A CASE
OF
AMPUTATION OF THE THIGH
AT THE HIP-JOINT,

SUCCESSFULLY PERFORMED

BY JOHN ORTON, Esq., SURGEON.

Read June 13, 1826.

THOMAS SIMPKIN, the subject of the following account, is a young man about twenty-five years of age, a stocking maker, of Belton, Leicestershire.

The disease which led to the present narrative, began at Christmas 1823, with chronic inflammation of the left knee-joint, supposed to arise from a hurt received by jumping. There was great pain and tenderness of the knee, without much heat or swelling. In process of time the hamstrings became tightened, the limb could not be moved without great pain, the leg became bent, a little at first, and gradually more and more, until it was

brought to a right angle with the thigh. The effect of the flexor muscles was quite remarkable throughout the case ; for, by their constant action, the limb was not only brought into the position just mentioned, and fixed, but the leg was actually drawn up under the thigh ; the posterior part of the condyles of the os femoris being absorbed (as was seen after the amputation) and the joint dislocated ; so that the lower extremity of the femur projected at the knee considerably in front of the tibia.

While this affection of the knee was in progress, a large deep-seated abscess formed in the thigh, which, when opened, discharged ; besides purulent matter, a large quantity of a serous fluid, resembling broth, with portions of another fluid swimming upon it, which looked like oil as it flowed, but which proved on standing to be a gelatinous matter. On examining the part some time afterwards, the probe passed directly to the bone, which was bare and rough for a considerable extent. Other abscesses formed in succession in various parts of the thigh, the orifices of which remained open and discharging, until the whole thigh became, as it were, a mass of suppuration. At length the bone gave way.

Towards the latter end of April I found the thigh very much bent, about six inches above the knee, and completely carious. As, however, the

ends of the bone were still kept in imperfect apposition, probably by the periosteum, there was a complete angle formed at the fracture; yet so irritable were the parts, the slightest attempt to move the limb giving great pain, and causing a violent spasmodic action of the muscles, that all my endeavours to preserve the thigh in any thing like a straight position were completely frustrated. In this state the knee and leg were drawn up by the continued action of the flexor muscles, until the foot almost touched the buttock. By degrees the patient got lower down in bed, so that the abdomen came in contact with the upper surface of the thigh. A short time afterwards, the slight periosteal union of the carious bone giving way, the lower portion of it, with the knee, was drawn still farther upward, by which means the end of the upper portion became almost protruded through the skin.

The poor fellow had been confined to his bed by the disease, the progress and extent of which I have endeavoured to sketch, for about half-a-year; when, all hope of cure being abandoned, he consented to have the limb amputated. I therefore requested the parish to allow me a consultation, and on May 11th had the satisfaction of meeting Mr. Henry Oldknow, of Nottingham, (one of the able surgeons to the hospital of that place), Mr. Palmer of Loughborough (a clever and experienced surgeon), and my father.

On a careful and particular examination with the probe on this occasion, it was ascertained that the os femoris was diseased as far as the trochanter major, being bare and rough, with sinuses extending upwards into the soft parts covering the dorsum ilii ; and it was concluded that, as nothing short of the entire removal of the limb at the hip-joint would extirpate the whole of the diseased structure, it would afford the only means of saving him. When it was considered how exceedingly formidable that operation is ; how hazardous it had always been considered by the ablest and most experienced surgeons ; and how unsuccessful it had almost always proved ; together with the very emaciated condition my patient was reduced to, the case was thought to be almost hopeless : there appearing so little prospect of success from the operation, that no direct encouragement could be held out.

Under these circumstances, thinking it my duty to be as faithful as possible, I very candidly explained to him the hopelessness of his present state, the nature of the operation, the little hope indeed with it, but the certainty of death without it ; desiring him to weigh it over carefully and seriously in his own mind, to consult with his friends, and to let me know what he might conclude on ; distinctly stating at the same time, that however little chance of success could be anticipated from the operation, I should not hesitate

to give him that chance, whenever he, after mature deliberation, might determine to take it.

It will not be thought strange that, under the impressions made by this communication, his resolution again forsook him, and that he chose, as he said, rather to die as he was, than undergo such an operation.

