

Dec.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Report of Clinical Cases Treated during the Session 1860–61, in the Surgical Wards of the Royal Infirmary, under the care of JAMES SPENCE, Esq., F.R.C.S.E., Lecturer on Clinical Surgery.*

I HAVE drawn up the present Clinical Report upon the same plan as that adopted last year. The cases are arranged in the following groups:—Injuries of the Head; Tracheotomy; Amputations; Excision of Joints; Hernia; Diseases of Genito-Urinary organs; Tumours; Fractures; and miscellaneous.

The number of patients who have been under treatment between the 1st September 1860 and the 1st September 1861 has been considerably upwards of 500, besides a number of cases treated for fracture, etc., at their own homes.

PART FIRST.

SECTION FIRST.—INJURIES OF HEAD.

I.

1. David Williamson, æt. 60, fell from a locomotive thrashing-machine, the wheel of which passed over his head. On admission, twenty-four hours after the accident, the scalp and pericranium were found to be detached from nearly the whole of left side of head, and the bone was extensively fissured. Pulse 74, and of good strength. Head was shaved, poultices applied over the whole of left side, and an enema administered. Slight head symptoms, which yielded to leeches behind the ears and an occasional blister. Two large sequestra separated seven weeks after admission; the wound then rapidly healed, and the patient left cured.

2. Arthur M'Kenzie fell from a ladder whilst at work, and alighted on his head. He was taken up insensible, and immediately brought to the hospital. He was in a state of complete collapse—face pale, extremities cold, pulse scarcely perceptible. A large fluctuating tumour was observed over the left parietal bone, and a

sharp raised margin felt at some parts of the circumference of the tumour. Head was shaved, heat applied to the surface of the body, and a little brandy administered. Towards evening the pulse rose to 100, and was stronger; breathing, long, loud, but not stertorous; pupils dilated, and insensible to light; patient once or twice spoke, and complained of pain. Six leeches were applied behind the ears, and cold to the head. Under the repeated application of leeches, and the use of free purgation, patient rapidly improved. Ten days after admission, as the pulse again rose, a seton was introduced at nape of neck. The tumour now began to disappear rapidly, and an evaporating lotion was applied. Severity of head symptoms soon abated. At the end of four weeks the depression could scarcely be detected, and at the end of two months the patient was dismissed cured.

II. Compound Fracture of Skull.

1. Henry Ausdon, aet. 14, was kicked by a horse on the forehead, and was attended by a medical man in the country, who removed several spiculae of bone, and sent him in to the hospital. On admission, there was found to be a crescentic wound about two inches long by half an inch wide, and the brain substance was exposed. No spiculae could be discovered on introducing the finger. The patient had remained unconscious since the accident. Body cold, and pulse scarcely perceptible. Head was shaved, cold applied, an enema administered, and tepid water dressings applied to the wound. On the following day patient answered questions if addressed in a loud tone of voice; pulse 62, irregular; urine passed involuntarily; four leeches applied behind the ears, which seemed to relieve him somewhat, as he answered questions more readily. Two days afterwards, as the symptoms became much more urgent, the wound was opened up, and a piece of bone, wedged between the membranes and skull, extracted; other smaller pieces were removed, and a depressed portion elevated. Head symptoms still severe, and the urine continued to come away involuntarily. On the fourth day the brain substance protruded; complete insensibility continued, the pulse gradually became weaker, and he died on the sixth day.

2. Thomas Porter, aet. 22, was kicked by a horse on the head, and was immediately brought to the hospital, when there was found to be a scalp wound about half an inch in front of the posterior superior angle of the left parietal bone, three quarters of an inch to the left of the longitudinal sinus. On introduction of the finger, a considerable depression of bone was detected, a portion being driven in and impacted. His pulse was of a good strength, and up to that time he had suffered from no head symptoms. He was put under the influence of chloroform, and the operation for trephining resorted to. Several impacted portions of bone were removed; the dura mater was seemingly intact, except at one point. There was considerable venous haemorrhage, which, however, soon ceased. One

or two silver sutures introduced to keep flaps of skin in contact, the head shaved, and cold applied. On the following day his bowels were fully opened by means of jalap and calomel, and patient was apparently going on favourably, till the evening of the fifth day, when his pulse rose from 85 to 140, and he began to complain of considerable pain in the head. Six leeches were applied behind the ears, and a saline aperient administered. Following day, feverish symptoms still continuing, a blister was applied to nape of neck. Pupils slightly dilated, but readily contract on application of light. On the seventh day there was a distinct rigor; wound looking healthy. Complained of complete loss of power of the right side on the ninth day. Head symptoms more intense; ordered small doses of calomel: portion of dura mater now began to look sloughy; patient became rapidly worse; pulse ranging from 130 to 140; answered questions incoherently; was very violent at times; breathing stertorous; and died comatose on the thirteenth day.

