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Contributors

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ADDRESS

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DELIVERED TO THE

SOUTH-WESTERN BRANCH OF THE BRITISH
MEDICAL ASSOCIATION

AT

REDRUTH, JUNE 29, 1881

PRESIDENT

DR. ROBERT S. HUDSON, M.D., F.R.C.S.

BY

WILLIAM MAC CORMAC, M.A., M.Ch., F.R.C.S.

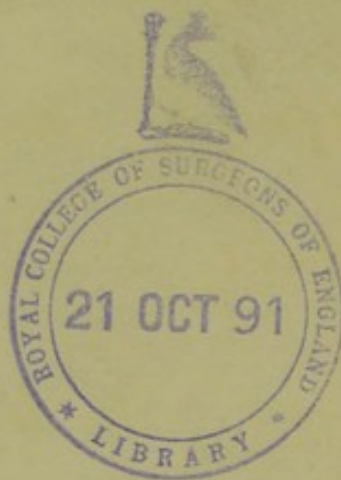
SURGEON, AND LECTURER ON SURGERY, ST. THOMAS'S HOSPITAL

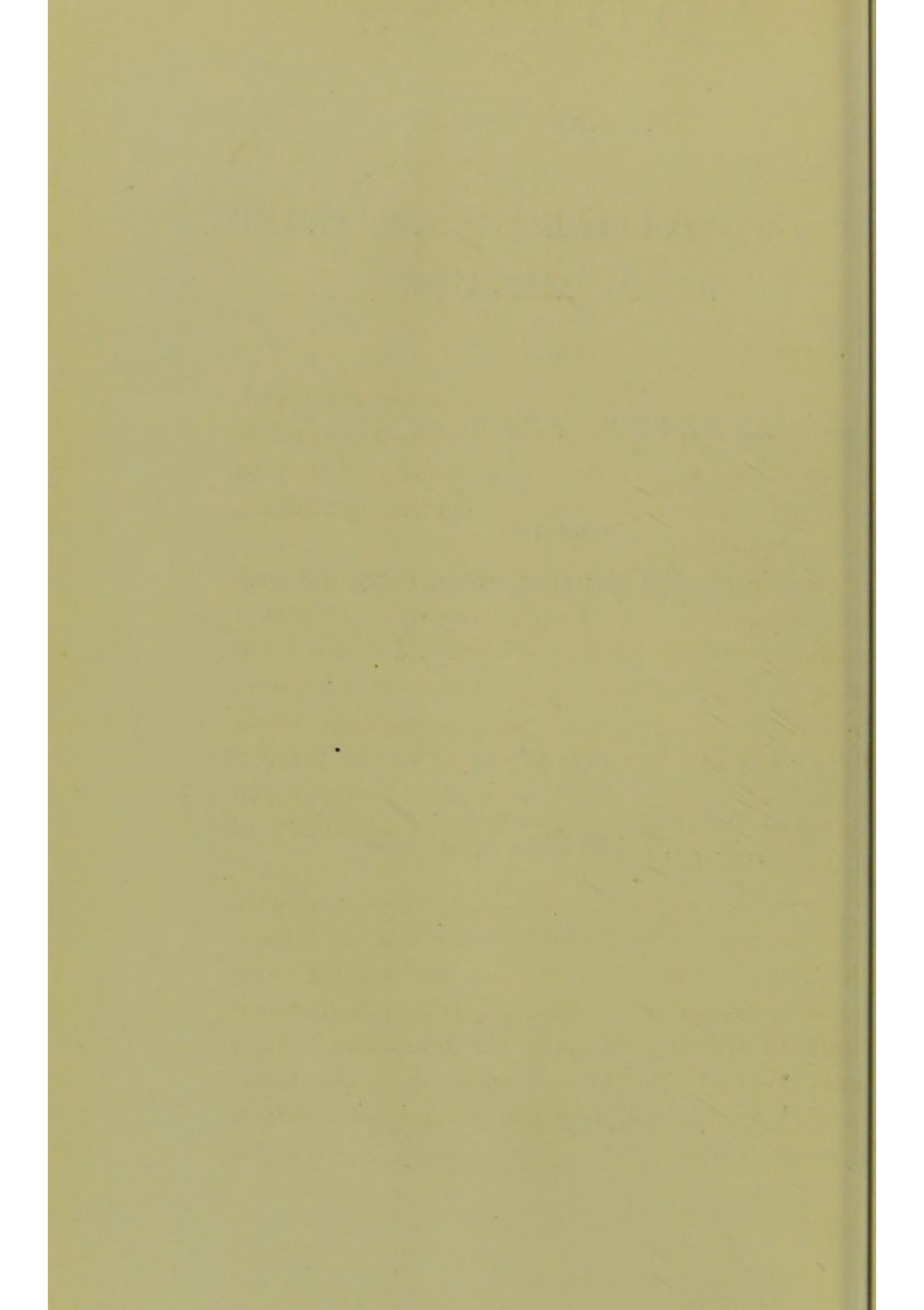
CONSULTING SURGEON TO THE FRENCH HOSPITAL