Thus the case stood over for five or six weeks. He was so entirely given up by his friends, that the ordinary attempts to preserve cleanliness were abandoned for present ease and quiet : and for weeks together the parts were not dressed at all. In this state of affairs, an ulceration of the integuments on the sacrum, which heretofore, by careful management, had been kept within a small compass, increased formidably, so as to become (as will be seen by and by) a source of great trouble and mischief afterwards. Some benefit, however, for a time, seemed to result from this abandonment. The parts were allowed to assume whatever position they pleased, and although a very unseemly and misshapen limb was the consequence, the position was probably easier and better than any that could have been devised. The fact was, that the parts being scarcely stirred at all, a state of quiet was enjoyed, from which good resulted. The pain decreased, there was less irritation, the accompanying fever abated, his appetite improved, he began to look better, acquired more strength

and vigour, and became more cheerful. This improvement did not continue long. Hectic fever again recurred, his appetite failed, his bowels became very irritable and irregular, and he again sunk rapidly. I now saw that the critical moment had arrived, and again offered to operate; he consented, and June 10th was fixed for its performance.

I was very fortunate in being honoured with the presence and assistance of so many professional friends on the occasion; there being, besides Mr. Oldknow and my father, Mr. Charles Attenborough, and Mr. Jowett, of Nottingham, Mr. Palmer and his son, and assistant, Mr. Swann, Mr. Grey, and Mr. Wright, of Loughborough, Mr. Simpson, of Mount Sorrel, &c.

Having made the necessary arrangements, with Mr. Oldknow on my right hand, and Mr. Attenborough on my left, and standing on the right side of the patient, an assistant forcibly brought down the thigh, which previously was drawn up close to the abdomen, when I carefully cut down to, and passed a strong ligature round the femoral artery, about two inches below Poupert's ligament. That being done, I plunged a long double-edged catlin directly through the upper part of the thigh, in a direction downwards as the patient lay on his back, the point entering close by the neck of the os femoris, and coming out near the tuberosity of the

ischium, and, cutting downwards about two-thirds of the whole length of the thigh, keeping the knife close to the bone, I brought it out in a somewhat slanting direction ; thus forming, by one incision of the muscles on the inside of the thigh, a large fleshy flap, which was immediately grasped by Mr. C. Attenborough. Then, changing the knife for a scalpel, I laid open the joint to as great an extent as I could, and the assistants forcibly abducting the thigh, so as to thrust the head of the bone forwards, I succeeded in dividing the ligamentum rotundum without difficulty. The capsular ligament being, however, as yet, only divided on the inside, I resumed the long knife, intending to have passed it between the head of the bone and the acetabulum, and by holding the point directly downwards as when the first thrust was made, to have cut through the muscles and integuments from within outwards. But not being able to get the knife through the joint in that manner, I was obliged instantly to change my purpose, and carrying the handle of the knife downwards and outwards, cut through the integuments and muscles all round, from the acetabulum in front, directly above the trochanter major, down to the tuberosity of the ischium below. I had then only to divide the capsular ligament on the outside of the joint, together with the tendons inserted into the hollow behind the trochanter, and the limb was severed from the body. Mr. Attenborough immediately placed his other hand over the middle of

the wound, to prevent hemorrhage there, whilst Mr. Oldknow and myself began to secure the vessels with ligatures as quickly as possible, beginning with those on the outside of the joint, proceeding then to those about the acetabulum which had been compressed by Mr. Attenborough's left hand, and lastly to those of the large flap, which had been held in his right. But little blood was lost, and one-third of that came from the femoral vein. About a dozen ligatures were found necessary.

On examining the wound, there were found two large sinuses extending into the muscles covering the dorsum ilii, where matter had lodged; but they were not cut out nor was any thing done to them; nor was the cartilage, &c. about the acetabulum pared off. The vessels being secured by ligatures, and the wound simply cleansed, the large flap was brought over the wound, which it covered exceedingly well, and was secured, first by about half-a-dozen ligatures, and then by straps of adhesive plaster; after which, a double-headed roller was applied, and the poor fellow put to bed, as well as could have been expected.

A state of syncope occurred early in the operation; but one of the gentlemen who kindly took charge of him while we were engaged with the limb, gave him a little wine occasionally, as he seemed to require it, and he passed through it very fairly.

Pulse before the operation 110, immediately after, 120. Faint and cold.

Three o'clock. Pulse 126, countenance better, extremities cold, pulse feeble, with an intermission every twentieth or thirtieth stroke.