Post-mortem appearance.—Dura mater sloughy at parts; pus effused over the surface of the brain, and an abscess at base of brain on left side.

III. *Fracture of Base of Skull.*

1. William D——I, while in a state of intoxication, jumped over a wall into a moat, a distance of thirty feet. He was taken up in a state of insensibility, and was immediately brought to the hospital. On admission he was quite conscious, though labouring under the effects of drink. Pulse was of good strength, body cold, and face pale. There was considerable haemorrhage from mouth, nose, and left ear; no cerebro-spinal fluid could be detected. His fore-arm was also fractured. Warmth was applied to surface of body, head shaved, and an enema administered. No head symptoms supervened, and by the desire of his friends he left the hospital on the ninth day.

2. Helen Morrison fell down a flight of stairs, and being taken up in a state of insensibility, was brought to the hospital by the police. On admission she was still unconscious, blood streaming from nose, mouth, and both ears, apparently unmixed with cerebro-spinal fluid, and there was a contused scalp-wound at the vertex. Her head was at once shaved, and cold applied, and an injection ordered to be administered. On the following day, the insensibility still remaining, leeches were applied behind the ears, and on the third day she answered questions tolerably readily. Intense headache, strabismus, dilated and sluggish pupils, and other head symptoms, continued for a length of time; but, after the use of leeches, blisters, and a seton at nape of neck, patient at the end of three months was dismissed cured.

Remarks on the Cases recorded under Injuries of the Head.—I have selected the foregoing cases as examples of the more severe injuries

of the head, and as illustrating some points in the history and treatment of the different forms of such injuries. The case of Williamson was one of the most severe scalp-wounds I have almost ever witnessed; and when, together with the extensive denudation of the cranium, the lacerated and contused state of the scalp, the fissured state of the cranial bones, and the nature and amount of the force inflicting the injury, we consider the advanced age of the patient, the prognosis seemed very hopeless. After the first few days, indeed, the head symptoms were never severe; but what I dreaded was the risk attendant on the necrosis of the denuded and injured bones of the cranium, in case of extensive internal suppuration between the bone and dura mater. Fortunately these fears were not realized. Considerable sloughing of the scalp, and extensive exfoliations did follow; but, except at one or two points, the whole thickness of the bone did not die, and hence the principal risk was avoided; and although the progress of the case was necessarily tedious, the patient suffered from few dangerous symptoms, and ultimately made an excellent recovery.

The case of Arthur M'Kenzie was one of simple fracture of the cranium, with depression; but the dangerous symptoms were evidently those of severe concussion, not compression. The depression of the cranium was pretty extensive as to surface, but not in depth; and the state of the pulse, pupils, and breathing, as well as the subsequent progress of the case, showed that the symptoms were not due to the depression of the bone. I think it well to notice this, as there is often a tendency, when such injury exists with symptoms of unconsciousness, to regard the fracture as the cause, and to resort to operative measures to remove the depression. This case, with many similar which I have seen, shows the necessity for carefully examining the general symptoms; and if they be those of concussion, of refraining from operative interference with the depressed bone, and resorting to other treatment. Indeed, even when the symptoms are those of compression, when the fracture is simple, I consider it the wisest plan not to interfere, unless the symptoms do not yield to depletion, purging, and other general remedies. For in a great number of cases such general treatment is successful.

The two cases of compound fracture of the skull stand out in strong contrast to the last case, as regards the propriety, or rather the necessity, for operative interference. In cases of compound fractures, especially in such as those detailed, in which the injury has been inflicted by great and direct force, and where, through the wounded scalp, we can see or feel that the bone is depressed and comminuted, there can in my opinion be no possible reason for delaying the removal of the shattered fragments, and elevating the larger depressed portions. By operating here we superadd no danger: we do not convert a simple into a compound fracture, whilst we remove the detached spicular fragments, which, if they did not directly puncture the membranes, must ultimately, as foreign