LONDON

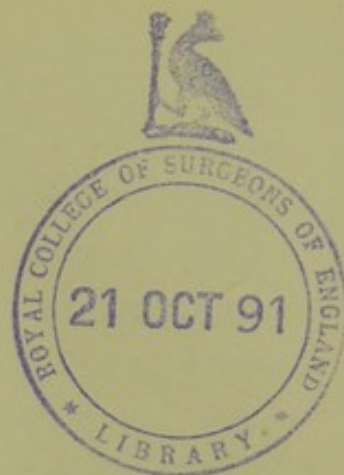
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ADDRESS.



GENTLEMEN,

My first duty is to thank my old friend, your President, for having been instrumental in procuring for me the honour of taking part in your meeting to-day, and for your kindness, gentlemen, in receiving me.

It is always difficult to choose a theme for such an occasion as this. I was, however, told that I might adopt some surgical subject, and of this I was glad, as it is in surgery that I feel most interested, and further as it is that branch of medicine, which, if I may be permitted to say so, is the more popular. Fuller says:—"Surgery is an ancient profession and necessary, ever since man's body was subject to enmity or casualty."

Great interest has always been taken in surgical matters from the most ancient times until the present day, when ladies and gentlemen are learning, with more or less grace, to bandage, put up a fractured limb in splints, and apply the tourniquet. Their zeal, however, sometimes outstrips their knowledge. I have heard of the tourniquet being applied outside a man's trousers for a severe smash in the lower

limb, and causing sufficient compression to occasion severe venous hæmorrhage in a case where there had been no arterial bleeding whatever, and a tourniquet was not needed. I have known circular compression to be made on the arm for a wounded vein in the hand, so as to cause the blood to spout out in a manner admirable for the purpose of venesection but otherwise far from being intended.

Pure physic was never so popular, principally, I suppose, because it is nasty to take.

You have heard, I dare say, the story of Louis XIV., who one day said to Moliere, who as you know was rather severe on the doctors of his time, "You have a doctor yourself, what does he do for you?" "Sire," replied Moliere, "we converse together, he prescribes remedies, which I do not take, and I get well."

Gentlemen, on recently looking a little into the matter, I have found much that is interesting as respects the origin and progress of the practice of surgery as a distinct branch of the profession. The early history of surgery, both in France and England, presents many features, each country respected, in common, and I hope I shall not weary you if I briefly refer to them.

Do not for a moment suppose that I look upon medicine and surgery as separate, or even capable of separation. A surgeon must be a physician also and not merely an operator. The day is past for such distinctions. One is reminded of the story of a French surgeon, La Peyronnie, before whom some one absurdly

remarked that "a wall should be raised between surgery and medicine." "And on which side of it," asked La Peyronnie, "shall we put the patient?"

The ancient and renowned French Faculty of Medicine began its career in the year 1492, in a house which Charles VII. of France presented to it, and portions of which still subsist; but it claimed a yet earlier origin, dating back so far as Charlemagne. The escutcheon on one of the façades bears the inscription, *Urbi et Orbi Salus*.

Medicine in the Middle Ages was the specialty of the monks. The priests were doctors, but they were ordered not to degrade themselves by manual work. Their servants, and other inferior persons, were delegated to do operations; and the practice yet survived to a modified extent for centuries after: even up to quite recent times, an operation might not be undertaken in our great hospitals by the surgeon, without the physician's direction and consent.

When the Faculty of Paris was first established, the doctors created by it were few in number; from 1640 till 1670, indeed, not more than four every year,

At first, and for many years, there were three annual courses of lectures in the French Faculty, to wit, on

Anatomy and Physiology,

Hygiene and Diet,

Pathology, Materia Medica and Therapeutics.

And each of these courses was delivered, in succession, by the professors severally.

A course of surgery was first established in 1684.

The teaching of anatomy in France, as in our own

country, was the great difficulty. The bodies of criminals only were dissected, and the school authorities had to wait till an execution ensued before the needful material was forthcoming.

The Dean of the Faculty in Paris received due notice of the coming execution, and sent the Grand Bedell to convoke an assembly of doctors and students "to make an anatomy." The doctors directed what was to be done, but did not themselves touch the subject; the barber-surgeons made the actual dissections.

In one of Hogarth's pictures—the fourth of the series called "The Four Stages of Cruelty"—is seen depicted a very similar procedure. An executed malefactor is being disembowelled in the old theatre of Barbers' Hall by the barber-apprentices, while three-cornered-hatted doctors direct and look on.

In the history of the time we have many accounts of the struggles which took place to obtain the bodies of executed criminals, in those days commonly handed over to the friends for burial.

