them to their fate buried in the tissues; this before he introduced absorbable ligature of catgut. Although good results were obtained from acupressure, and many cases of healing by first intention were reported, yet Lister's ligatures won the day and soon Simpson's method passed away and is now quite forgotten.

Abdominal operations are now as safe as any other major cases and our knowledge of germs, how to control their evil effects and to prevent their invasion, makes most operations in surgery comparatively without much risk. Appendicitis, or inflammation of the bowels as it was called, was thought to be a rare disease and was not considered at all surgical. The common medical term was typhlitis, with peri- or para- as additions. It was thought to commence in the cellular tissue around the cœcum or typhlus, or cœcus. In a short time our greater knowledge of pathology properly placed the blame on the appendix. Operations were then rarely performed except for peri-typhlitic abscess. At first operations were never undertaken unless pus was found by the exploring needle, and the search for the appendix was always a matter of difficulty. The first twelve cases I operated on all died because I was only called in to operate when the physician thought he could do no more; then the surgeon was the "dernier ressort." At this time diagnosis was not easy and appendicitis was often mistaken for typhoid. It seems absurd now to know with what difficulty physicians and surgeons diagnosed this disease and then only after many anxious and serious consultations, whilst now every man and child in the street could make a diagnosis from a verbal description of the case. But so it is, and what is difficult and obscure in one generation often becomes simple and clear in the next.

It is strange to look back and see the gradual growth of abdominal surgery; at first the only operation on the abdomen was an obligatory one, viz. for strangulated hernia, and this was done with serious forebodings. Soon operations were performed for ovarian tumours and ovaries without tumours, and successfully carried out by Lawson Tait, Spencer Wells, Keith and others. In fact, we are indebted largely to Lawson Tait for his pioneer work in abdominal and especially pelvic surgery. Ovariotomies, since MacDowell's famous case, were performed from time to time

with occasional success, but when I studied in London, every case I saw operated on proved fatal. With our knowledge of the germ theory and with the introduction of Listerism the obstacles to recovery were removed and ovariotomy became a common and safe operation. Surgeons rapidly adopted Listerism and "boomed" it and in a short time were doing all the operations hitherto only suggested, such as excision of the stomach, intestines, kidney, spleen, etc. From pest houses German hospitals became sanitariums and as the *Lancet* of August 13th, 1881, observed at the time, "our admiration for the change effected is only equalled by our horror of previous conditions." Many German surgeons advocated the compulsory use of antiseptics and Professor Nussbaum, in 1881, suggested the following law: "Any person summoned to heal an accidental case or wound, must no longer close it up with an adhesive plaster, nor examine or disturb it with a finger which has not been disinfected; but after the surgeon has washed his hands and the wound with some disinfectant (for which purpose a 5 per cent. solution of carbolic acid seems to be the most convenient), the wound must be thoroughly protected with an antiseptic dressing. Such dressing may consist of carbolized jute or wadding, chloride of zinc wadding, or some other well-known antiseptic material."

Simon first removed the kidney designedly in 1869. In 1881 an occasional excision of the kidney is reported and papers were read on the subject at the International Medical Congress in London in 1881. I think it was Mr. Henry Morris who first successfully removed a stone from the kidney where there was no suppuration (in 1880). I first excised a kidney successfully in 1884 and a stone in 1886. My first gall stone operation was in 1890.

It is interesting to look back on the past literature and to study the conditions of surgery at that time. In 1888 I gave the surgical address before the Canadian Medical Association in Ottawa and spoke among other things of the surgery of the abdomen and the information given below is extracted from that address: "It was strongly advised that all cases of intestinal obstruction be handed over to the surgeon and not kept on medical treatment by the physician until it was too late to operate." Surgical treatment was recommended in all cases of suppurative appendicitis and a few advanced surgeons advocated early operations. Typhoid perforations were being occasionally operated upon, always with fatal results. It was found out accidentally when operating for tumour in a mistaken diagnosis that tubercular peritonitis could be cured

by opening the peritoneal cavity. Perforating gunshot wounds of the abdomen were being immediately operated upon. Radical cure of hernia was becoming a safe and fashionable operation. The surgery of the gall bladder was looming up as an accepted and successful fact. Lawson Tait reported thirty cases of cholecystostomy with one death. Credé, of Dresden, had had only five cases with one death, and Langenbuch, of Berlin, had collected seventy-five cases of cholecystotomy with two relapses, eleven deaths, and sixteen cases with fistula resulting. He advised against operation when the stones were in the common duct.