or dead portions, infallibly lead to inflammation and suppuration within the cranium. In such cases, to wait for urgent symptoms as our warrant to operate, is to wait till the operation is of little use. It was this conviction, founded on former experience, that led me at once to operate in the case of the man Porter. Unfortunately, one sharp-pointed portion of the depressed bone had been driven into the dura mater by the force of the kick; and this, I doubt not, led to the meningitis which proved fatal; but the numerous detached fragments removed showed the absolute necessity for interference. The venous bleeding referred to in the report of the case followed the removal of a shelving portion of the inner table which had been driven up towards the saggital suture; and I think there could be little doubt that the fragment must have punctured the longitudinal sinus, so that its withdrawal was followed by smart venous haemorrhage, which, however, was soon stopped by very slight pressure. In the case of the boy, I did not see the patient till the day after the accident, when I was informed that several fragments of bone had been extracted by the medical man who first saw him; and that, on his admission into hospital, the wound had been carefully examined with the finger, and that no loose portions could be felt, but that the membranes and brain had been torn by the bone at the time of the accident. As the flap of skin had been replaced, and was beginning to adhere, I did not, under these circumstances, think it proper to make any further examination; though, from the position of the injury—being close to the frontal sinus—I did fear lest any fragments had been left. Accordingly, when the symptoms of irritation came on, I at once reopened and examined the wound, and, finding the margin somewhat depressed, I elevated it, and removed a small portion with bone-pliers. When the wound in the bone was thus enlarged, I felt what at first seemed a very thick margin of the bone, but, on further examination, I found it was a large portion of the inner table of the frontal sinus, fairly driven up behind the frontal bone, and impacted between it and the dura mater. With some little trouble and care I managed to loosen and extract it, and then reached and removed several other small loose portions. Whilst these circumstances show the necessity for very full and careful examination of the wound in such cases, and whilst there can be no doubt the sources of irritation would have been diminished by the earlier removal of the impacted bone, yet in this case I fear it would hardly have averted the fatal issue, as that resulted from hernia cerebri proceeding from the point where the brain had been wounded at the moment of the accident. In regard to the two cases of fracture of base of cranium, they do not call for any special remark. I have merely selected them on account of their marked character and severity, and as corroborating what I have drawn attention to in former Reports, how much we may trust to nature, assisted by proper general treatment, even in these severe, often at first sight apparently hopeless, injuries.

SECTION SECOND.—TRACHEOTOMY.

1. Alexander Allen, æt. 4½. Croup. Patient was sent in from Queensferry; operated on immediately; died second day.

2. Croup, æt. 6. Operated on at home; brought to the hospital for treatment; died second day.

3. Robert Wright. Hypertrophy of tongue, resulting from syphilis. Operation. Cured.

4. Robert Dickson. Malignant tumour of pharynx. Died eight days after operation.

Remarks on the Cases of Tracheotomy.—Of the four cases in which tracheotomy was performed, two were cases of croup, and in both these cases the result was unsuccessful. In both cases the disease was far advanced. In one the child was brought several miles from the country to the hospital, and I was sent for immediately; but so urgent were the paroxysms of suffocation that the resident surgeon, Dr Broster, had to operate before my arrival. In the other case I operated at the house where the child resided, owing to the urgency of the symptoms, and then caused it to be conveyed to the hospital, that it might have the benefit of careful after-treatment. In both cases the relief to the suffocation was immediate and complete, so that although ultimately the little patients sank under the disease, yet even as a palliative measure the operation was beneficial, to say nothing of its being the only chance for life; and lest these two consecutive fatal cases may give an unfavourable view of the operation in croup, I may state that from successful cases in private practice my general average of success remains little altered. Out of 15 cases I have operated on I have saved 7. A success which surely warrants our giving such cases the benefit of this only chance.

In the remaining cases the operation was performed to relieve impending suffocation from other causes. In one the patient had long suffered from ulceration and hypertrophy of the back part of tongue and the pillars of the fauces, apparently arising from syphilitic causes, but so obstinate and painful as led to a suspicion of its being cancroid. Ultimately the thickening increased, the sleep was disturbed, and the breathing noisy. I told the man that he ought to submit to tracheotomy, as otherwise he might suffocate suddenly. As he had never actually had a severe paroxysm he hesitated, but fortunately consented to remain in the hospital till he decided whether he would submit. That very same night he was seized with a paroxysm so severe that he had merely time to reach the resident surgeon's room-door when he fell down suffocated. Dr Broster immediately opened the trachea and he recovered, and subsequently the ulceration and the induration, formerly so obstinate, gradually yielded to the use of mercurials and iodide of potass, which had previously produced no benefit. This case illustrates

well the advantage of tracheotomy in such cases, both as guarding against the sudden suffocation which may occur, and also as removing a source of local irritation, and so facilitating the cure of the ulcer, especially when ulceration exists in or at the upper part of the larynx.