In the middle of the fifteenth century commenced in France the obstinate quarrel between the physicians and surgeons, which continued until the time of the French Revolution. The chirurgien used to call in the barber to assist at operations, and even to conduct dressings, until in time the practice assumed a prescriptive authority. An edict of Charles V. of France, who was a great patron of surgery, confirmed to the barbers the right to bleed, and to apply plasters and ointments to open wounds. The barbers soon sought to improve their position, the surgeons oppos-

ing them, while, strange to say, the faculty of medicine—that is to say, the physicians—supported the pretensions of the barbers, who presently (that is, in 1448) asked permission to study anatomy, which up till then had been taught through the medium of Latin. The doctors lectured, the surgeons made the dissections, and the barbers looked on and tried to understand what they could.

In the reign of Louis XIV. the surgeons and barbers were united. Soon after, the curious action of the Paris Faculty resulted in the perruquiers being actually incorporated with the barbers and surgeons, and required to pass an examination in anatomy.

In the eighteenth century, Louis XV. created the famous French Academy of Surgery, which at once put an end to the absurd association of wig-makers, barbers, and surgeons.

In England the development was quite similar. In 1401 Edward IV. granted a charter to the Company of Barbers and Surgeons in the fifteenth century. Shaving was not then common, and indeed was rarely performed except in connection with some surgical operation. In the reign of Henry VIII. an Act was passed for the appointment of physicians and surgeons in which it is stated that “common artificers, as smiths, weavers and women, boldly take upon them great cures and things of difficulty in which they freely use sorcery and witchcraft to the displeasure of God, great infamy of the faculty, and grievous damage and destruction of many of the King’s liege people.”

Although the surgeons and barbers had been for a long time dissociated in France and Italy, they were created a joint corporation by Henry VIII. But the barbers might not practise surgery, nor the surgeons barbery. The first master of the new company was John Ranby, serjeant-surgeon to the Queen, and William Cheselden was the first warden. In 1745 the barbers and surgeons were separated. Thirty-nine years later the corporation of surgeons was dissolved, and became transformed into the Royal College, as it now exists in Lincoln's Inn Fields.

We may with some propriety regard the collection in the old theatre of the barber surgeons, as the prototype of the great Museum of Anatomy and Surgery in the present College.

The old catalogue runs thus :—

“Two anatomical paintings, life size, of the muscular system of man.

“The skeleton of an ostrich.

“Two humane skins, on wood frames, of a man and a woman, in imitation of Adam and Eve. 1645.

“A mummy skull.

“The skeleton of Atherton, with copper joints, who had been executed in 1693.

“The figure of a man flead, where all the muscles appear in due place and proportion.

“The skeleton of Cambery Bass and Country Tom, executed in 1638, and three other skeletons of humane bodies.”

It is a long step from the days of which we have been speaking to the present, and the surgical ways of our time are strange indeed when compared, not

merely with those of the long past, but even of a few years ago.

The practice of modern surgery is as different in the character of what it attempts, and attempts successfully, from the surgery not merely of the past century, but even of the past decade, as any two things can well be.

No doubt the recent great improvement in the results of operations may be ascribed to different causes in different degrees. There are some who seem disposed to consider that it is simply a question of increased attention and greater cleanliness. Doubtless these are important factors, but it seems to me that something more is needed, and that this has been given to us in the antiseptic method of Professor Lister. Whether the theory on which the practice is based be the whole truth of this very wide and difficult pathological question, I do not now intend to discuss, had I even the time to do so. But what I maintain is that I have been able to accomplish results by a strict adherence to this method which I have not accomplished, and would not venture to try to accomplish in any other way.

I should now like to refer briefly to some operations in which a distinct gain, as it appears to me at least, has been compassed by antiseptic methods.

ON SOME INJURIES OF THE HEAD.

The first class of injuries I would mention is one very familiar to surgeons in these parts, and one on which your President has himself made a most inte-

resting and valuable contribution,—I refer to fractures of the skull.

I remember about five years ago a distinguished member of the Court of Examiners of the Royal College of Surgeons saying to me, he had asked a candidate the following question: "Under what circumstances would you trephine the skull?" and the candidate replied: "Never." I remember thinking that though the candidate was perhaps a little too positive, he was in the main right, and that if one rule were to be adopted or followed in every case, the foregoing was the right one. My experience in the war of 1870, impressed me strongly with the comparative advantages of non-interference in gunshot fracture of the skull, for I believe every one who had been operated on by the trephine or elevator died.

For many years past the general experience of the disastrous results which commonly ensued upon the operation of trephining, led to its abandonment, except in a very limited class of cases.

The practice has been, not to trephine in compound fractures, even with depression, unless this was accompanied by symptoms, except perhaps the fracture be a punctured one. Under no circumstances, was it always taught—ought a simple depressed fracture to be converted into a compound one.

Mr. Gamgee, to quote one writer in illustration, in a valuable clinical lecture delivered in Birmingham, regards the question whether trephining should be employed or not, in compound fracture of the skull, as still unsettled.

