

Contribution to antiseptic surgery : being notes of cases treated in the Glasgow Royal Infirmary / by James Dunlop.

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TO

ANTISEPTIC SURGERY:

BEING NOTES OF

CASES TREATED IN THE GLASGOW ROYAL INFIRMARY.

BY

JAMES DUNLOP, M.D.,

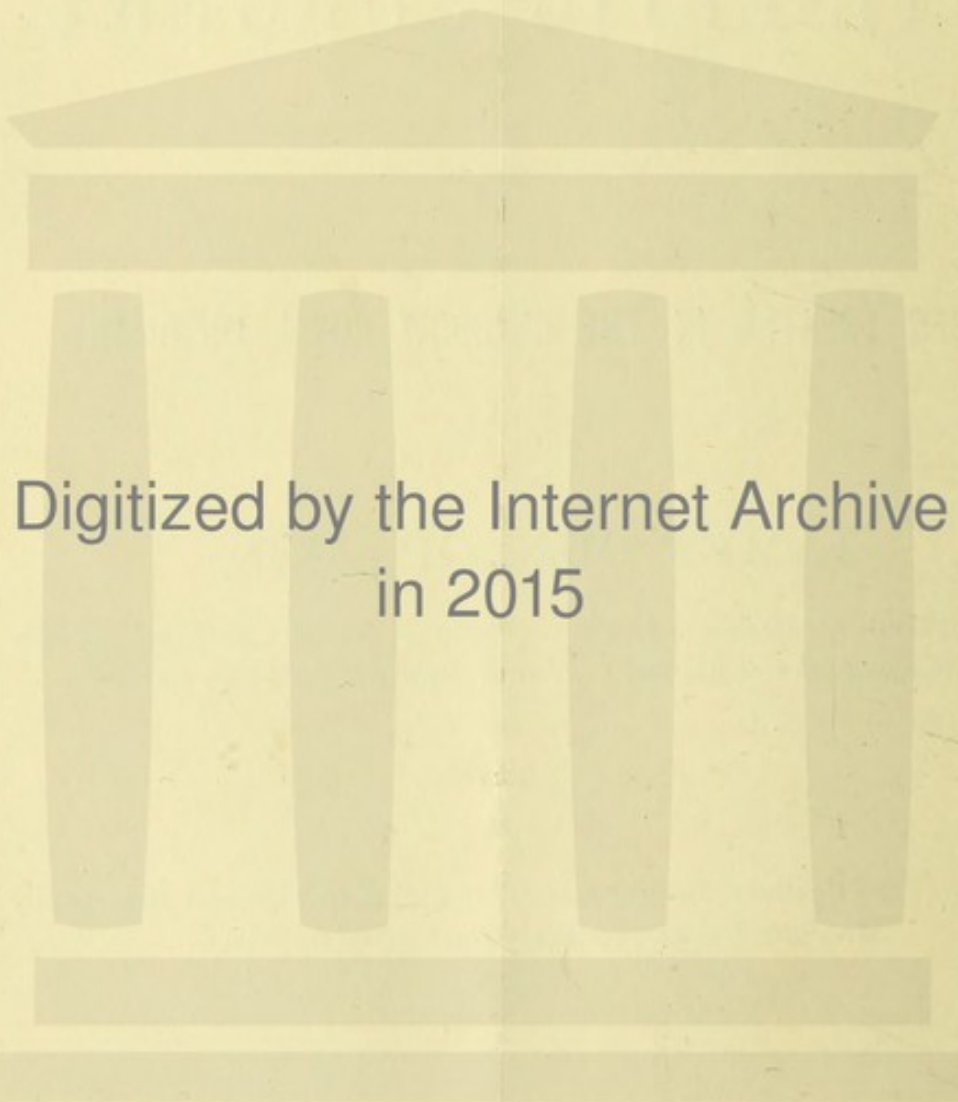
*Fellow of Faculty of Physicians and Surgeons of Glasgow, Surgeon to the Royal Infirmary
and Glasgow Lock Hospital, and Lecturer on Surgery in Anderson's University.*

Read before the Southern Medical Society, December 16, 1875, and Reported by
Mr. JOHN KENDALL, Surgeon and Clinical Assistant.

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CONTRIBUTION TO ANTISEPTIC SURGERY.

PROFESSOR SPENCE, in his Address on Surgery, recently delivered before the British Medical Association, in referring to the antiseptic method of treating wounds introduced by his colleague Professor Lister, and to the statement made by the advocates of his system, that it is to be regarded as one of the most important contributions to modern practice, inasmuch as it makes wounds heal by first intention instead of going through the painful process of granulation and suppuration, says : "I can only regard such statements as arising from want of experience or misrepresentation of the simple method of treating wounds. Suppuration is not unknown under the antiseptic method, and while brilliant results in individual cases may be pointed to, it will not do to state that no deaths from pyæmia have occurred under the system." And he asks—and, it is thought, with some justice—that, now that the system has had sufficient time and scope given to it in this country, statistics should be presented which would be definite and reliable, and which would enable us to judge dispassionately of its merits. As a contribution to the evidence which Professor Spence desires, the following cases have been extracted from the clinical records of Wards Nos. 15, 23, and 24 in the Royal Infirmary.

Before entering upon the particulars of the cases treated in these wards during the past twelve months, I should explain that, from the first, we had every confidence in the theory and practice of the antiseptic method of treating wounds, but in the early part of the year, owing to defects in the hand-spray apparatus

which we employed, there was not that accuracy and care in working out the minute details of treatment which the method requires. Since the month of April last the steam-spray, which I now show you in working order, a more perfect appliance has been in constant use. There has also been every desire on the part of myself and my clinical assistants to fulfil all the conditions recommended by Mr. Lister for bringing about a satisfactory result. I am, however, by no means satisfied with the amount of success which has been obtained, for I believe that under more favourable hygienic conditions of the wards, there would have been a greater number of recoveries and fewer deaths than we record.

Since the time—now some years ago—when some of the younger members of the Society had the opportunity of witnessing Mr. Lister's application of the antiseptic system, in the wards of our own Infirmary, considerable changes have taken place in the details of treatment. With the aid of the steam-spray apparatus, the principal operations are performed and the dressings are applied under an atmosphere rendered pure and innocuous by the destruction of the germs floating in the air; and while the parts to be divided are first carefully sponged with the 1 to 40 carbolic solution, the instruments employed—knives, saw, forceps, needles, probes, scissors, etc.—are soaked in the solution, and the fingers of the surgeon and his assistants are washed with the same, so as to prevent them conveying to the wound septic material. In addition to these measures, which are of a purely precautionary kind, we have now antiseptic catgut for ligaturing the vessels on the face of the stump, antiseptic drainage-tubes, protective, antiseptic gauze, jaconet, antiseptic bandages,—all of which I now show you.

With these few preliminary remarks, I now submit to you condensed reports of the cases treated antiseptically, with the results of treatment.

Table of Cases treated Antiseptically, with Results, for Twelve Months ending November 31, 1875.