In the case of Dickson I performed the operation to relieve the difficulty in breathing caused by a malignant growth,—a medullary tumour occupying the position of the tonsils and soft palate. The patient was suffering from malignant cachexy at the time; but his breathing had become so difficult that he could get no rest at night, and it was evident that the blood was not properly aerated. The operation gave him great and immediate relief, and procured him quiet rest and sleep; but he gradually sank exhausted by the progress of the malignant disease. In this case the operation was avowedly resorted to merely as a palliative, and the relief it afforded the poor man, and the satisfaction he expressed, more than compensated for any pain connected with it.

SECTION THIRD.—AMPUTATIONS.

PRIMARY AMPUTATIONS.

Thigh.

1. John Reilly. Compound fracture of tibia and fibula, communicating with knee-joint, the result of a railway carriage passing over his leg. Amputated at lower third of femur. Long anterior flap. Pyæmia set in, and patient died at the end of the fourth week.

2. Alexander R—, whilst in a state of intoxication, fell under the wheels of a railway carriage, and sustained a compound comminuted fracture of both legs—in the one communicating with the knee-joint, whilst the other limb was almost completely cut off below the knee. Amputation of both limbs performed at lower third of femur. Patient never rallied, and died on the third day.

3. Jessie Brown was violently thrown down by machinery, and sustained a very severe compound fracture of thigh, together with laceration of perineum. The limb was amputated very high up; but patient never rallied, and died on the following day.

4. P. L— fell from a height of thirty-five feet, and was brought to hospital suffering from compound fracture of femur, communicating with knee-joint, and fracture of both bones of leg. Amputation at middle of thigh. Cured.

Leg.

1. William Pollock. Compound fracture of leg, resulting from a railway accident. Long posterior flap. Recovered.

2. Daniel M'Daniel was admitted twenty-eight hours after re-

¹ Post-mortem examination disclosed fracture of pelvis.

ceipt of injury, with a compound fracture of tibia, communicating with ankle-joint. Leg removed below the knee by flaps of skin. On the sixth day patient had a rigor. Stump began to look sloughy, and he died on the 12th.

3. Jessie Hay, æt. 2. Compound fracture of leg, into ankle-joint, with great laceration of soft parts. Amputated below the knee. Recovered.

Arm.

David Baxter, æt. 6. Simple fracture of humerus. Gangrene supervened. Amputated below the tuberosities. Recovered. On examining the limb the brachial artery found torn across.

Fore-arm.

Archibald Thompson. Compound fracture of fore-arm, communicating with wrist-joint. Amputated two inches below the elbow. Flaps of skin. Cured.

SECONDARY AMPUTATIONS.

Thigh.

1. Charles Ross. Ulceration of cartilages. Disease of the joint had existed five years. Long anterior flap. Cured.
2. Daniel M'Kenzie. Strumous disease of knee-joint of four years' duration, ending in ulceration of cartilages. Long anterior flap. Cured.

3. James Barclay. Gelatinous degeneration of knee-joint, terminating in ulceration of cartilages and abscess. Amputation at lower third of thigh. Long anterior flap. Cured.

4. William Laurie. Ulceration of cartilage; resisted palliative treatment. Amputated at lower third of thigh. Long anterior flap. Cured.

Leg.

1. Isabella Stevenson. Very extensive strumous ulcer of leg of five years' duration; had resisted all palliative measures; discharge very profuse. Leg amputated below the knee. Long posterior flap. Cured.

2. Janet Christie. Gelatinous disease of tarsus, involving lower end of tibia and fibula. Amputation below the knee. Long posterior flap. Cured.

3. Henry Cuthbertson, æt. 21. Disease of the ankle-joint followed a severe scald in the foot. Syme's amputation was performed at Newcastle. The cicatrix is very light and irregular, and at the most dependent part of the base of the stump. When he walks, and the leg becomes the least warm, the pain in the stump is intolerable. The patient expresses a wish that amputation below the knee should be performed. The leg was amputated from two

to three inches below the knee. A long posterior and a short anterior flap. The patient recovered without a bad symptom.

Shoulder-Joint.