Half past five o'clock. Has had about an hour's sleep. Vomited at about five o'clock, owing, as he thought, to having taken too much wine and gruel. Pulse is now very hurried, 144, with occasional intermissions, full, but easily compressed. Perspiration has come on, with general warmth both of the body and extremities; is thirsty, and has drunk a little cold water. The stump easy; it feels warm through the bandages; particularly a spot three or four inches in diameter, where the femoral artery was tied, which is rather hot. (Bandages wetted afresh, bed clothes partially removed, window opened, &c.) He soon fell asleep and breathed pretty easily;—inspirations regular, about fifteen in the minute.

Eight o'clock. He is easy, more cheerful, quite warm, says he has been asleep several times, but was awake by twitchings of the leg, as though it were on. Is perspiring. Pulse more uniform, 133. Complains of his belly, which is full, hot, and tense. Has had no stool for two or three days.

R Opii gr. iij.

Pulv. Rad. Ipecac. gr. iss.

M. et f. Bol. stat. sumend. cum Ol. Ricini ʒvi.

Give a little cold water occasionally ; keep the stump wet.

Ten o'clock. Much the same, easy, speaks cheerfully, body rather hot, foot warm, but the toes not very warm. Give a little gruel.

June 11th, one o'clock a. m. Has slept for the most part from ten o'clock until now, waking, however, occasionally from sharp twitches. He is now very sick ; has thrown up several times ; the castor oil swimming on the top.

Three o'clock a. m. Restless, fidgetty, talkative ; countenance pale and nipt up ; eyes glassy, with a morbid vivacity of expression. Skin warm, toes scarcely warm.

R Træ. Opii ʒss. Vini ʒss.

Misce et f. Haust. statim sumend. in decocto avenæ.

Gave an aperient enema ; a few hard lumps only discharged. Pulse is hurried, irregular, and indistinct.

Seven o'clock. Pulse feeble, about 130 ; some-

what more equal and steady. Tongue very dry. Another enema now given, but it brought away scarcely any fæces. Gave Træ. Opii ʒi. more in gruel; followed by Magnes. Sulph. ʒiij. in a saline effervescing draught.

Ten o'clock a.m. About nine o'clock he vomited largely a yellowish fluid, and seemed relieved. He is now tolerably easy, both in the abdomen and stump. Yet has had no stool. Thirsty; tongue dry. Pulse about 126, with an intermission every thirtieth stroke. Gave Træ. Opii ʒss in gruel, and another enema, which, when evacuated, was accompanied by a few hard lumps.

Twelve o'clock. Seems better; more composed. Pulse 120, more distinct and regular. Heat of skin temperate and uniform; stump cool. Wetting the cloths has been discontinued since morning. Tongue not quite so dry. Directed the castor oil and glyster to be repeated. The oil was not rejected this time. The glyster was discharged without effect. Exhibe Magnes. Sulphat. ʒi. cum Haust. Salin. Efferves. sæpe, donec alvus bene responderit.

Nine o'clock in the evening. The opening medicines, although frequently repeated, have not operated.

R Hydr. Submur. gr. v. in Pil. stat. sumend.
cum Haust. sequent.

Ol. Ricini ℥ss.

Magnes. Sulph. ℥ss.

Infus. Sennæ ℥iss. M. et f. Haust.

Another glyster given. After two o'clock to-day he vomited a great deal, but has continued better since the last report. Pulse 118 only. Countenance improved. Is tolerably easy and quiet. Gave Opii gr. iij. with Ext. Colocynth. gr. x. as a night dose.

June 12, eleven o'clock, a.m. Pulse 118, soft and natural, but varying in force. Skin rather dry, but not very hot. Tongue clean, quite dry in the middle, but moist along the edges. Rather thirsty. He slept several hours during the night. Has had several stools since last evening. Abdomen not so full nor so tense,—but still it is both full and tender to the touch. He complains of no pain about the stump, only of the spasms having been troublesome. He is rather talkative this morning. The opiate pill (gr. ii.) given with a saline aperient draught. An enema brought away a large quantity of feculent matter. I removed the outer dressings, and cleansed away a little bloody discharge. Ordered the cloths to be kept wet again.