He quotes three remarkably successful cases in support of his opinion, that in compound depressed fracture, without symptoms, the bone ought to be left undisturbed, and that the rule of practice should be not to trephine. In a subsequent lecture, Mr. Gamgee goes yet further, and says, that many cases presenting brain symptoms, do well without the trephine, and cites two interesting and successful instances in illustration of his views.

Now, although it be quite true that some cases of depressed fracture, both with and without symptoms, do well without operative interference, I do not think that this practice, if invariably carried out, will produce such desirable results, immediate and remote, as we may now expect, with the aid of the improved antiseptic method of treatment.

Almost any degree of head injury, we know, may be recovered from, but we must not from this assume that head injuries are unimportant.

From time to time, startling and almost incredible instances of recovery after head injury, are published. In the records of military surgery, there are many such.

Not long since, Mr. T. Smith published the case of a man who had shot himself through the head, the bullet passing from one temple to the other, through both anterior hemispheres, a fact of which Mr. Smith, a skilled anatomist, is certain, from the direction which the probe took, when passed in its full length. The man recovered. In a patient under my own observation, a long nail, which had been used as the

ramrod of a pistol, was shot into the forehead, passing right back for at least two inches through the anterior lobe of the brain. The boy walked a couple of miles with the nail sticking in his head ; and when I removed the nail twenty-four hours afterwards, brain substance exuded. The boy recovered, with some slight mental deficiency. This, as Professor Ferrier states in his work on the localization of cerebral symptoms, is a common sequence of injury of the frontal lobes of the brain.

But cases such as these, do not in the least affect the general question of how best to obtain the greatest surgical good for the greatest number ; and I must now say that I endorse, as in my opinion true, all that your President says in the very interesting and instructive Address which he read before this branch in 1877. He tells us it has been the invariable practice of surgeons in this district, to elevate depressed bone in compound fracture of the skull, without waiting for symptoms, and that recovery is the rule, due perhaps in a large measure to the pure antiseptic breezes from the great ocean beside you. Septic influences here, are doubtless at a minimum, and I can well appreciate the advantage of trephining in cases, many of which, from the manner of their production, by small bodies falling from a height upon the head, much resemble punctured fractures. Dr. Hudson has also told you, in his Address, how rare the operation of trephining had become in our great London hospitals. He is right in so saying ; and also, I think, in further stating that of late years

the operation is again coming more or less into general favour.

He quotes, with approval, the opinion that it is the surgeon's duty to trephine at once in punctured fractures of the skull without waiting for symptoms of irritation or compression.

I am sure that this is correct, and that he who waits under such circumstances, waits until it is too late, or until he must operate under conditions much less favourable. For when symptoms of irritation, compression, or inflammation of the brain and its membranes supervene after some interval from the date of injury, and this is a frequent experience in compound fractures of the skull at any rate when antiseptic precautions have not been adopted, it is often too late to do good by operative interference, and quite irrespective of it, the symptoms generally progress to a fatal issue.

In every case where trephining or elevation of depressed fragments is performed for injury, I believe that it ought to be determined upon and performed regardless of the presence or absence of symptoms. The primary disinfection of the wound is often otherwise impracticable. Indeed, the question much resembles the greatly debated one of the comparative advantages of primary amputation and secondary amputation. We have, long since, finally decided upon which of these is the better, and I feel sure, for reasons, some of which are not very dissimilar, that when trephining for injury is likely to be required at all, it must also be primary in order to be successful.

The cases in which trephining is most needed and most useful, are those in which the forces productive of fracture, mainly exhaust themselves in causing the local bone injury, without seriously compromising the general brain mass.

Small bodies, such as stones or bullets, striking the skull with a high velocity, often produce typical instances of this kind of injury, and I feel assured, that if performed with antiseptic precautions, the immediate removal of fragments of splintered skull is the better course to pursue, whether these occasion immediate brain symptoms or not.

The chances of subsequent meningitis and brain inflammation are thus minimized, and the patient is, to a large extent, protected from the too frequent results of depressed fracture, which, when healed in this state, is apt to result in many cases in violent headache and neuralgia, partial paralysis of the extremities, and even of the organs of sense, with perhaps epileptiform seizures.

Further, when I had good reason to suspect that the skull was comminuted and depressed, I should not hesitate, in certain cases at least, to cut through the unbroken scalp, expose the seat of injury in the bone, and thus convert the simple fracture into a compound one. I would do so, believing in the efficient protection which antiseptic precautions afford, and because I should thus hope to give the patient a better prospect of complete recovery and of future health.

I have returned, therefore, to a practice, though with

some differences in the manner in which it is carried out, as advocated by Mr. Pott a hundred years ago.

Dr. Hudson mentions that, not long since, in St. Thomas's Hospital, during four years, there were but four cases of trephining, and that the patients all died.