Mary Anderson. Extensive burn of arm; total destruction of integument up to shoulder. Amputation at shoulder-joint by large posterior flap. Cured.

Arm.

1. **John Sharp.** Fell on his elbow six days prior to admission; arm very erythematous and swollen. Gangrene supervened on the second day, and as every effort to save the limb seemed unavailing, it was removed by transfixion just below the tuberosities. Patient died of pyæmia on the eighth day.

2. **Peter Jack,** aet. 47. Disease of elbow. Elbow first became painful four years ago. Three years since he was treated in the Infirmary by blistering, etc., from which he received great relief; and he was able to do light work until a few weeks before admission, when a small opening formed, discharging pus. Several incisions were made from time to time, which gave vent to matter from around the joint. The arm then became very erythematous and boggy, in which condition it remained for about ten days. His general health failing, and the arm getting worse, the arm was amputated at the middle third. The stump healed almost entirely by the first intention; his general health rapidly improving, he was dismissed cured.

Ankle.

1. **James Pullard,** aet. 15. Caries of os calcis of eight years' standing. Amputation, at ankle-joint, by large internal flap. Cured.

2. **Aaron Kettener,** aet. 18. Caries of tarsus. Amputation. Cured.

3. **George Sharp,** aet. 22. Caries of tarsus. Amputation. Cured.

4. **Francis Hay,** aet. 6. Gelatinous disease of ankle. Amputation. Cured.

5. **William Hall,** aet. 6. Ankylosis of ankle-joint, resulting from compound dislocation. Complete inability to place foot to the ground. Amputation by means of large internal flap. Recovered.

Foot.

Andrew Anderson, aet. 12. Bruise of foot from heavy weight falling on it. Brought to hospital three weeks after receipt of injury. The integuments over dorsum of foot had sloughed, and the whole of the metatarsal bones were fractured. Hey's operation performed. Cured.

Remarks on Amputations.—For the sake of comparing results in their practical bearings, I would classify the amputation cases under three heads:—1st, Primary Amputations; 2d, Secondary

Amputations in Cases of Injury; 3d, Amputations for Disease. It is obviously between the two first classes that there is any practical value in the comparison as deciding whether an immediate or delayed operation in cases of injury affords the best chance of success; for, between the first and third classes, the conditions are so different, and there are so few points in common to compare, that the result of such comparison can but little affect our practice.

In regard to the amputations for injuries or their results, they amount in all to 11, of which 9 were primary amputations and 2 were secondary. The primary amputations consisted of 4 of the thigh (including 1 case where both thighs were amputated immediately), 3 of the leg, 1 of the arm, very high up, and 1 of the fore-arm. Of these, 4 cases died, viz. 3 of the thigh, and 1 of the cases amputated below the knee. The secondary amputations for injury consisted of one at the shoulder-joint, for the results of a severe burn, and one of the arm, for spreading gangrene of the hand and fore-arm, the result of a severe bruise. Of these one died from pyæmia—the case of spreading gangrene. So far as the comparison goes, it is favourable to primary amputation; but when we look at the cases, we shall at once see how many sources of fallacy there are affecting the value of such comparisons. Here, for example, all the primary cases were injuries to all the textures of the limbs, preventing all rational hope of saving them; whilst in the secondary cases, that at the shoulder was performed for the effects of burn, and in the other, which was performed for gangrene, primary amputation would not have been warranted even if seen early, for there was neither fracture nor injury of any great vessel, and the gangrene seemed to depend on the previous habits of the patient, combined with neglect of the injury for some days after it was received.

As regards the advantage of primary over secondary amputation, in all cases where there is no reasonable hope of saving a useful limb, or where the risks to life seem too great to warrant any attempt to save the limb, I think there is now very little difference of opinion amongst practical surgeons; but in these days of conservative surgery, some few looking at the admitted danger of primary amputations, such as those of the thigh, seem to think that in almost all cases we should make the attempt, or at least delay, for, say they, you may perhaps save the limb, and if not, you can always amputate later with perhaps a better chance of success. But this is assuming what is not the fact, for every surgeon who has much experience in accidents, knows, that in cases of compound fracture, where legitimate attempts have been made to save the limb, the most general cause of a fatal result is pyæmia, not exhausting discharge, or even gangrene, which are comparatively rare; and, consequently, if we delayed in more hopeless cases, we should probably never have the opportunity for the secondary operation to which they would have us trust.