	No. of Cases.	Recoveries.	Deaths.	Cause.
A. Amputation in Thigh	9	8	1	Diarrhœa
B. Triple Amputation	1	1	0	
C. Double Amputation	1	0	1	Pyæmia
D. Amputation in Leg	1	1	0	
E. Amputation at Ankle-joint	4	4	0	
F. Amputation at Shoulder	1	0	1	Shock in 12 h.
G. Amputation in Arm	5	3	2	Pyæmia
H. Amputation in Forearm	8	4	4	{Pyæmia 2 {Shock 2
K. Excisions of Elbow	3	3	0	
L. Compound Fractures in Limbs	4	3	1	Pyæmia
M. Compound Fractures in Skull	4	4	0	
N. Removal of Sanguineous Cyst	1	1	0	
O. Closure of Vagina in case of Prolapsus of Uterus	1	1	0	

A.—AMPUTATIONS IN THIGH, 9—8 FOR DISEASE, 1 FOR INJURY.

The Successful Cases.

Case 1.—J. G., aged five years, was admitted on April 22 with a smash of the left foot and leg as high up as the knee. The little fellow's limb had become entangled among the spokes of the wheel of a loaded lorry, which passed over the leg, crushing both bones and soft tissues. Soon after admission, amputation through the condyles of the femur was performed under the carbolic spray. Antiseptic dressings were applied, and a drainage-tube inserted at the outer angle of the wound. On the 24th the stump was dressed under the spray. On the 26th it was again dressed, when it was found that, owing to the retraction of the tissues, two of the wire

sutures had given way. To prevent further retraction, soft gauze bandage was applied to the upper part of the thigh, and two stripes of adhesive plaster, after being dipped in hot carbolic solution, were used to keep the edges of the flap in apposition. The stump, which was subsequently dressed every second or third day, healed kindly, and with very little suppurative action, the small quantity of pus which did form being devoid of smell. The patient's general health remained good, and he was dismissed well on June 26.

Case 2.—A. W. L., aged four years, was admitted on March 20, suffering from strumous disease of the right knee-joint, of twelve months' duration. On examination the limb was seen to lie in a semiflexed position, and the tissues, both above and below the knee, were very much wasted. The joint was very much swollen, and doughy to the feel. On its outer aspect there was the opening of a sinus which led down to diseased bone, and from which there discharged a considerable quantity of stinking pus. The patient complained of severe pain in the joint, which was worse at night, the limb frequently starting during sleep, and it was exceedingly tender over the inner surface. As the boy's health was very unsatisfactory, operative procedure was postponed for a time, and cod-liver oil, nourishing food, and tonics were administered. On May 26, amputation was performed, but not under the spray, and the bone was sawn through immediately above the condyles. The line of incision of the flap (a Carden) was modified somewhat in consequence of the position of the sinus. On reflecting the flap, the cavity of an abscess was opened, and a large quantity of pus escaped. After the vessels had been ligatured with antiseptic catgut, the flaps were carefully and thoroughly washed with 1 to 20 solution, and thereafter sutures were applied, and the stump dressed with the usual folds of gauze. The subsequent dressings were conducted under the spray. The wound healed rapidly, and the patient was dismissed well on July 7, without having had an unfavourable symptom.

Case 3.—G. T., aged twelve years, was admitted to Ward 15 on December 22, with diseased right knee-joint. When about two years of age he had fallen, spraining his right knee. Soon after,

the joint swelled up very much, and by-and-by abscesses formed, which burst and continued to discharge pus for several months. Several pieces of bone had come away through the openings, and for a time the discharges diminished, and finally the openings closed. For several years the joint remained stiff, and the leg contracted upon the thigh to near a right angle, and to a great extent he was free of pain. Recently, however, his health had become impaired, and the disease had returned in the neighbourhood of the joint. When he was admitted, the limb below the knee was found to be very small and shrunken, and very much bent. The skin around the knee-joint was red and tender, and it was marked by numerous old cicatrices. Immediately above the joint there was a sinus leading down to diseased bone. He had not been above a few days in the ward when eczema of the face and head set in, and in consequence of his low state of health he was sent to the country to the Convalescent Home. On April 2 he was re-admitted with all traces of the skin affection removed, but his state of health was by no means satisfactory. He was immediately put under suitable constitutional treatment, and as the confinement in the ward was seemingly acting badly, he was sent out of doors several hours daily. On April 30, amputation in the lower third of the thigh was performed after the method recommended by Mr. Spence. On May 26 the stump was nearly whole, and on June 3 the boy was dismissed well with a beautiful stump. Not only had there been very little suppuration throughout the entire treatment, but it was observed that the operation was no sooner performed than his health began markedly to improve.

Case 4.—J. M., aged six, admitted July 14, with disease of the knee-joint, of twelve months' duration. The boy was exceedingly strumous and delicate, and there were numerous sinuses around the joint, giving exit to discharge of an offensive kind. As soon as his health was somewhat improved, amputation was performed, the bone being sawn through immediately above the condyles. The joint, when examined, was found to be in a pulpy gelatinous condition, and the tissues all round the joint and in the flap (which, on account of the sinuses, was a modified Carden) were

loaded with greenish-blue strumous material. The case was treated antiseptically throughout, and great care and much time were expended in the dressings. Within the first fourteen days after the amputation, three-fourths of the flap were firmly cicatrised, and by first intention; but the remaining fourth at the outer angle did not heal for many weeks—suppuration ensued, and pus continued to be discharged in considerable quantity. It was observed that, for several days, the pus would be copious and very offensive; and by-and-by, without any special change in the antiseptic treatment, except that the dressings were changed daily, and on several occasions twice a day, the discharges diminished and became sweet again, forming no black stain upon the protective. During the month of September the boy's health had deteriorated. Several small abscesses formed about the end of the stump, which was quite whole except at one corner; but the probe passed readily down to a piece of dead bone. On October 20 the piece of dead bone was found to be loose, and it was removed: it proved to be a ring from the divided end of the bone. On October 30 the patient was dismissed with the stump perfectly whole.

Case 5.—E. W. E., aged fourteen, was admitted on July 24, with extensive disease of the lower end of the right femur, not, however, implicating the joint itself. The disease did not seem to be of a malignant character. Amputation was performed in the lower third of the thigh by Spence's method, and in five weeks the stump was well. There was, however, some suppuration, but the pus remained sweet throughout. The girl's health very much improved after the operation. She was free from pain, slept well, and had a fair appetite. On November 6 she left the hospital with an artificial limb, and in better health than when she was admitted.

Case 6.—J. S., aged twenty, a fish-curer, was admitted on August 3, with strumous disease of the right knee-joint of fifteen months' duration. On examination the limb was seen to be very much swollen and painful. His health, too, had given way; his appetite was bad, and he had a troublesome dry cough. Soon after admission, amputation was performed at the knee by

Carden's method, and within five weeks thereafter the stump was quite cicatrised. In this case there was almost no discharge, and when dismissed there was a very manifest improvement in the patient's health.

Case 7.—M. G., aged fifteen, was admitted on June 25, with disease of the left knee-joint of twelve months' duration. The joint was very much swollen and painful, and her health was giving way under the prolonged suffering. On October 23 amputation was performed, the flaps being shaped as recommended by Mr. Lister, and the bone was sawn through immediately above the condyles. On the joint being examined, there was found pulpy degeneration of the synovial membrane, with ulceration of the cartilages. There was pus also in considerable quantity both within and without the joint. This case was dismissed well on December 27, some delay in the healing process having been occasioned by retraction of the flaps.