Well, if you will pardon me for giving details of cases, I can illustrate the practice of the hospital at the present time. Last year under the care of one of my colleagues, Mr. Croft, a patient was admitted whose case presented the sort of injury which you must so often meet with here. A small cogged wheel fell some thirty feet on the posterior and inferior angle of a man's parietal bone, causing a depressed comminuted fracture of the skull. The portion depressed was about the size of a penny. The patient was unconscious, and suffering from compression. The depressed piece of bone was removed, and with it came away some half ounce of brain substance. The loose brain tissue was cleared away, and the cavity then washed out with carbolic solution of one in twenty. The patient remained aphasic for some three weeks, and one arm was paralyzed. On the twenty-first day the wound was quite healed, and that without any suppuration. The patient then spoke fairly well, but with an effort. He could not, however, spell correctly, from failure to recollect the names of the letters. Six months later he had continued well, and was holding a situation.

A case under my own care was as follows:—

A brick fell from a height of 30 feet on a man's head. The skull, extensively fractured over the left

parietal eminence, was much depressed, and the brain near the seat of injury pulpified. I removed many pieces of bone, also some cap lining imbedded in the brain substance, and washed out the cavity with 5 per cent. carbolic solution.

There was paralysis of the right arm, with complete aphasia. The wound united, as in the previous case, by first intention, without suppuration. After a time the man recovered perfectly. The only distress that he experienced meanwhile was, that being quite conscious and feeling well otherwise, he could not speak.

In another case, the corner of a plank striking the head, caused a very extensive depressed fracture of the frontal bone. I removed a large portion of comminuted skull, having previously administered ether, for the man was perfectly conscious, and there were no brain symptoms of any kind. The operation proved difficult. I had to use the trephine, and fissures could be detected extending in three different directions from the seat of injury. I took much pains to disinfect the wound, which was difficult to accomplish. The patient recovered quickly, without either general or local disturbance, or even feeling that there had been anything the matter with him.

You may not perhaps require antiseptic protection for such wounds as these, down in Cornwall: but we cannot get on so well without it in the great city hospitals. In them we may exclude, I believe, by the use of antiseptics, the occurrence of brain inflammation or meningitis spreading from the wound in-

wards. By the greater safety thus afforded, and consequent frequency with which trephining or elevation of depressed fractures may be had recourse to, we shall assuredly avoid many of those late troubles already referred to, troubles which an examination of the subsequent life history of cases of depressed fracture which recover without interference, shows to be of not uncommon occurrence.

Experiment, as well as experience, sufficiently justifies our reliance upon the security that the antiseptic method affords in injury of the head.

Professor Gerald Yeo, for example, thus terminates a note upon his interesting series of experiments on the trephining of monkeys, the animals nearest to man in respect of septic receptivities, their behaviour under chloroform, and the influence which operative procedures exert upon them.

"Among the cases treated antiseptically," he says, "there was not one case of inflammation; and where the antiseptic method could not be had recourse to, there was intense encephalitis—in short, one hundred per cent. of those cases treated by antiseptic dressings recovered without inflammation; while, without antiseptic dressings, one hundred per cent. perished of acute encephalitis."

UN-UNITED FRACTURE.

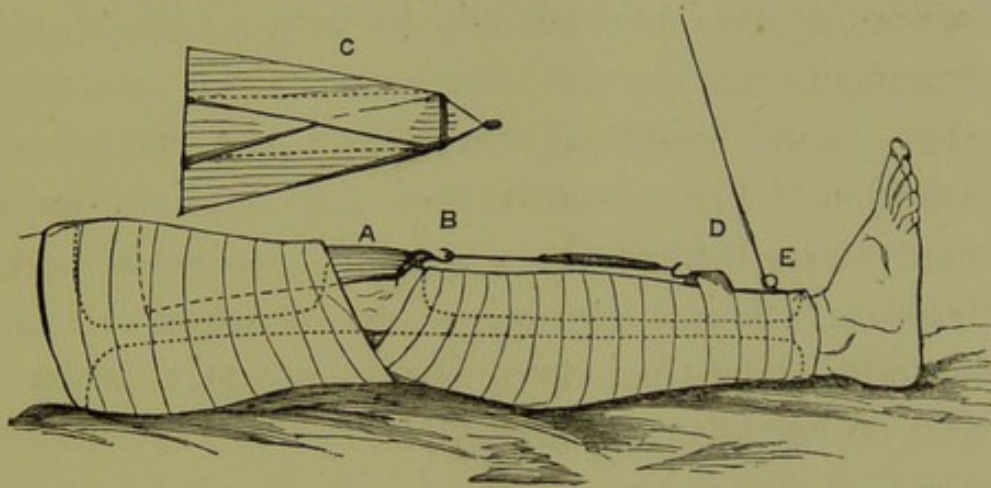
The bolder manner in which un-united fractures of all kinds are now dealt with is most interesting. I do not wish to refer so much to cases of non-union occurring after fractures of the long bones, although