June 13th, ten o'clock a.m. He has had a good night. Slept as much as six hours. Passed a yellowish loose stool this morning. Pulse 110. Tongue dry, but clean. Skin temperate. Stump easy. The spasms have not been so frequent. He is cheerful and somewhat humourous to-day. Opii gr. ii. et Hydr. Submur. gr. v. have been given this morning, with an aperient draught containing one drop of Croton Oil. Saline medicines continued, with the addition of Ammon. Carbon. The cloths to be kept wet.

Eight o'clock in the evening. Has been purged eight or nine times to-day: stools of a natural appearance. He is now hotter generally: the stump too hotter, particularly about the ligature on the femoral artery. Pulse 118, fuller and stronger. Tongue dry, with a smooth skin over it. Let the effervescing medicine be continued without the ammonia. The opiate pill to be repeated*.

* The first stage is over. The shock on the system was truly dreadful, combined and aggravated as it was by the diseased state of the bowels. The preceding notes give but an imperfect sketch of the treatment:—nor is it easy to give any other. Remaining with him nearly the whole time, for several days, I endeavoured to meet the exigencies of the case as well as I could. It will be seen that my attention was very early imperiously called to the state of the bowels. They were quite blown up and exceedingly tender, so that while the primary object was to parry the shock, and support the system, by opium, cordials, &c. a scarcely less important one was to relieve them as soon as possible. I was obliged to watch every opportunity which the intervals between sleeping, vomiting, &c. afforded,

June 14th, eleven o'clock a.m. Pulse 100, regular and good, tongue clean, not quite so dry. Skin more temperate. He slept most of the last night, but was awoke frequently with twitching and chilliness about the stump. Has had a good stool this morning. Belly soft and easy. The dressings were entirely removed to-day, and the stump dressed. Mr. Palmer favoured me with his presence and advice. A complete suppuration had come on, and a good union had apparently taken place, for the most part. The large flap looked well and felt well; no tension; no extra heat. There is a puckering of the skin in the groin, where the integument is in superabundance, with a hollow

and promptly and assiduously to use such measures as seemed most urgently requisite at the moment. Opium was the remedy on which I placed greatest reliance: purgatives were combined with it, and given between, whenever an opportunity was presented. The sickness, however, so very much prevented their exhibition and counteracted their operation, that I found myself obliged to depend chiefly on glysters, and therefore gave them as frequently as I could, so as not to fatigue and harass the patient too much. The immediate effects of the shock, as will be seen by the notes, passed off before the bowels were much relieved. I thought it all over in the night after the operation. He rallied however considerably during the afternoon of the 11th. Evacuations, and those rather ample, were procured on the 12th, and relief was afforded. It was not, however, until the 13th, that the bowels were fairly emptied. I did not think of the croton oil until the morning of the 13th. I felt glad when it occurred to me, and the result fully answered to the good I anticipated from it. A full dose of opium was given night and morning, besides occasional doses when sickness or exhaustion seemed to require it.

place under it. Here some matter had collected, and a good deal was also discharged from the lower part of the wound, near the tuberosity of the ischium, where the ligatures were chiefly disposed. The discharge was foetid. These two places (the groin, and the bottom of the wound) were not confined with plaster straps in dressing, that the matter might issue. He seemed rather exhausted by the dressing. The opiate and saline medicines continued as before.

June 15th, morning. Has had a pretty good night, though he was awoke sometimes from general muscular twitches, which, he said, always began about the stump. He seems rather low, though easy every where. He had a stool in the night, which looks healthy. Abdomen somewhat full to the feel, yet not painful, nor tender. Tongue clean, red, and dry, except immediately after taking liquids. Skin of about a proper heat; has been perspiring a little. Pulse varying from 96 to about 104, as he happens to be excited by moving, talking, &c. He is now very drowsy, soon falling asleep after being spoken to, and soon awoke again. I cleansed away a little matter with a sponge by opening the bandages a little, but allowed the rest to remain. Directed Magnes. Sulph. ʒiij. to be given in gruel, and Ol. Ricini ʒss. afterwards, if necessary; light nutritive food, and a little ale if he should like; also the following mixture, with the opiate pills night and morning as before. De-

coct. Cinchon. ℥xiss. Sp. Ammon. Aromat. ℥iij.
Misce et sumat coch. iij. omni 4tâ horâ.