Case 8.—Mrs. C., aged forty-five, was admitted on October 24, with disease of the right knee-joint of several years' standing. She had not been able to walk or lean her weight on the limb for several months. She had been suffering very much, and unable to obtain a sufficiency of food. On November 24, amputation was performed at the knee, the bone being sawn through immediately above the condyles. At this date (December 27) union is almost complete, and as soon as she can be measured for an artificial limb she will be sent to the Convalescent Home. Throughout the entire progress of the case there has not been an unfavourable symptom, and the discharge of pus has at all times been sweet, and at no time considerable.

Amputation in Thigh—Unsuccessful.

Case 1.—J. C., aged twenty-three, a clerk, admitted November 2, 1874. Is suffering from disease of the right knee-joint. He says that three years ago he got a fall, and that three months thereafter a sore formed just above the ankle on the inner side, which healed up under rest and poultices, but that since then his knee became swollen and painful, and several openings formed in his leg, which became very much thickened. On examination

there is found much disease of the bones of the leg and of the joint. There are numerous openings leading down to diseased bone, and from the sinuses at the side of the joint there is much offensive discharge. The health of the patient has been rapidly going down. He is suffering from profuse sweatings at night, has a slight cough in the morning, and for several months he has been troubled with pain in his belly and some diarrhœa. On examination of the chest, it does not reveal the existence of tubercle. On admission he was ordered nourishing food and tonics. On the 9th, amputation was performed in the lower third of the thigh, and for several days thereafter the progress of the case was favourable. On the 14th, diarrhœa set in, which resisted every effort to check it, and he died on the 23rd from exhaustion. Up to the last day the discharges from the stump were not copious though sweet. There had been no rigor, no sweatings, and no evidence of pyæmia. On post-mortem examination the only morbid condition observed were some small ulcers in the ileum and top of the descending colon. There was no pus in the veins or internal organs.

B.—CASE OF TRIPLE AMPUTATION—RECOVERY.

Amputation of Left Arm below the Shoulder, Amputation of Left Leg below the Knee, and Amputation of Anterior Half of Right Foot.

J. M. L., a labourer, aged thirty years, was admitted into Ward 24 on May 2, 1875, having sustained a complete smash of the lower half of left leg, of left arm, and the front of right foot. He had been found lying on the railway near Coatbridge. According to his own statement he had been on his way home at a late hour of the previous evening, and in a state of intoxication had laid down on the railway, and while asleep several wheels of a passenger train had gone rapidly over him. He was perfectly conscious when found, and did distinctly remember that after receiving his dreadful injuries he heard the approach of another train, and succeeded in dragging himself into the narrow four-foot space which is between the up and the down lines. It was

ascertained that he must have lain there not less than seven hours after the receipt of the injuries. Although quite sensible on admission and after having been conveyed six or seven miles to hospital, he was found to be labouring under severe shock: his face was pale, his skin icy-cold and covered with a cold clammy perspiration, and his pulse weak and fluttering. On account of the lacerated nature of the wounds, and their exposure to the air for several hours, it was found that only a comparatively small quantity of blood had been lost. The usual plan of treatment in such cases was immediately adopted: he was laid in a recumbent position, warmth and frictions were applied to the surface of the body, while warm drinks and a little stimulant were administered internally. In the course of a few hours he rallied wonderfully, and arrangements were therefore made for operation. He was removed to the theatre, and three amputations were consecutively performed—viz., an antero-posterior flap operation in the middle third of the left leg; a circular in the arm, the bone being divided about three inches below the left shoulder; and a Chopart in the right foot. This triple operation, which was conducted under the steam-spray, lasted two hours, and was not attended by much bleeding. On the removal of the patient to bed, and on consciousness being restored, small quantities of stimulants were judiciously administered at stated intervals, also opium at bedtime. On the following morning (May 3) it was found that he had, to a certain extent, recovered from the shock of the severe ordeal through which he had passed. His pulse was firm, though rapid. His condition was somewhat favourable for the next three days, after which time a change for the worse took place. On the 6th it was noted that traumatic delirium had set in: his pulse was quick and bounding; eyes glistening; skin hot, and covered with a profuse perspiration. The delirium assumed a wild type. The patient repeatedly called out at the top of his voice, and tossed about his injured limbs regardless of pain. Half a drachm of chloral hydrate was administered, followed by twenty grains of bromide of potassium every two hours until sleep was induced. At the expiration of a few days these symptoms passed off, and the patient became calm. His stumps were dressed under the

spray every second or third day, and throughout the entire period of treatment only a small quantity of pus was found in them, and this without the slightest evidence of putrefaction, although a small slough formed on the flap over the divided end of the tibia. About the fourteenth day of treatment the patient was found to be sweating profusely. There had been no preceding rigor and no perceptible change in the character or quantity of the pus. It was feared, however, that pyæmia had set in; and for nearly three weeks the perspirations continued, accompanied by a rapid and feeble pulse. The patient, however, slept well at night, and the appetite continued fair. By-and-by the three stumps assumed a shrivelled appearance, the discharge, though sweet, greatly diminished in quantity, and several small abscesses formed—one on the top of the right shoulder, one in the left axilla, and two small ones around the right ankle-joint. These were opened as they presented themselves, and were treated antiseptically, and it was remarked that their formation was not accompanied by pain in the parts, and that they healed up very readily. But at the same time, during their continuance there was very rapid wasting of all the tissues of the body. The voice, too, became weak, and there was often wandering at night. His pulse was seldom under 120 per minute. He was often very thirsty, but there was no special aversion to food. On the whole, it may be stated that throughout the entire illness his appetite for food remained satisfactory. A mixture containing iron and quinine in large doses was taken, and an additional quantity of stimulant was administered. After the lapse of about twelve weeks he gradually regained strength, his pulse became slower and stronger, the perspirations ceased, and the stumps cicatrised. On August 13, after being in the Infirmary for 103 days, he was dismissed well; and he carried away with him an artificial limb, which had been kindly provided for him by the Ladies' Dorcas Society.

There are several points of interest connected with this case which may be referred to:—

Firstly, it is of very rare occurrence, even in our largest hospitals, for three limbs to be removed at once, and still more rare to find such a case followed by complete recovery. This is,

so far as we learn, the first case of the kind recorded in recent years in the journals of the Royal Infirmary.

Secondly, for the patient to lie such a length of time out in the cold with three mangled limbs, to have them removed shortly after admission, to suffer from traumatic delirium for a week, and afterwards from a series of abscesses, show clearly what an amount of shock can be borne and recovered from by an able-bodied man.

Thirdly, it will be observed that for many weeks there was a continuance of fever with profuse sweatings and wasting of the tissues, and that this condition was accompanied by the formation, from time to time, of small abscesses which were chronic in their character. When they began to form, the opinion was entertained that they were probably pyæmic in origin, but that the pyæmia was not of the acute or typical kind—that it was chronic in character, and not so likely to have a fatal result. It was, however, remarkable that the discharge from the stumps kept sweet, although the protective was discoloured black by it, and there had not been a single rigor preceding the high fever, the profuse sweatings, and the formation of small abscesses.

C.—CASE OF DOUBLE AMPUTATION IN THE LEG—DEATH FROM PYÆMIA ON THE SEVENTY-FOURTH DAY.