these also are more freely operated upon, as to cases where non-union is the almost necessary result of the accident, for instance, fracture of the patella and of the olecranon, and some cases of fractured *cervix femoris*. Elsewhere I have referred, in some detail, to the manner of dealing, by operation, with fracture of the patella; how the effusion which separates the fragments may be drawn off with safety and advantage, and how the fragments may be sutured together. The operation has now been performed many times, both for cases of recent and of old standing fracture. The operation is one, however, which I consider should not be undertaken lightly, nor without previous successful experience in the antiseptic method, as suppuration or ankylosis of the joint may ensue. Where a thick, short fibrous union can be obtained, the result, at least for all functional purposes of the limb, is excellent, and no operative interference is needed. I am disposed to think that an effort to procure good fibrous union should always be attempted in the first instance.

In several cases I have found the apparatus which I am about to describe a simple and excellent plan, and have obtained union without an appreciable gap, in repeated instances, where the amount of separation between the fragments was at first two inches, or even more.

The limb is first encased in plaster of Paris, applied as anterior and posterior splints, made of coarse flannel of two or three thicknesses, soaked in plaster cream, and extending from the upper part of the thigh

to the ankle, the whole being kept in place by circular bandages. The strips of flannel soaked in plaster should be applied in front, from the groin to the upper margin of the patella, and from just below the patella to the ankle, leaving the anterior surface of the knee exposed.



The absolute rest thus afforded tends to produce complete muscular relaxation, causes more rapid absorption of the effusion, and consequently admits of a more easy approximation of the fragments.

When the plaster is set, the thigh portion may be cut at one side, and will then open like a valve. A broad strip of adhesive plaster, or what is still better, three strips, one strip central and two lateral strips partially overlapping, may be applied, so as to extend from the middle of the thigh and pass over the patella, below which they are fastened to a rubber accumulator by means of a ring or bit of wood, the width of the patella, inserted in the plaster strips. The other end of the accumulator can be attached to the leg portion of the splint by means of a hook introduced into the plaster for the purpose. This simple

arrangement enables one to control the upper fragment and keep it drawn down and fixed against the lower, neither can there be any tilting up of the fragments at their broken margins, as the adhesive plaster keeps them down in a horizontal position. And, as the action of the india-rubber is continuous, even though the tension need only be very moderate, the arrangement proves most efficient.

In several cases I have found the success so marked, and the means so easy of application, that I venture to commend them to your attention.

It is not less important, however, to see to the after treatment. The union requires at least six weeks in order to become moderately strong, and knee flexion even then must be very gradually resorted to until six months have elapsed. The fibrous bond will still readily stretch if the limb be used without sufficient support. Flexion at the knee, not too soon, nor too much, graduated flexion, increased month by month, and frictions, are good means to adopt.

In the following instance I recently operated upon a widely separated un-united fracture of the olecranon process. The patient, a young man, had fallen upon his right elbow. The injury was not recognized at the time, and he received no treatment until I saw him four months afterwards. The olecranon process had been broken through near its base, and was drawn fully two inches upwards on the back of the humerus, to which it had become immovably fixed. The arm was wasted and useless, the man being quite unable to pursue his former employment as

piano-tuner. There was no bond of union whatever between the separated portions. The fingers could be readily passed between the fragments, so as perfectly to distinguish the outlines of the condyles of the humerus. The man complained that his arm was becoming weaker instead of stronger. Its useless condition was apparent. The adhesion of the detached olecranon process to the humerus negatived any great expectation of future extending power, as the action of the triceps must, thus, to a large extent, be destroyed. I therefore determined to operate. The joint was laid open by a long straight incision over the back of the limb, and the fracture sufficiently exposed. The adhesions which had formed between the ulna and humerus were dissected away, and having removed a thin slice of the bone surfaces with a chisel, after turning back the periostium, I was able to reunite them accurately with two silver wire sutures. The operation was performed antiseptically—the joint being well washed out. There was not a trace subsequently of either local or general reaction. Firm bony union took place, and the man has now an arm which serves him as well as it did before the injury. With the exception that the limb cannot be made absolutely straight, all other movements have become quite strong and perfect.

NERVE SUTURE.

A very interesting question is the suture of divided nerves and restoration of their functions. I am able to give an interesting example of what is possible

in this direction, even under unfavourable conditions. A young man of twenty-four, had, six years before coming under my care in St. Thomas's Hospital, divided the ulnar nerve and artery of the right forearm three inches above the wrist. When I saw him the muscles supplied by the ulnar nerve were wasted, the interossei especially. There was very impaired sensation in the ulnar portion of the hand, and none whatever in the little finger, or corresponding half of the ring finger. The hand implicated was colder, and altogether weaker than the other. At the seat of injury was found a small exquisitely sensitive swelling, the size of a pea, on which the slightest touch caused great suffering. This I considered to be a bulbous enlargement of the upper end of the divided nerve.