As to the causes which influence the mortality of the greater primary amputations in general, I see no reason to alter the opinions I published in this Journal in 1856; but I would simply refer to the fatal cases of amputation of the thigh in this Report, as showing the nature of the accidents requiring this operation as their only chance for life.

First, we have the case of a poor girl, caught by machinery; her thigh crushed, the perineum lacerated, and then brought into the hospital from a very considerable distance, the amputation requiring to be performed through the trochanters.

Next, we have the case of the man R—, who had one leg torn off and the other crushed and mutilated by a railway truck, who had lost much blood and lain exposed, no one could exactly say how long, but at least an hour and a half, in one of the coldest nights of last winter, and both of whose thighs required to be amputated immediately. The third fatal case, that of John Reilly, was one where the amount of injury was less than in either of the former, it being a compound fracture extending into the knee-joint, caused by a railway waggon passing over the leg; this man was brought from a distance, and had lost some blood, though not, I believe, a large amount, before reaching the hospital. Although much depressed at first, he went on very favourably till the end of the third week, when symptoms of pyæmia set in rather suddenly and destroyed him. But here, as in all cases of railway accident, I suspect the general shock is much greater than it appears, and tells ultimately on the constitution. I have noticed that even the less severe compound fractures so caused not unfrequently terminate fatally by pyæmia after seeming to progress favourably for two or three weeks; and a circumstance connected with this very case seems to show how severe the shock may be without any very extensive local injury. It happened that the young man who succeeded Reilly in his post at the railway met with a similar accident about eight days afterwards, and was also sent to be under my care. On admission he was pale and collapsed; he had stimulants administered, and when I saw him, six hours after the accident, he had revived; and as I found he had suffered a compound fracture into the knee-joint, I had him removed into the operating-room for the purpose of amputating the limb; but as he was about to be lifted from the basket, I observed his face very pale, and on feeling the pulse it was become so weak, that I desired him to be left, and stimulants and heat to the surface to be applied. I waited with him for above an hour, but he still continued in the same collapsed state. I then ordered the treatment to be kept up, and left him, and on returning, two hours afterwards, I found he had just expired without ever rallying. I and all who saw him concluded he must have received some injury of the pelvis, or rupture of some internal organ, or had internal haemorrhage; but the most careful post-mortem examina-

tion of the body revealed nothing beyond the local injury and the shock to account for death. From this and other instances I would infer, as I have already said, that in cases of injury by great direct force, as by railway, or machinery, and gunshot, such a shock may be caused as may affect the powers of life immediately, as in this case, or more slowly and gradually leading to the form of pyæmia which proved fatal in Reilly.

In the successful case we have an example of a much greater amount of injury to the bones of the limb, as there was a greatly comminuted fracture of the femur, communicating with the knee-joint, and fracture of the bones of the leg, but caused by indirect violence from a fall; and though much more advanced in life, and not of strong constitution, he suffered comparatively little constitutional disturbance after the operation, whilst, had it been delayed, I have no doubt the result would have been very different. The fatal case of amputation of the leg is scarcely a fair example of primary amputation, as nearly thirty hours had elapsed since the injury before the operation was performed, the patient having been sent from a very long distance to town, conditions very different from what we have in cases of amputation performed soon after the injury. At the time this case was under my care, I operated in private on a female patient above sixty years of age, on account of compound fracture into the ankle-joint, who made an excellent recovery, but then the operation was done soon after the accident, and without requiring to remove the patient. Of the other cases, I would specially draw attention to that of the boy Baxter, where mortification supervened on a simple fracture of the humerus. The extremity was noticed to be very cold at the time of the child being brought in; but though advised to leave him in hospital, his friends refused to do so. Dr Broster accordingly applied splints, bandaged the limb very lightly, and told the friends to be sure and bring the child for me to see next day; then I found the limb quite cold and dead, necessitating amputation. On dissecting the limb, the brachial artery was found torn at the point corresponding to the fracture of the humerus. This is a very rare occurrence, but still I think it may serve as one amongst other objections to the immediate application of starch or gypsum bandages in cases of fracture; for had such been applied here, the gangrene would have spread unnoticed till too late to amputate. As an example of recovery in a very young patient, I may notice the case of Jessie Hay, not quite two years old, who required to undergo amputation of the leg for a very severe injury, the foot being crushed and almost torn off above the ankle, yet she suffered little shock from the amputation, and made an excellent and rapid recovery,—a fortunate result I hardly anticipated in so very young a child.