B. B., aged sixty years, a labourer, was admitted into Ward 24, on April 27, with a severe smash of both lower limbs. While at work that morning on the railway he fell off a loaded waggon, and both wheels passed over both limbs immediately above the ankle-joint, grinding the bones of the legs into numerous small pieces. The lower fragments of the mangled limbs were attached to the body by narrow stripes of skin. Shortly after admission, amputation was performed in both legs below the knee, antero-posterior mixed flaps being formed. The shock of the operation was well recovered from, and the healing process progressed most satisfactorily. The flaps on left leg united very readily and with very little discharge; those on the right did not do so well—a small piece of the anterior flap sloughed, exposing beneath a small

triangular surface of the tibia. On May 25, there was an exfoliation of a thin scale of bone about the size of the finger-nail from the right tibia. On June 10, the left stump was completely cicatrised; and on the 20th, on the right there was a healthy granulating surface about the size of a shilling-piece, which was dressed with boracic lint. Even this surface was rapidly closing, and, had it been anywhere else on the stump than over the end of the tibia, the process of cicatrisation would have been complete. Every day for a week before this date the patient had been wheeled out into the square for an airing, and he was on the eve of having himself measured for artificial limbs preparatory to his leaving the hospital for the Convalescent Home, when, on the afternoon of June 22, he ate a quantity of currant-loaf bread brought him by his son, which immediately on its being swallowed, pained him, and otherwise quickly disturbed his stomach. On the 24th he had a severe rigor, followed by profuse sweating, accompanied by a rapid pulse, loss of appetite, and vomiting. Under date 29th there is an entry to the following effect:—Patient has not taken much food for several days. Has an occasional rigor of some duration, and he is sweating profusely. Is very weak; complains of pain in the epigastrium; and there is a yellow bilious tinge in his eyes. Over the right knee-joint there are redness and swelling, and on the back of left hand and in left wrist-joint there are both swelling and tenderness. There is evidently pus collecting in both joints, and that very rapidly. On the three following days the stumps were carefully examined in order to ascertain what changes were taking place in them. The left stump, which had been whole for several weeks, became shrivelled and small, sharing in the rapid emaciation which was going on in the body. The right stump was also shrivelled, and there was a puckering of the cicatrix, but the small granulating surface appeared unchanged, the quantity of the discharge on the dry lint being about the same as before. There was no evidence whatever of putrefaction in the wound. On July 3 the patient was taken home by his friends, and there he died in the course of a few days.

Regarding this case, it may be remarked that there was no

doubt on the question of diagnosis. The patient died of acute pyæmia, and of no other disease. How the pyæmia arose was a question more difficult to answer. I feel quite satisfied, however, that it did not arise from anything in the wound itself, but must have had its origin in some unfavourable hygienic condition of the ward not at present recognised or understood.

D.—AMPUTATION OF LEG FOR DISEASE—RECOVERY.

J. M. C., aged forty-nine, was admitted on May 19 with extensive disease of ankle-joint and bones of right leg, which had existed for about three years. On May 24, amputation was performed high up in the leg, and it was observed that the arteries were atheromatous, and did not bear the antiseptic catgut ligatures well. About fourteen hours after the operation, and during the night, secondary hæmorrhage set in, and before the flaps were re-opened and the bleeding vessels found and ligatured, there had been considerable loss of blood. For two days the stump was only covered with a light dressing, as there was constant fear of recurring hæmorrhage. On the 26th, antiseptic dressing was resumed; and on June 7 there was a large abscess over the left hip opened, and a large quantity of pus evacuated. Several small abscesses formed around the knee-joint and connected with the stump, and in addition a small portion of the anterior flap resting on the divided end of the tibia, sloughed, exposing the bone. Under date July 6 there is an entry that the stump was looking well, that the patient's health had greatly improved, that the surface over the end of the bone was covered by granulations, and that only a small piece of bone, less in size and thickness than a finger-nail, had been exfoliated. On August 1 the stump was perfectly solid and cicatrised, and he was dismissed well.

E.—AMPUTATIONS AT ANKLE-JOINT

were four in number; of these, three were cases of disease, and one of injury. In all *the results were satisfactory.*

Case 1.—E. M., aged twenty, admitted into Ward 23 with

disease of the bones of the right foot of eight years' standing. The entire tarsus and the joint itself were very extensively diseased, and there were numerous sinuses all round the joint, especially in front and at the sides. On the 16th, Syme's operation was performed in the usual way, and in consequence of the lower end of the tibia and fibula having been very much implicated in the disease, a considerable slice of these bones was removed with the saw. During the treatment, quinine and cod-liver oil were administered, and although a considerable quantity of pus was from time to time discharged, yet the patient's health improved, and she was dismissed on June 29 with a sound and cicatrised stump.

Case 2.—M. C., aged twenty-three years, admitted April 18, with extensive disease of the left ankle-joint. On the 24th, Syme's amputation was performed, and throughout the entire treatment there was nothing worthy of note, except that a small abscess formed in the leg, which was opened and dressed antiseptically, and, as in the preceding case, there was a considerable quantity of pus discharged from time to time, which was not, however, always sweet. Apparently from some inattention to details, germs were admitted, and the discharge for several days became offensive; but by-and-by it became sweet again, and ultimately the process of cicatrisation was complete, and on June 29 she was dismissed with a sound stump upon which she could bear considerable pressure.

Case 3.—J. F., aged sixteen years, was admitted on August 16 into Ward 23, with extensive disease of the tarsus. Syme's amputation was performed under the spray, and in four weeks the stump was perfectly whole.

Case 4.—J. F., aged sixteen years, a railway boy, was admitted on February 4. One wheel of a waggon, heavily laden, passed over the front of left foot, smashing completely the foot, leaving, however, the heel and integument over the ankle-joint untouched. A few hours after the injury had been inflicted Syme's amputation was performed. The case progressed favourably, the discharge not being great, and the dressings required to be changed once every two or three days. On March 20, when the stump was nearly whole, an abscess formed in the fibular side of the leg,

about three inches and a half above the line of union of the flaps. This was opened under the spray, and dressed carefully every second or third day. By April 10 the cure was complete, and on the 28th he was dismissed well, with a solid stump upon which he could bear considerable pressure without the slightest tenderness.

F.—PARTIAL AMPUTATIONS IN THE FOOT

were five in number, and all on account of injury. In one case all the toes were removed, with a portion of their corresponding metatarsal bones. In two the big toes only were removed. In one there were three toes removed, with a portion of their corresponding metatarsal bones. Without burdening the history with further details, it may be said that they were all successful. In one case, however, erysipelas attacked the foot, and extended as high up as the knee.

G.—AMPUTATIONS IN UPPER EXTREMITY: IN ARM.

Case 1.—P. C., aged fifteen, was admitted into Ward 23, on April 22, with a smashed arm, the entire hand, forearm, and elbow having been crushed by the rollers of a printing machine. Shortly after admission, amputation was performed, the flaps being obtained by the circular method, and the bone divided at its middle. On May 29 the boy was dismissed well, union having taken place without any pus.