Occasional cases of operations on the stomach, intestines, spleen and pancreas were reported but with few successes. The operations of nephrectomy and nephro-lithotomy had become well established. In 1888 prostatic surgery was yet in its fatal infancy, though tumours of the bladder were being operated on. In other departments of surgery, the brain and spinal cord were fields of operation just becoming known through the work of Victor Horsley, Keen, Macewen, Weir and others.

Surgery is still advancing and is enlisting more votaries than ever, nearly every new graduate wishes to become a surgeon. Every small place has now a well equipped hospital with excellent facilities and every opportunity is offered for the prosecution of the art of surgery. I am afraid there is often more art than science and much unnecessary operating because now most operations are comparatively safe. There is something more than mere mechanical skill needed by surgeons. The most important attributes of a surgeon are judgement and knowledge when to operate and when not to operate and when to stop—mechanical knowledge of surgery can never teach this. I remember some years ago visiting a small town west of Montreal, and operating in a well appointed little hospital, where I was shown no less than four cases of extirpation of the uterus operated on by four different surgeons, all I am happy to say convalescing (the patients, not the surgeons). What amazed me was that there should be such a necessity for so many such operations in so small a place. In our own large hospitals in Montreal I had never seen so many cases together in the gynæcological wards. I remember hearing of another case where a good surgeon in a large city of the United States operated for appendicitis on the only child of very prominent people. After removing the appendix, as the cæcum, or what they thought was the cæcum, was full of fæces, it was opened and the fæces evacuated and then the wound was closed. A few days later a fæcal fistula appeared which would not close. The boy's condition from the

continuous drain and irritation became had and an anastomosis operation was advised and done. Still the fistula continued and he grew rapidly worse. He was brought to Philadelphia and a prominent surgeon was consulted, who told me the tale. An exploratory incision was made hut nothing could he done as there was so much agglutination of the intestines and the boy's condition so serious. At post mortem it was found that the appendix was still in situ and had never been removed. It was the upper part of the ileum and not the cæcum from which the fæces had been evacuated and which was fistulous, hut the anastomosis of the ileum with the colon had been a perfect success. Hence you see here a well marked case of technical skill without knowledge. I could relate many analogous cases, hut refrain.

As long ago as 1887 Professor Bergmann, at the German Scientific Medical Association, spoke the following impressive pregnant words which are applicahle even to-day. He said: "There is more or less rivalry hetween medicine and surgery in the case of disease, hut further progress in surgery can only take place through an increased knowledge of internal medicine. Surgeons must now avail themselves more of the accurate means of investigation which one owes to physicians, auscultation and percussion, thermometry, chemical, microscopical and electrical investigations. As long as internal medicine remains guardian of scientific medicine and scientific principles, so long will it remain the parent tree of which surgery is only the hranch. . . . It follows from what has been said that surgery owes all its recent development to clinical medicine and just as antiseptic treatment is the product of careful observation in etiology, so the energetic procedures of internal surgery will have successful results only when firmly estahlished hy the methods of clinical medicine; otherwise surgery will sink in the hands of expert specialists to a mere display of manual dexterity."