The cases of amputation for disease, 14 in number, present no fatal cases, and call for no special remark, with the exception of the

case of the patient Jack. His case is the only instance in which I have ever amputated the arm for disease of the elbow-joint, and I originally intended to perform excision ; but two severe attacks of erysipelas of the fore-arm and arm, attended with great constitutional disturbance and irritative fever, led me to fear that his constitution was by no means fitted for that operation ; and, therefore, taking his age and weak condition into consideration, I thought it safer to resort to amputation, so as to remove all source of irritation at once. The removal of the limb was attended with great relief, and he made a good recovery.

SECTION FOURTH.—EXCISION OF JOINTS.

Elbow.

1. David Millar, æt. 18, a youth of a highly strumous diathesis, was admitted with disease of elbow-joint. Excised. Died from pyæmia.
2. Jane Fraser, æt. 10. Synovial disease of joint. Excised. Recovered.
3. Elizabeth Swan, æt. 14. Ankylosis of elbow, following extensive necrosis of radius. Excised. Cured.
4. William Davey. Ulceration of cartilages and abscesses of joint. Excised. Cured.
5. John Combe, æt. 21. Acute cario-necrosis of joint, with formation of abscesses. Leeches, blisters, warm fomentations, etc., applied. No relief. Joint excised. Cured.
6. David Welsh, æt. 14. Synovial disease of joint, with abscess. Excised. Cured.
7. Jane Dick. Ankylosis of elbow-joint, following ulceration of cartilages. Excised. Cured.
8. Mary Gray, æt. 11. Synovial disease of elbow-joint. Excised. Cured.
9. A. Black, æt. 46, butcher. Was admitted into the surgical wards on the 21st of August last, suffering from intense pain in the elbow, which was much swollen and inflamed. The disease commenced with the appearance of erysipelas of arm seven weeks prior to the date mentioned, and he had been for some time in the medical wards. An incision having been made to evacuate matter, the finger passed readily into the elbow-joint, which was quite disorganized, and the humerus bare for some little distance above the joint. On the 29th of August, excision of the elbow was performed, and it was found necessary to remove the whole of the condyloid part of the humerus, so that the section was made just at the junction of the shaft and condyloid portion. There was but little blood lost, and, notwithstanding the unfavourable state of the patient's general health, he made an excellent recovery, with every prospect of having a useful arm.

10. Robert Hadden, at 18; of strumous constitution. Ulceration of cartilage, and articular caries of elbow-joint. Excision of joint. Cured.

Excision of Shoulder-Joint.

Sarah Uterson, at 18, of very strumous constitution, had suffered for a long time from pain in the shoulder-joint, for which the actual cautery had been applied, and various other remedies, both local and constitutional, resorted to, but only with temporary benefit. In the month of November 1860 she returned to the hospital, an abscess having formed and burst spontaneously. There was at this time a sinus opening at the upper part of the deltoid, through which the probe detected bare bone in the region of the tuberosities of the humerus. The existing sinus was enlarged downwards to the extent of three inches; the head of the bone disarticulated and sawn through about an inch below the tuberosities. The disease was found to be confined to the head and tuberosities of the humerus, the glenoid cavity being quite healthy. The patient made a good recovery, and even already possesses some power of movement of the arm from the shoulder.

Remarks on the Excisions of Joints.—The cases of excisions of joints included in this report consist of one of the shoulder and ten of the elbow, and with one exception all terminated successfully. The case which terminated fatally was that of the young lad Miller, who, although of decidedly strumous constitution, did not appear by any means so debilitated as many patients on whom I have operated. The operation was simple, unattended with any great loss of blood; but he never seemed to rally after, but was dull and listless, and pyæmia set in very soon, and proceeded rapidly to a fatal result. I have now performed this operation in more than fifty cases, and never before met with a fatal result; and I can hardly account for the occurrence in this lad's case, as there was certainly nothing to contra-indicate an operation, nor anything in the operation to lead to greater suffering or depression than usual. The other cases of resection of the elbow, as they proceeded favourably, present little room for remark. The case of the man Black had this peculiarity, that owing to the disease (carionecrosis) involving the humerus above the condyloid portion, I had to saw through the lower part of shaft, thus opening the medullary canal. This certainly adds to the immediate danger of the operation, and also risks the ultimate success of the operation as regards the usefulness of the arm. I think that when the medullary canal of the humerus is opened in resection, and its vascular texture exposed, the risks of phlebitis commencing in the veins of the medullary cavity, and leading to pyæmia, are much greater than when we saw through the condyloid portion of the bone, especially as it is generally denser than usual from the changes in its vicinity.