Case 2.—W. S., aged thirty, a railway porter, admitted August 28 with a severe smash of left arm. While coupling waggons he had been caught between two buffers, and the humerus was fractured into several pieces. The elbow-joint was quite destroyed, and there was much tearing of the muscles and integument nearly as high up as the shoulder. Immediately after the accident he was seen by a surgeon, who, without removing the clothes, applied Esmarch's elastic band with the Whittaker clamp high up upon the arm; and, although nearly two hours elapsed before the patient reached the hospital, it was found that very little blood had been lost, and the pressure of the band did not produce any

marked uneasiness. Amputation was performed, and the bone divided high up, not far from the joint. It was treated antiseptically with great care and attention to minute details. Union of the greater part of the wound took place by first intention. In three weeks the stump was whole; there had been no constitutional disturbance whatever, and very little suppuration.

Case 3.—J. M. N., aged thirty-four, a baker, admitted September 22. His left arm had been caught in machinery, and a double compound comminuted fracture of the arm, with laceration of integument and muscles, had been inflicted. Amputation was performed in the upper third of the humerus. In twelve days the sutures were all removed, and within four weeks he was dismissed well. The only suppuration which did take place was from the drainage openings.

Amputation in the Arm (Unsuccessful) for Injury.

Case 1.—M. L., labourer, aged twenty-two, admitted into Ward 23 on November 13, 1874, with his left thumb blown off by an explosion of gun-cotton. He was also burned about the face and eyes. Shortly after admission, a few broken fragments of bone were extracted from the wound. There was no opening into the wrist-joint, and the bones of the hand were otherwise uninjured. For ten days the dressings were carefully applied, and from the wound there was not much discharge. The case progressed favourably till November 29, when, after some exposure to cold, he was seized with a shivering fit, and on the following day an erysipelatous blush presented itself on the right foot. The erysipelas gradually spread all over the body, and was accompanied by some delirium. He was removed from Ward 23 to one down stairs, immediately below. (In the small rooms in the basement storey, which are below Ward 23, cases of erysipelas or pyæmia occurring in any of the other parts of the hospital are treated. Whether the proximity of these rooms has had any special influence upon the hygienic condition of the ward above, it is difficult to say. It is hoped, however, that when the new contemplated additions are made to the surgical hospital, accommodation will be made for these dangerous cases at some

distance from the accident wards.) While the patient was in the erysipelas ward, suppuration ensued in the hand, and by-and-by pus had burrowed along the sheaths of the tendons. On December 10, both wrist and elbow-joints were full of pus. Free incisions were made from time to time as the necessity arose, and drainage-tubes inserted, and much time spent in syringing out the wounds, but all without any special benefit. On December 19, amputation in the arm was performed, the flaps being formed out of apparently sound tissue. Up to January 1 the case progressed favourably, and there was every probability that union would readily take place, as the discharge was not copious, and the patient had regained his appetite and was in good spirits. On that day, however, he had a rigor which lasted an hour and a half, and which was followed by profuse perspiration. This was the beginning of pyæmia, and on January 8 he died with collections of pus in both lungs and liver. The stump went through the usual stage of shrivelling, and before death there ceased to be any discharge of pus from the flaps.

Amputation in Arm for Injury—Unsuccessful—Pyæmia.

Case 2.—H. M. K., aged twenty-eight, admitted into Ward 23, on February 20, with a smash of the right arm, one of the wheels of a locomotive engine having passed over the forearm and elbow, crushing the bones and lacerating the soft structures. He was seen by a surgeon shortly after the occurrence of the accident, and, as there was then considerable bleeding, the elastic band of Esmarch was applied over the jacket and above the lacerated point. He was afterwards conveyed to the Infirmary, and it was found that not only had there been no further bleeding from the wounds, but the parts below were not engorged with blood, and the patient did not experience any special inconvenience from the pressure of the elastic ligature during the two hours it had been applied before the arm was removed by amputation. The operation performed was one by circular flaps, the bone being sawn through at the junction of the middle with the upper third. The case progressed most favourably in every respect till March 24, and on that day the stump was entirely whole except at the outer angle where the

drainage-tube had been; at that point there was a small portion of the flap yet to cicatrise. The discharge had been so small in quantity that the dressings had only required to be changed twice in the week. On the early morning of the 24th, without any known cause—certainly without there being change in the discharges from the stump—he had a severe rigor, followed by profuse sweating, and all the other familiar symptoms of blood-poisoning. On the following day he was removed to his home, and six days thereafter he died, with a large collection of pus in the right pleural cavity. As in the previous case, there was rapid wasting of the tissues which was shared in by the stump.

H.—AMPUTATIONS IN THE FOREARM.

Successful Cases.

Case 1.—N. T., an engine-fitter, aged fourteen, was admitted into Ward 23, on November 13, 1874, with a smashed hand and wrist. He had been oiling a large toothed and pinion wheel when his hand was drawn in. On the same day amputation was performed by Teale's method, the bones being divided in the upper part of middle third. There was some suppuration throughout the treatment, but the pus continued quite sweet, and he was dismissed with a soundly cicatrised stump on January 25.

Case 2.—R. M. A., labourer, aged forty-five, admitted into Ward 23, on March 13, with disease of the right hand and wrist of nine months' duration. It was supposed that the disease had originated in a sprain received a year before the commencement of the disease. On April 5, amputation was performed in the upper third of the forearm, and in four weeks the flaps were perfectly united, and there had been only a small quantity of pus discharged.

Case 3.—P. C., aged fourteen, admitted April 22, with hand and forearm smashed and lacerated between rollers. Amputation was performed near elbow. He was dismissed well on May 29, with the stump firmly united. The discharge had been slight, and there had been no constitutional disturbance whatever.

Case 4.—A. B., aged twenty-three years, a porter, was admitted into Ward 24, on September 17, with a smashed hand and opened

wrist-joint. His hand had been caught between the teeth of a wool-teaser, and very much lacerated. Amputation was performed in the lower third of the forearm. In sixteen days the flaps were firmly united except at the small opening where the drainage-tube had been introduced, and in four weeks he was dismissed well. There had been almost no pus, and certainly there was no constitutional disturbance whatever.

Unsuccessful Cases.—Two Deaths from Pyæmia and Two from Shock.

Case 1.—W. R., aged forty-nine years, was admitted into Ward 15, on January 12, with extensive suppuration in the hand and forearm, following an injury to the index-finger received three weeks before admission. The wrist-joint having become perfectly disorganised, amputation in the forearm was recommended; but, as the patient declined to give his consent for some time, the operation was not performed till January 29. On that day amputation was performed—the flaps circular, and the bones sawn through at the lower border of the upper third of the forearm. The patient did well up to February 6. On that day he had a rigor of a severe kind, and, instead of removing him to the pyæmia ward down stairs, below Ward 23, he was conveyed home, where he died in six days thereafter with all the symptoms of a collection of pus in the liver.

Case 2.—D. B., aged thirty-eight. This patient was admitted on June 4 into Ward 15, with phlegmonous erysipelas of the hand and forearm. About ten days before admission a rusty nail had punctured his thumb, and soon thereafter pus formed in the palm of the hand, and ultimately in the forearm as well. The wrist-joint was full of pus, and the bones of the carpus were felt to be loose. Free incisions were made into the wrist-joint and palm of hand, also in the forearm, and fomentations were afterwards applied. For several days he had diarrhœa, which considerably reduced him. On June 16 he gave his consent to amputation, which had been recommended in consultation about a week before, and on that day amputation was performed high up in the forearm. On the 21st he had a severe rigor, which lasted twenty minutes, and this

was followed by profuse perspiration; and in the evening he had a second of longer duration. He was that day removed to the pyæmia ward, below Ward 23, where he died on June 25. This case was an unfavourable one for operation from the very beginning, and though the dressings were carefully applied, the discharges were offensive and putrid.