June 16th. The stump looks pretty well: there is nothing remarkable, except that both it and the bed-sore on the sacrum have rather a pale and flaccid appearance, and seem deficient in tone. With respect to the latter I may remark, that it has been unavoidably but little attended to of late. He has been obliged to lie upon it, and it is now spreading, in a direction up the back, from pressure. We have guarded it as well as we could, by using pads to take off pressure from the parts, making the bed hollow under it, &c. The foot is rather œdematous.

June 17th. He seems weak and dejected. Pulse 100, feeble. The large flap appears shrunk, and the whole of the parts look flaccid. Some good pus is discharged: but, from the outer portion of the wound, about where the trochanter major was situated, there flows some blackish matter, as though coagulated blood had been dissolved, and was coming away in the discharge. He has not had a stool to-day. He sleeps almost constantly. The impression on my mind is, that he is sinking. Cordials directed to be given, and the bark mixture to be continued.

June 18th. He seems a little better to-day: has had a tolerably good night; is more composed and

easy. Pulse 96, weak. Two ligatures came away to-day in dressing*.

June 19th. Pulse 92, soft and good, yet feeble and with an intermission occasionally. He says

* I may here observe that I found the two-headed roller, which had at first been used, exceedingly inconvenient. In using it, it was necessary, every time the parts were dressed, either to lift him upon a table, well guarded with soft substances, with his buttocks projecting, supported by an assistant, &c.; or to place something under him in bed, so as to raise the parts sufficiently to allow me to pass the roller round: in either of which cases it was a very irksome, painful, and fatiguing job for him. I contrived therefore a many-tailed bandage, which answered exceedingly well, and the dressing was managed afterwards with comparatively little trouble or disturbance to the patient. We had only gently to turn him on the right side, so as to expose the sacrum, loosen the ends of the bandage, cleanse and dress the wounds, raise the pelvis for a few seconds, while the bandage was drawn from under and a fresh one substituted, adjust the ends again, arrange the padding used to prevent pressure on the large bed-sore on the sacrum, and then gently to return him on his back again. The bandages were made of flannel, and applied in this manner:—Two of the ends were passed over and a little above the superior ridge of the ilium (so as to fix the upper part of the bandage), and secured by a pin at each corner. Then the remaining tails were brought over singly (pinned, if they did not fall in the direction I wished, making fixed points, after the manner of Mr. Young, in his admirable method of bandaging diseased breasts, &c.), and pinned at each corner. Thus, by making the different tails of the bandage to act by themselves, more or less support could be given to any particular part, as circumstance required; and the whole could be applied with great exactness and steadiness. Fine flannel, from its softness and elasticity, and not being so liable to get in ridges under the patient, seemed to me to be much superior to linen or calico for bandages in such cases.

he feels better. All the ligatures are come away except two, the one on the femoral artery, and the other a deep-seated one, hanging out at the lower part of the wound.

The opiate pills are continued regularly. Two grains of opium every morning, and three every night. The bark mixture also is continued, and nutritive food given.

June 21st. He seems more cheerful. Has had a good night. Pulse about 100 when quiet, rather more when disturbed. Appetite somewhat improved. Tongue clean: no thirst, skin cool, foot scarcely swollen at all. Has had several stools, but not so loose, and of good appearance.

The operation-wound doing pretty well. The discharge from it is a good healthy-looking pus. There is not so much discharge from the sinuses on the ilium, nor does the cavity there seem so large. There is a large cavity in the groin, and it is a very awkward place to manage. For the space of about three inches it has not united. When the large flap, at the time of the operation, was brought over the wound, there was found to be a superabundance of skin in that place; but it was not taken off, thinking that it would contract sufficiently. The skin, however, forming the abdominal edge of the operation wound in the groin, became tucked in around Poupart's ligament, consequently

the skin forming the flap edge of the wound could not unite to it ; so that the wound along the course of Poupart's ligament remains open, one edge folded inwards, the other edge loose and puckered, with a cavity underneath, in which matter collects ; and from the depth to which the probe passes, I fancy the cavity may extend to the acetabulum.

The bed-sore on the sacrum does not seem to spread : the discharge from it however is thin and ichorous, and some sloughs on it feel as if they were attached to the bone.

June 23d. He vomited his supper and probably the opiate pills. Has been purged too in the night, and appears a good deal reduced by it. Pulse 100, feeble. Foot rather cold.