An incision three inches in length over the course of the nerve, enabled me, after a troublesome dissection in the dense cicatricial tissue, to discover the upper end of the nerve on which the enlargement existed. The lower end was much more difficult to find, as it terminated in a filiform extremity, and was separated from the upper by an interval of some three-quarters of an inch.

I now pulled, or stretched, the nerve, so as to allow the ends to come much nearer, cut the extremities squarely off, and fastened the two surfaces accurately together with three points of catgut suture, introduced through the substance of the nerve as well as its sheath. When the wrist was well flexed, there was no tension. The operation was performed, and the wound dressed antiseptically. There was no rise in temperature

throughout, nor symptoms of any kind. At the first dressing, which took place a week after the operation, the gut sutures with which the edges of the wound had been united, were found to have given way. Under ordinary circumstances the non-union of the external wound would have been fatal to any chance of union in the ends of the nerve. But this apparently was not interfered with. The external wound healed by granulation, without suppuration. The day after the operation the patient remarked spontaneously that he possessed two additional fingers, and could feel with the ring and little finger where he had not previously experienced the smallest sensation. This same day I tested the powers of sensation with the man's eyes blindfolded. The patient correctly indicated which finger was touched. He said he felt the fingers numb, and for three or four days there were somewhat severe shooting pains in them. The testing was repeated on subsequent occasions by several persons, the patient's eyes being always blindfolded, and his head turned away. The result was a daily increasing precision as to the point touched with the pin, and a diminution of the numb feeling. In a little over three weeks, the wound was all but healed, and the sensibility was very good. Passive movements, galvanism, and using the hand helped to complete recovery, and the patient left the hospital nine weeks after the operation, declaring that the sensation was as perfect as before the injury. The wasted muscles were to a considerable extent restored, and there was not a trace of tenderness in the cicatrix,

where there had been such intolerable sensitiveness before.

The remarkable points in this case are: the seemingly almost instant restoration of the function of sensation, imperfect, no doubt, at first, but gradually becoming more and more complete. Secondly, the circumstance that the nerve must have united by first intention, although the external wound did not, an occurrence only rendered possible by the absolutely aseptic condition in which the parts were maintained which rendered healing by granulation a comparatively easy process, and unattended by inflammation.

Another feature of note is that complete restoration of function took place after the long interval of six years.

In this, as in other cases, the function of sensation was more quickly re-established than that of motion, the long inaction and wasted condition of the muscles accounting, no doubt, in great part for this. By degrees, however, the deep grooves on the back of the hand, indicative of the atrophied state of the interossei muscles, filled up, and the hand gained greatly and generally in power.

It seems clearly impossible so to unite the cut nerve surfaces as that the divided bundles of fibres shall become readjusted exactly with those from which they were severed, yet this does not appear to interfere with the re-establishment of the nerve function. Experience shows that catgut—the material used—answers the purposes of suture best, and that it is not always sufficient to suture together the edges of the

sheath, the substance of the nerve itself must be included. This, as has been shown, can be done with impunity, and, at any rate, it is needful, in order to keep the ends in apposition, when the nerve is small, or where the extremities are widely separated.

The ulnar nerve seems oftenest exposed to injury, as shown by the number of the published reports.

A recent case is that of Tillmanns, in which, full forty hours after the injury, he sutured the divided nerve.

In four weeks, sensation throughout the area of distribution of the ulnar nerve was completely re-established, but the power of motion only began to show itself by the end of the third week. In thirteen weeks, however, it, too, was complete. After eighteen months had gone by, the usefulness of the hand was almost perfect.

Professor Busch, of Bonn, makes the excellent suggestion that, in cases where a first attempt fails from want of accurate union, produced either from separation and retraction, or lateral displacement of the two ends of the nerve, the cicatrix should be again incised, the nerve ends sought for, and a fresh attempt made to unite them.

The cases of nerve suture performed at an interval after the injury are but few.

Some have succeeded, but many have failed,

If suppuration and inflammation can be excluded after the operation there will be a reasonable expectation of success. And in old-standing cases, an effort to procure union should always be made.

In all cases where a nerve is divided in a wound the immediate primary union of the two ends should be attempted as a matter of course, since, if the parts heal immediately, there is an excellent prospect of the nerve-ends reuniting also.

The all but incredible rapidity with which sensation was restored in my own case, and which led to the man's veracity being put to the test by several observers, is not unique.

Mr. Holden narrates an instance where the median nerve had been divided just above the wrist some months previously. He exposed the divided ends and sutured them together. In sixteen hours, it is stated, complete sensibility was restored to the hand.

Mr. Treves, in publishing a most interesting case of his own of primary suture of the median nerve, records, though confessing some doubt as to its accuracy, a case described by Laugier in 1864, of primary suture of the median nerve, where sensation was restored to a considerable extent in twenty-four hours. Mine is the more extraordinary, in that so long an interval of total abeyance of function had previously subsisted.