Cases 3 and 4.—P. B. and R. L., two little boys about ten years old, with their forearms very much lacerated—one by pinion-toothed wheels, the other by a railway waggon wheel. Amputation was performed in the middle of the forearm in each, but they never rallied from the shock of the operation—they cannot therefore be accepted as evidence calculated to throw light on the question of the value of antiseptic treatment.

I.—PARTIAL OPERATIONS IN THE HAND.

Under this heading there were noted twenty-three operations. They were all treated antiseptically, and with satisfactory results.

K.—CASES OF EXCISION OF ELBOW—RECOVERY.

Case 1.—B. B., aged thirteen, was admitted on February 15 with strumous disease of the right elbow-joint of several years' duration. On February 20 the joint was excised, and the boy was dismissed well on April 20. In this case there was considerable discharge of pus from the wound, and the healing process was slow; ultimately, however, cicatrization was completed, and there is every prospect that the boy will have a useful arm.

Case 2.—Charles R., aged seventeen, a farm servant with strumous disease of the left elbow-joint, and a sinus leading down to the external condyle. The disease had existed for about three years. On May 27 the joint was excised, and on July 6 the patient was dismissed with the wound not only whole, but there was considerable motion at the seat of excision.

Case 3.—J. McK., aged four, admitted October 5, with extensive strumous disease of elbow-joint of two years' duration. Shortly after admission, excision was performed, and in six weeks union

was complete. There had been very little suppuration, and no constitutional disturbance.

Regarding these excisions of the elbow, it may be remarked that the line of incision through the soft parts which was adopted was the single straight one, and not the H-shaped one recommended in many of the older text-books. Excision at the elbow by the single straight incision has been the only method adopted at the Royal Infirmary since I began to study medicine, nearly a quarter of a century ago. It has, therefore, been a little amusing to find some English surgeons taking credit to themselves for having recommended to the profession a few years ago the longitudinal incision. The benefits derived by the avoidance of cutting across the tendon of the triceps have long been known here, and duly appreciated.

It will be observed, from the preceding list of cases submitted to operation, that there have been five deaths from pyæmia. Of these, three took place in Ward 15, and two in Ward 23. In these wards during the last winter, when the cold was more than usually intense, its effects were very much felt, and several cases of erysipelas presented themselves in these wards, owing their origin apparently to the inclemency of the season. When the cold was most intense, and when not only erysipelas but pyæmia was present in these wards, the temperature was as low as 42°. The pyæmia, however, cannot be said to have had, in all the instances, its origin in the low temperature of the ward; for, during the summer months, when the weather was fine and genial, one of the cases of compound fracture about to be described terminated fatally from that disease. We have, therefore, to look to other conditions than simple lowness of temperature for an explanation of the presence of pyæmia and erysipelas in these wards, in spite of our utmost care and attention in carrying out antiseptic treatment. It is to be hoped that the explanation is to be sought in ourselves, for in that case there is a probability that, by increased care and watchfulness in carrying out the minute details of the treatment, better results may be obtained in the future, and that pyæmia may become in these wards a thing of the past.

In the meantime, however, while our personal attention to the patients is greatly increased, and much more time devoted to the dressings than before, we have had our male accident ward removed from 23 to 24, and we hope soon to have the wards heated by hot water pipes or otherwise; and if, in addition, we had the wards for erysipelas, pyæmia, and burns, which are in painful proximity to us, removed to some distant part of the Infirmary, away from the surgical wards altogether, there would be a greater likelihood of more satisfactory results being obtained than at present.

If, by means of the antiseptic method of treating wounds, pyæmia be banished from Ward 23, that fact will be one of the most striking proofs which can be adduced in favour of Mr. Lister's method, for it cannot be denied that that ward has had for many years a bad reputation for pyæmia; and it is a very curious fact that when that ward was first opened, the first two cases of amputation treated there died of pyæmia.

In all the operations referred to in this paper, Esmarch's elastic band has been employed, and for twelve months the ordinary tourniquet has not been in one instance used. The experience of this mode of controlling bleeding during the operative procedure has been on the whole most satisfactory. There has not been observed any special tendency to sloughing of the edges of the flaps, and when precautions were taken to secure that all vessels likely to bleed were ligatured before the flaps were finally adjusted, there was no danger of secondary hæmorrhage.

As already remarked, catgut ligatures rendered antiseptic have been employed in all the cases operated upon to prevent bleeding from the vessels divided in the stump; and only in one instance, that of W., whose arteries were atheromatous and brittle, was there any necessity, on account of hæmorrhage, to undo the dressings, to reopen the flaps, and search for and secure the bleeding point. Whether the catgut ligature divides the internal coat or simply compresses the artery and closes its channel, our personal observation does not enable us to speak; but we know this, however, that in applying a ligature to the divided popliteal

or brachial artery, or any of the vessels in the leg or forearm, there is as much force employed in tightening the knots as if the ordinary silken ligature was in use, and in no case, except in the one already referred to, has there been any slipping of the knot, melting of the ligature, or secondary bleeding.

L.—COMPOUND FRACTURES IN LIMBS.

Case 1.—Compound Fracture of the Leg—Successful.

W. M., aged eighteen, labourer, was admitted into Ward 24, on May 25, suffering from severe injuries to his right leg, the result of a crush between the buffers of two railway waggons. On examination the patient was found to have both bones of his right leg very much comminuted, and that part of the leg which had been squeezed by the buffers was literally flattened before and behind. A wound about the size of a half-crown piece was situated over the middle third of the leg in front. Its edges were torn, and the parts round were much bruised and discoloured. There was no protrusion of bone through the wound, nor was there much bleeding. The patient did not appear to be suffering much from shock—his pulse was firm and strong, and his extremities are tolerably warm. On examining the wound the bones were found to be broken up into many pieces—some of the fragments being displaced, but all, seemingly, attached more or less closely to the periosteum, and none lying loose in the wound. The soft tissues were very much injured, and the finger passed readily beneath undermined skin and muscle. Although there had been little bleeding from the wound, it was found that there had been extensive extravasation of blood among the muscles, and from the knee to the ankle behind there was swelling and bagginess. The case was one causing considerable anxiety, and there was some doubt regarding the proper procedure to adopt. The comminuted state of the bones; the undermining of the skin and laceration of the muscles; the great amount of extravasated blood, and the possibility that some of the larger vessels had been torn—these points being taken into consideration, along with the flattened condition of the limb and the nature of the force by which the