The wounds look much as usual. The discharge is however most abundant, and he complains of irritability and twitchings of the muscles forming the large flap, as well as of subsultus tendinum generally. The former is so considerable as to be painful to him.

June 24th. The purging has ceased. He is more cheerful to-day. Pulse 100, skin healthy, appetite not amiss.

June 26th. Better, looks more cheerful. Pulse

96: easy: tongue clean and moist, skin temperate.

June 27th. Has had another fit of purging. He vomited his tea last evening, together with some dark-coloured matter, and has had five or six loose stools since. He is fidgetty and unsettled. Pulse 106, skin rather hotter, tongue drier, bowels rumbling.

The wound looks much the same. The sore on the sacrum is improving, granulations are rising up. The bare and dead piece of bone appears to have been composed of a portion both of the sacrum and os coccygis. Lately it has become black, and divided into two parts. To-day there is quite a chasm in the middle, and the two portions, the one being the lower edge of the sacrum, and the other the upper edge of the os coccygis, appearing to have been pushed up from below, form two black bony ridges, with granulations shooting up around.

June 29th.—He vomited his supper as well as a dose of bark-powder in wine; and a large quantity of yellow matter this morning; had a loose stool last night, and another very copious, watry, green-coloured, and offensive this morning. Do not these circumstances account in some measure for the state in which I found him yesterday?

June 30th. This morning he was asleep when I visited him, looking quite tranquil, with a steady even pulse, 96: when awake, however, it rose to 100. The tongue is clean, but rather dry; the skin soft and temperate. I have no particular remark to make about the wounds.

July 1st.—Pulse steady, 108; tongue clean and moist; appetite not amiss. He has had two stools yesterday and one to-day, although no opening medicine had been given with the opium, of which he takes five grains daily. The discharge now uniformly collects on the dorsum ilii, the opening not being properly depending. If he had not been so exceedingly afraid of pain, I should have opened that sinus before now. The whole of these parts are very sore, yet without heat, or redness, or tension. Introducing a probe gives very great pain.

July 5th.—Better: pulse 108; appetite good: has had one copious natural stool. The wounds look pretty well. Wishing, however, very much that the matter of the sinus on the ilium might be evacuated regularly by a depending opening, yet unwilling to make a large wound, I introduced a director into the hole at which the matter had hitherto issued, situated in the operation-wound, near the superior anterior spine of the ilium, quite at the top of the sinus, as the patient lies on his right side, and pushing it against the skin where the matter collected, I

punctured down to it with a lancet, then, withdrawing the director, I inserted it at the small wound I had just made, and opened the sinus downwards, about an inch and a half with a bistoury. Although I should not have expected any very great pain from it, for the operation was done in a short time, and was but a trivial thing altogether; yet he complained very much, and seemed considerably affected by it. He looked pallid, grew cold, and awhile afterwards there was a flush on the cheeks, and an increased fulness and impetus of the pulse. I mention these matters more to shew the state of my patient at this time, than for any thing else.

The treatment has been lately *Cinchonæ Pulv.* ℞ i. about every four hours when free from fever, or an effervescing draught if feverish, and the opium night and morning as before.

I find that he yesterday walked, or rather hopped, across the room twice, supported by a person on each side, and that he performed pretty well on the whole.

July 9th.—He is restless to-day; complains of pain about the upper part of the wound, the part mentioned July 5th. Pulse from 102 to 108, rather more forcible; skin rather too hot.

All the outer portion of the operation-wound, from the superior edge of the ilium to the tuberosity

of the ischium, is more or less cicatrizing, except two places, one where the matter from the sinus on the ilium formerly issued, and the other where the ligature still remains, near the bottom. That part of the operation-wound along Poupert's ligament is closing up a little: there remains, however, a very large fissure there, the skin on the abdominal side being tucked in. It is very deep, extending apparently to the acetabulum: yet there has been of late no pain in that part; it does not discharge much, and is not very tender. I fancy I can feel a deep-seated fluctuation under the lower part of the flap, about the acetabulum; yet the part is neither tense nor painful. The parts adjoining the sinus on the dorsum ilii are decidedly the most painful and tender of the whole: he always complains when they are touched. The bed-sore on the sacrum is now well filled with granulations: they look, however, somewhat loose, and there is no cicatrization at present along its edges. Granulations have sprung up all around and between the two pieces of dead bone; they have buried the upper edge of the os coccygis; and the other black piece, the lower edge of the sacrum, feels loose, as though it were only sticking among the granulations, and had been raised up by them from the bone below.