In relation to this question, the experiments on animals of Gluck (Virchow's "Archiv.") are worthy of study by all interested in the question.

The closer and more accurate the apposition after division, the more complete will be the regeneration of the nerve tissue. Gluck found that where a separation of one to two centimetres existed between the ends of the divided ischiatic nerve, the interval

became filled with granulation material, which was afterwards converted into fibrous tissue, in which no trace of nerve elements could be discerned. On examining the parts eighty hours after accurate suture of the nerve ends, no interval was perceptible. After five to six days nerve corpuscles appeared, and after eight days nucleated nerve fibres were found uniting the divided portions. In animals, the restoration of function of the limb in which the nerve had been divided takes place in seventy to ninety hours; and, as on examination microscopically at this period only granulation material can be found between the divided ends, Gluck has arrived at the conclusion this granulation tissue is capable of conducting nervous impressions.

RADICAL CURE OF HERNIA.

The radical cure of hernia has for many years occupied the attention of surgeons, and many operative procedures have been suggested, which have proved of more or less avail. As a general rule, the tendency to rupture remains, and subsequent recurrence is very frequent. An operation for the cure of hernia may be performed for a rupture either attended with, or without any symptoms of strangulation. It has been for the latter form of cases that the various operations such as those of Wutzer and Wood have been devised. But it is of cases which come under the former category I would now rather speak.

I have many times during the performance of an operation for the relief of strangulated hernia,

either femoral or inguinal, applied a catgut ligature to the neck of the sac, as high up in the hernial canal as possible, and subsequently removed the sac. The result of this simple proceeding, which neither enhances the risk, nor the difficulty of the ordinary operation for hernia to any appreciable extent, has been in a considerable proportion of the cases, to cure the rupture. In the more successful cases no greater impulse is to be detected at the site of the prior hernia than there is on the unaffected side. Even where this completely successful result has not been achieved, the hernia will often be more easily controlled by a truss than before. There is no sac for the hernia to descend into. When the cicatrix is sufficiently strong, a permanent cure has resulted, and no truss will be required. In other cases, some return has taken place, or a weakness of the abdominal wall has rendered the wearing of a light truss expedient.

On the whole, the operation is more successful in femoral than in inguinal hernia. In the latter form there is a pre-existing canal favouring the descent of rupture, which does not exist in the former. The operation is also applicable in cases in which no symptoms of strangulation exist. I have not performed it as yet under these circumstances, but it has been done a considerable number of times with satisfactory results, and without, so far as I am aware, any mischance.

Indeed, by first isolating the neck of the sac, and ligaturing it, taking care that its contents are com-

pletely reduced beforehand, the operation, so far as the peritoneal cavity is concerned, may be regarded as a subcutaneous one. And where adhesions or other causes necessitate the previous opening of the sac and exposure of its contents, the antiseptic method renders this proceeding quite, or almost quite, free from risk.

Besides being a generally desirable addition to the steps of the operation for strangulated hernia, the indications for its performance otherwise would be, I imagine, a partially or completely irreducible hernia, liable to incarceration, and productive of digestive troubles; a hernia which could not be adequately restrained by a truss, or a case in which the infirmity disabled the sufferer from entering a profession, or pursuing his avocation in life.

The operation must always, however, be regarded as a serious one, for there must be accidental risks to encounter in all cases; such as the failure of the antiseptic precautions, more especially as the region is one where it is especially difficult to apply antiseptic dressings.

I may mention one case, a woman of forty-five, who had suffered from femoral hernia for fifteen years. She was admitted with symptoms of severe strangulation. I operated and divided the stricture without opening the sac. Some intestine was reduced, but it was evident that some part of the contents of the sac, probably a piece of adherent omentum, still remained unreduced. I therefore opened the sac, ligatured and removed the adherent omentum,

dissected the sac from its connections, and applied a catgut ligature around its neck, as high up as possible, and then cut off the included portion. The patient made an uninterrupted recovery. In six days the wound was completely healed. I had an opportunity of examining the patient four months subsequently. There was not a trace of impulse to be either felt or seen at the site of the former rupture.

Of course it will require a large number of cases, and frequent observation of the result, after intervals of years, before any correct estimate can be formed as to the value of the proceeding in ensuring a permanent cure.

Gentlemen, I hope I have not wearied you. Had time permitted I could have wished to allude to some of the many innovations in regard to abdominal surgery, as, for example, to the treatment of hydatid cysts of the liver, by free incision into that organ; as also to the removal of calculus from the kidney, of which I recently had a successful case. Into these, and other topics of interest, I might else have gone, but I must now conclude by once more thanking your President for having given me this opportunity of addressing you; and thanking you, too, gentlemen, for your patience and attention in listening to me.

WILLIAM MAC CORMAC.

June 29th, 1881.