injuries had been inflicted, it was thought that amputation at the knee might be the right practice to follow. It was, however, decided that an attempt should be made to save the limb by treating it antiseptically. Accordingly, by careful manipulation conducted under the spray, and with the fingers from time to time dipped into the carbolic solution, the broken fragments of bone were restored, as far as possible, to their proper position. The wound was then thoroughly syringed out with 1 to 20 solution of carbolic acid, and a piece of protective was laid on the wound and over it the ordinary gauze dressing. The limb was then put up in lateral splints and Scultetus, and opium was administered at bedtime. May 26: Wound again syringed out, and the dressings renewed. After this it was dressed every second day throughout, while the Scultetus bandage and pads were changed at every second dressing. During each dressing a full spray of carbolic solution was kept over the wound, and the greatest care was taken in conducting the necessary manipulations to prevent the access of living organisms. 28th: Patient's general health unimpaired; no constitutional disturbance; wound dressed as before; about a thimbleful of a semi-transparent albuminous fluid pressed out, containing whitish flakes; edges of wound healthy, and bones in proper position. June 1: Discharge from the wound same in character and amount; no pus; a blush of redness is to-day seen extending from the wound down to the foot, unaccompanied by any marked constitutional symptoms, and evidently due to the tension of the superficial structures over a displaced fragment which can be felt somewhat prominent in front; heel raised to relieve the pressure on the soft parts, and to bring the fragments into better position. 3rd: Inflammatory redness gone. 5th: Wound healthy in appearance, the small quantity of discharge present being perfectly sweet. 11th: Wound now about the size of a shilling; discharge from it less in quantity; fragments remaining in position. 29th: The opening now very small; limb firmer, the bones evidently beginning to unite. July 10: Leg now quite firm and strong; very little provisional callus present; wound still open, but superficial. 24th: Splints removed from leg altogether; wound nearly whole. 30th: Wound quite closed; leg compara-

tively straight, but a little concave in front; starch bandage applied to it. August 15: Patient dismissed well after twelve weeks' residence in the Hospital.

This may be looked upon as a case in every way illustrative of the advantages afforded by antiseptics in the treatment of compound fractures: and its superiority over other methods was to be seen in—first, the mildness of the local inflammation and the entire absence of suppurative action; hence also the absence of constitutional disturbance and of all forms of secondary disease. Secondly, in the comparatively short time (two months) which the bones took to unite, and in the absence of any exfoliation. Thirdly, in the small amount of provisional callus thrown out, thus rendering the limb fit for use at an earlier period than it would otherwise have been. And, lastly, in the restoration to usefulness of a limb which before the days of antiseptics would certainly have been condemned.

Case 2.—Compound Fracture of Bones of Forearm—Successful.

J. McM., aged thirty-five, calico printer, was admitted on October 7 into Ward 24. He had that morning had his left arm caught in the printing machine and severely injured. There was a compound comminuted fracture of the radius and ulna. The wrist-joint was opened, and several of the flexor tendons were torn and hanging from the wound on the anterior surface of the forearm. There was also a large wound on the posterior surface of the forearm, and one several inches long corresponding with the outer border of the radius. There had been a considerable amount of bleeding. The patient was taken upstairs to the operating theatre to have the mangled limb removed by amputation; but while there, on account of the sound and uninjured state of the hand, it was resolved to make an attempt to save the limb. Accordingly, under the spray, the tendons hanging out of the wound were removed, and thereafter 1 to 20 solution was carefully and thoroughly brought in contact with the injured tissues, and the limb covered by antiseptic gauze. Ordinary lateral splints were employed to assist in keeping the broken bones in position. From time to time the fracture was

dressed, and it was noted that throughout the entire treatment the discharges kept almost perfectly sweet. There was scarcely any suppuration, and no constitutional disturbance whatever. In eight weeks the patient was dismissed well, with good motion in the wrist-joint, and with the prospect of having a fairly useful hand.

Case 3.—Compound Comminuted Fracture of both Bones of Leg.

J. C., aged eighteen, a labourer, admitted October 2 into Ward 24. The wheel of a railway waggon had passed over right leg in its lower third, fracturing both bones and lacerating the soft parts. In the course of a few days the injured soft parts sloughed, and on the separation of the dead tissue about two inches and a half of fibula was seen to be split and comminuted, while upon the inner surface of the leg the broken tibia was lying exposed to the extent of about an inch and a half. On account of the position of the wounds, there was some difficulty in dressing them under the spray, and in consequence the discharges were very far from sweet. The pus was not only very copious, but very offensive. There was considerable constitutional disturbance, and for a week there was an erysipelatous blush all over the limb as high up as the knee. By-and-by the discharges became sweet, and at this date (December 27) union of the broken bones has taken place, although the wounds are not yet quite whole. There has not been any exfoliation of bone.

Case 4.—Compound Fracture of the Tibia—Death from Pyæmia.

G. C., aged twenty-eight years, a labourer, was admitted on August 23, with extensive wound in upper part of the right tibia, caused by the kick of a horse. Sutures had been inserted, and the wound was dressed antiseptically and in the usual way. On the eighth day, however, after admission the wound was observed to be in a sloughy condition, and there was a considerable quantity of putrid discharge. On the wound being carefully washed out, there was found a considerable portion of the tibia denuded of periosteum, and a fracture through the head of the tibia into the joint was suspected, although its existence was not actually known, as there was neither crepitus nor displacement. On the

fourteenth day he had a rigor, followed by profuse sweatings and high fever, and on the 19th he died. On post-mortem examination there was found pus in the knee-joint, and abscesses in the liver and lungs; and in the head of the tibia there was an oblique fracture which presented no features of repair.

M.—COMPOUND FRACTURES OF THE SKULL, WITH DEPRESSION AND WITHOUT COMPRESSION—RECOVERY.

Case 1.—E. N., aged sixteen, mill-worker, was admitted into Ward 24, on January 28, with a wound over the left parietal prominence, about three inches long, which had been inflicted by a revolving wheel in the works. On carefully sponging out the wound, there was a fracture observed running backwards nearly the whole length of the wound, and one edge of the fracture, to the extent of about an inch, was visibly depressed. The bone, too, was denuded of periosteum to some extent on both sides of the line of fracture. Although it was stated that when the girl was removed from under the wheel she was quite conscious, yet on admission she was somewhat confused, and her pulse was quick, though her pupils were regular and her breathing natural. Her head was shaved, and the wound carefully washed out with 1 to 20 solution, and the edges were thereafter brought together by wire sutures, and the ordinary gauze dressing applied. In addition, directions were given to have the patient kept perfectly quiet, and the head as cool as the dressings would permit. On the following morning an observation was made to the effect that she had slept well during the night, and had taken some breakfast; that her pulse was quiet, and that all confusion in head had disappeared. The further history of the case may be shortly stated thus:—On March 12 she was dismissed well, with the wound perfectly cicatrised. Although treated with the utmost care, there was some suppuration in the wound, but there was no symptom whatever of cerebral mischief.

Case 2.—E. S., aged twelve, admitted February 20 into Ward 24. Her history may be shortly stated as follows:—While at work in the mill her clothes were caught by the shaft of a revol-

ing machine, and it was reported that she was carried round four times, her head being dashed with some considerable force against the wall. Immediately after the accident she was unconscious, although she was quite sensible on admission. On examination there was found to be a ragged wound, irregular in shape, over the right parietal prominence, and at the bottom of the wound the bone was felt and seen to be fractured and depressed. There were no loose fragments, although the fracture was seen to be somewhat comminuted. The entire scalp all round was swollen and puffy, and the eyelids of both eyes were swollen and black. There was also a severe bruise of left knee and thigh. The head was shaved, and cold applied, in addition to washing out the wound with 1 to 20 solution, and applying the gauze. In this case, as in the former one, no bad symptoms appeared. The wound in the scalp healed very readily, and without much discharge, but, after cicatrisation was complete, several abscesses formed in different parts of the scalp, and these were opened and treated antiseptically. They took a long time, however, to heal up, and she was dismissed well on May 4.