Surgeons soon felt that they could not he good internists and have a competent knowledge of all hranches of surgery, so this has led to team work in private and puhlic hospitals which makes for such efficiency and enahles the surgeons to do an enormous amount of work. This method, however, is apt to make the surgeon a mere operating machine and may not work out for the entire good of the profession. It is hetter for a surgical department to have a head who has gone through all the stages of medicine including a sound course in pathology and pathological chemistry and who has a good training in clinical medicine. Of course, his department is equipped with a staff of specialists in pathology and chem-

istry hut he himself should be the guiding hand and suggest and direct the work to be done. It goes without saying that everyone who practises in the country must do some surgery hut he should not attempt it without having had some hospital training as a surgical interne after graduation. The tendency of the younger surgeons is to look upon the older man as having had no proper training, they call us pre-scientific and seem to think that lahoratory methods are everything. I remember a pathologist giving a lecture to the incoming students in a medical school and he told them that laboratory methods had supplanted all others, including experience which the older men prided themselves upon. I had happened to have had some ten days before a serious gunshot wound of the arm in a boy where the hrachial artery and biceps muscle and some of the nerves had heen shot away, where in fact the whole arm was shattered. He had pulled the gun to him hy the harrel when it went off. The whole forearm was wax-like, hloodless, cold and absolutely no circulation existed. I was advised to amputate immediately by a colleague hut refrained, and after treating and dressing the wounded arm wrapped the extremity in layers of cotton wool. In twenty-four hours there was a slight flush in the fingers and in three days the limh was warm and afterwards the case went on well. Now I asked my friend the lecturer how he could tell hy any laboratory method whether to amputate or wait. Of course, he could give no answer and no douht he thought he was quite right, hut he had never practised surgery and had never heen up against a case which required judgement and experience and yet he was quite willing to speak "ex cathedra" to men who were going to practise medicine and surgery. I may say the hoy alluded to has a most useful right arm with which he can play a good game of tennis. As the Psalmist says, "I am wiser than the aged" so say the younger men of every generation, but rememher what Huxley says: "we are none of us infallible, not even the youngest." I admit as we get older we hecome more conservative and perhaps procrastinate, hut this is the infallihle result of long experience.

How many methods have we older men seen come and go, lauded to the skies by eloquent advocates both in societies and journals; we often hear of remedies and methods hy which every case is cured, and dozens who have made use of them print undigested articles confirming the originators' views and improving on them; some would find them only suitahle on selected cases, and finally this remedy or method is forgotten because it is of no value and could not stand the test of experience as Byron said in his poem, "English Bards and Scotch Reviewers";

"Thus saith the Preacher: 'Naught beneath the sun is new
What varied wonders tempt us as they pass?
The cow-pox, Tractors, galvanism, gas,
In turn appear to make the vulgar stare
Till the swoll'n bubble bursts and all is air!'"

Although I am as much an advocate of lahoratory methods as the most scientific younger surgeon, yet they should not replace those powers of observation which are the great asset of the medical man. I fear a tendancy to do so, for the recent graduate dares not diagnose a fracture without *x*-rays, a typhoid fever without a Widal, syphilis without a Wassermann, and so on. We cannot always carry a laboratory or hospital appliances ahout with us so we should not depend too much on the use of mechanical means in diagnosing disease and should not let our powers of ohservation atrophy. Time, no douht, will remedy this state of affairs and things will bear their proper proportion to one another. Some are very sceptical that this will occur and think there is nothing true or sure but mutability, as Moore says,

"This world is all a fleeting show
For man's illusion given;
The smiles of joy, the tears of woe,
Deceitful shine, deceitful flow,
There's nothing sure hut heaven."

For the sake of the wounded in the present awful war it is fortunate that surgery has attained such a high pitch of efficiency and that hospitals are now so well arranged and managed. What a contrast to that which existed in the Crimean War when Florence Nightingale did so much to clean out the Augean stahles whose doors were closed with red tape. Now from the field to the hase hospital everything is done for the wounded in the quickest possihle time and in the most skilful manner and the proportion of recoveries is proportionately large. I am glad that Canada is doing so well and is so eager to establish hospitals. The universities deserve great commendation for the way they have come forward to man the various hospitals with their hest teachers, hest surgeons and physicians and specialists. All honour to them and to the Canadian nurses and students who go with them. We are all sure the work will he well and scientifically done and reflect credit not only on the British Empire, hut on the whole of Canada and its professional men and women. May God go with them and prosper them!