And as to the usefulness of the arm, when the shaft is sawn through, the end is apt to round off and atrophy; as after amputation; and hence a risk of a loose, flail-like joint. I have known this to occur in cases where the resection was made high. Very shortly after having operated on this patient, I happened to see a very flail-like arm, after resection for a compound fracture of the elbow, in the Military Hospital at Utrecht, and on examining the portion which it had been necessary to remove, I found the humerus had been sawn about the same part as in Black. I dreaded that the same would be the result, but was agreeably surprised to find on my return home, that he had made a good cure without any undue mobility. On the other hand, there is the more common error of removing too little bone; and I believe that if we leave just sufficient of the condyloid part, to save opening the medullary canal, we can hardly err in removing too much bone, and this more especially when operating in cases of ankylosis, where, from the deposition of new bone, we are very apt to be deceived as to the extent of bone which we remove, and so are liable to have recurrence of the ankylosis. As regards the after-treatment, everything depends on healing of the transverse wound, and, to facilitate that, care should be taken not to bend the fore-arm too much at first. I also purposely avoid the closing of the internal incision completely, so as to prevent blood or discharge collecting and breaking up the transverse incision.

The case of excision of the head of the humerus is of interest, as being an operation less frequently resorted to than that of the elbow; performed as a primary operation in certain forms of gunshot wounds, in which the head and tuberosities of the humerus have been shattered by musket or pistol balls, or where the ball has lodged in the head of the bone; excision of the shoulder has proved most successful, both as regards saving life and a useful limb, but as a secondary operation, either for such injuries or for disease of the joint, it has not proved so successful. This is scarcely to be wondered at when we consider the amount of constitutional irritation and local changes which precede the operation in such cases. In disease of the joint, especially from the formation of abscesses under, and alteration in, the texture of the deltoid muscle, we may rather feel surprised at the amount of muscular power regained after excision; for it is not mere atrophy of the muscle, but generally to a great extent positive degeneration of its fibres into fatty matter in some cases, in others an almost cartilaginous hardness from exudation of lymph which has become consolidated, whilst the muscular fibre seems almost to have disappeared. Yet, the case in this Report, as well as others in which a longer period has elapsed, have shown me that a very great amount of motor power is regained, and that the limb becomes nearly as useful as before. As regards the risk to life, whilst it is true that the progress of cure is more tedious than after amputation; I think that this is more than bal-

anced by the less amount of shock, and above all, by the consideration of saving a limb for which no mechanical substitute can compensate.

It will be observed that the report presents no case of excision of the knee. The reason of this is simply because that, either on account of the ages of the patients, or owing to the character and extent of the disease, none of the cases seemed adapted for it. The extremely favourable results in the cases formerly published, and which have now been tested by some years' use of the limbs operated on, are most encouraging; but I feel sure that to obtain similar results the cases require to be very carefully selected, and that to perform the operation indiscriminately in all diseases of the knee-joint, or in young patients, will tend to peril the character of the operation.

(*To be continued.*)

ARTICLE II.—*The Operation for Vesico-vaginal Fistula.* By J. MATTHEWS DUNCAN, M.D., Lecturer on Midwifery, etc. etc.

THE greatest improvement made in recent times in the treatment of the diseases of women is the introduction of a method of cure of ordinary vesico-vaginal fistulae. This loathsome affection, in proportion as it was once the opprobrium of surgery, is now a source of glory to it.

The labours of surgeons to discover a trustworthy method of cure had been incessant, and in some rare cases more or less complete success in closing the fistulæ had been attained. But so discouraging were the general results, that only a few ardent operators persevered in attempting to relieve such cases, and most surgeons regarded them as beyond the reach of their art. The operations practised were rarely successful, and occasionally proved fatal.

It is not my object at present to enter into the history of operations for vesico-vaginal fistula, and to award to the diligence or ability of operators the proper meed of praise. Most of them seem to have attained to almost as good a plan of operating as that now in use, and their numerous changes were evidently made with a view to the avoidance of numerous failures. They did not succeed in discovering the secret of failure and the secret of success.

It was reserved to Dr Marion Sims, now of New York, to make this great discovery, which will ever remain a lasting monument to his diligence and success. Without this discovery all other improvements of the operation are vain; with it, all other improvements are trivial. Like most great discoveries, it is an extremely