Case 3.—J. W., aged ten years, was admitted on May 30. While amusing himself on the parapet of a bridge, he fell among stones from a height of about fourteen feet. When taken up he was unconscious, but he soon rallied, and when seen, a few hours after admission, he was found to be quite sensible. On examination, there were observed, over the left parietal eminence, two ragged and irregular-shaped wounds, each about two inches long. On removing from them a quantity of dirt and sand, a portion of bone, which a crown-piece would cover, was found to be quite stripped of periosteum, and the bone was seen to be fractured, the fracture being irregular in shape and about three inches and a half long. In the centre of the portion of bone denuded of periosteum, there was a small piece the size of a shilling which was depressed to a slight extent on one side. The head having been shaved, and the wound cleansed out with warm water, and thereafter with 1 to 20 solution, the edges were brought into apposition by sutures, and the usual gauze dressings applied. The result of the treatment may be stated in one sentence. He

was dismissed on June 24, no bad symptom whatever having intervened, and during the healing process there was only a slight discharge of pus.

Case 4.—J. G., aged thirty-nine, admitted on June 24, with a scalp wound three inches long, which extended backwards from the right frontal eminence. At the bottom of the wound the bone was seen, and felt to be fractured to the extent of about two inches, but there was little displacement or depression. Two ribs were fractured on the left side of chest, and there was general bruising of the lower limbs. These injuries had been caused by falling off a scaffold while at work. The head was shaved, and the wound washed and thoroughly cleansed by warm water and 1 to 20 solution, and the edges of the wound were thereafter brought together by wire sutures. On the twelfth day he was suffering from a hacking cough and pain in left side of chest corresponding with broken ribs; and on July 25 he was dismissed at his own request, the wound in the scalp having cicatrised without the slightest discharge of pus.

These cases are specially interesting, in so far as they illustrate the value of the antiseptic as well as the non-interference plan of treatment. In depressed fracture of the skull, accompanied by a wound in the scalp leading down to the fractured bone, the danger to the patient and risk to life are considerable, not only on account of the violence to which the parts may have been subjected, but of the inflammatory action which may ensue, and which may extend to the dura mater and brain, and thus prove fatal.

Sir A. Cooper very early pointed out the great difference that exists as to the danger of inflammation and suppuration of the membranes of the brain between those cases in which the fracture and depression are complicated with a wound in the scalp, and those in which the soft parts are uninjured—such mischief being more liable to occur in cases of the first kind than in those of the second; and on these grounds he recommends that where this complication exists we should not hesitate to use the trephine or the elevator to raise the depressed bone. Sir B. Brodie, referring to this opinion of Sir A. Cooper, had some doubts of its accuracy, but when he came to compare the cases in his own practice in

which no suppuration ensued with those in which it had, he found a corroboration of Sir A. Cooper's views; and, he adds, the surgeon can follow no higher rule than this. If the depressed bone be exposed in consequence of a wound in the scalp, without any symptoms or with only trifling symptoms arising from it, let him apply the trephine and elevate the depressed bone. Coming down to our own times, we find the same views expressed by Professors Spence and Erichsen.

Mr. Prescott Hewett puts the matter thus: Supposing there be a wound leading down to the bone in a depressed fracture, without symptoms, what is to be done? Are we to operate or not? The rule is that we are to operate, and at once. Compound fractures with depression most frequently lead to intracranial suppuration, and we are to operate to prevent the impending mischief. In the cases recorded above, a different practice was pursued—namely, that of non-interference,—and for the following reasons:—(a) With one exception, the patients were young, not adults; (b) although the bone was somewhat depressed, there were no special comminution, no splinters, and no evidence that the dura mater was already injured; (c) under careful antiseptic treatment it was expected that union of the divided scalp would readily take place, probably without much, if any, suppuration; and that the compound fracture would be soon converted into a simple one. The results of the treatment speak for themselves.

N.—SANGUINEOUS CYST IN THE NECK—REMOVAL— RECOVERY.

W. C., aged eighteen, labourer, was admitted into Ward 15, on February 16, having a circumscribed swelling situated over and to the right of the upper part of the sternum, and extending over the right clavicle to the lower part of the neck. Its size might be compared to that of a closed fist. Its surface was slightly lobulated, and the skin over it was freely movable. Fluctuation could be distinctly felt in some parts, and especially over its inner aspect. Its margin was well defined, but no ring

of induration could be felt at its base. It was painful on pressure. From the statement of the patient's mother, it appears that a small elevated lump had been there since childhood. It had, however, remained about the size of a walnut until about three months before admission, when, after some violent exertion on the part of the patient, it rapidly increased in size until it attained the above dimensions. From the lobulated appearance of the swelling, and its mobility, it was supposed that it might be a fatty tumour. It was pierced, however, with a medium-sized needle of the aspirator, and about two ounces of thin, dark-coloured blood were withdrawn, which soon coagulated. The cyst was completely emptied, and the swelling almost entirely disappeared, except a small knot or lump at the top of the sternum. In the course of two weeks it refilled, and became larger than before. On March 10 the patient was placed under chloroform, and the cyst was carefully dissected out entire. In doing this it was found closely adherent to the upper part of the sternum and the sternal end of the clavicle, as well as to the inner border of the sterno-mastoid muscle, under which it dipped. The wound which was left had its edges readily brought together, and was dressed under the spray. On April 2 the patient was dismissed well, the edges having united by first intention. On opening the cyst it was found to contain a quantity of dark fluid blood. The cyst-wall was very thick, and its interior presented a fasciculated structure which made it resemble very closely the right auricle of the heart.

Mr. Paget describes a cyst of a similar character, in the removal of which from the angle of the scapula of a lad fifteen years old he assisted. The probability is that this case was an instance of the production of a sanguineous cyst by transformation from a *nævus*, and not simply a serous cyst into which bleeding had taken place. When bleeding does take place into a cyst originally serous, if the quantity of blood is considerable, it often coagulates, as we find it in an *hæmatocele*; while, as was early pointed out by Mr. Paget, in a cyst originally sanguineous the fluid does not coagulate, but remains fluid till it is withdrawn.

O.—ARTIFICIAL OCCLUSION OF THE VAGINA FOR THE CURE
OF PROLAPSUS UTERI.

Margaret F., aged forty-eight years, was admitted February 20, 1875, suffering from prolapsus uteri of fifteen years' standing, and attended with the usual symptoms—viz., a sense of fulness in the pelvis, pain in the back, with some irritation of the bladder and rectum. The uterus was resting on the upper floor of the perineum, and protruding somewhat through the vulvæ. It could be easily replaced on the patient assuming a recumbent position. Various kinds of pessaries had been employed, but the patient was unable to wear any for a length of time. Other means of support had also been had recourse to, but without avail. An operation was therefore proposed, to relieve the patient of the discomfort with which such a malady is necessarily attended. Its object was to narrow the vaginal orifice by uniting the opposite portions of its walls, so as to bring forward the perineum, as it were, to act as a natural cushion to the prolapsed parts. A strip of mucous membrane an inch and a half wide was dissected off from half an inch below the meatus on one side to a corresponding point on the other. The two raw surfaces were now brought into close apposition, and kept there by means of quilled sutures. The catheter was passed frequently, and the bowels were kept confined by the administration of opium. The parts speedily united, and the patient was dismissed well on April 30, 1875.