July 13th. Cheerful, bowels regular. Pulse 108, appetite good. The wounds look well. The ligature was taken out. The back sore seems disposed to cicatrize a little.

There has been for some time back an indistinct sort of fluctuation to be felt about the acetabulum, under the flap; yet it does not feel soft, as though there was common pus underneath; but it has a firmer feel, as though there was a collection of semi-gelatinous matter.

July 16th. He looks very feeble to-day. Pulse 110. He was taken with vomiting and purging last night, had four or-five loose stools, copious, some of them of a light colour. There is a great and alarming change in the parts altogether. Matter has formed to a considerable extent, below the superior spine of the ilium. The large flap too is quite flaccid, and shrunk, and wasted, and the whole of the parts concerned in the operation, seem as it were to be dissolving away. A part of the wound, which was previously healed, has given way. The sinus on the ilium seems to have been extended. Indeed all the parts, as far as the sacrum, about the tuberosity of the ischium and anus feel loose and half dissolved, yet without inflammation.

July 17th. He looks dejected, says he feels very low: has but little appetite. Has had five or six stools to-day, of a yellowish colour and thin. He did not sleep well in the night, was sick, and vomited this morning. Pulse 104. The appearance of the wounds is somewhat more favourable to-day, and the parts seem to have acquired more tone. I was obliged to make a small opening to evacuate matter which had collected between the tuberosity

of the ischium and the lower part of the sacrum, as well as to puncture the lower edge of the upper abscess, mentioned yesterday. The sore on the sacrum is healing a little, and the piece of bone is apparently diminishing. He appeared very low after this painful dressing, the hands and foot becoming cold.

A cretaceous mixture, with astringents, has been given the last two days, besides the usual quantity of opium night and morning.

July 18th. He looks better. Pulse steady, about 100. Tongue clean and moist. Has had five stools since the last visit. The wounds look better. The suppuration at the upper abscess does not extend. A regular circumscribed cavity is now formed, and the rest of the parts are firmer and more healthy. He wished to sit up a little. We placed him in a chair. Pulse then 108.

July 21st. Pulse 104. Tongue clean and moist, appetite good. One stool only yesterday, and one to-day. It is remarkable that the opium had not apparently any astringent effect on him at all. There is a great deal of discharge from the sinus on the ilium, and rather more from the fissure in the groin. The rest of the wounds look middling well. The sore on the back looks clean, but the granulations are loose, and fungous, not firm.

July 28th. From the last report to the present nothing material has occurred. He has been gaining strength, I think, gradually. He sometimes gets up with assistance, and moves about a little, which he can do now without inconvenience. On the 24th he went to pay a visit to his wife, who lives a few doors off.

The wounds are now doing well. The abscess mentioned on the 16th is nearly filled up again, the chasm in the groin has contracted somewhat, and the small opening made near the ischium (the 17th) is almost closed up. It is evident however that there has been for some time matter under the large flap, near the acetabulum, which by pressure may be forced out at the top. Probably too some of the matter discharged at the orifice leading to the sinus on the ilium, may originate there.

July 30th. He was removed to-day from Belton to Kegworth, a distance of six miles. He bore the journey pretty well, but feeling fatigued, requested that the dressing might be postponed until the morrow.

August 1st. He is better, eats well, sleeps well, and is cheerful. Pulse regular, about 90.

August 3d. A small opening was made yesterday towards the bottom of the flap. (See July 28th.)

He complains that it pained him the whole of the day afterwards. He is fretful and irritable. Pulse 108. Bowels rather too loose. There is more discharge from all the places, and it is of a thinner kind than usual.

August 6th. The parts look pretty well. He has been able for some time back to sit up for a short time. He can now get about the house a little on crutches. He can manage tolerably well when lifted up, but he cannot raise himself from the sitting posture, so as to commence walking with the crutches, without assistance. He is very loth to exert himself at all, and we have therefore procured for him a small carriage on springs, in which he is drawn about out of doors several times a-day for exercise.

From the above report I made no regular notes of this case. The patient remained at Kegworth until August 28th, when he had become so much improved as to render his stay no longer necessary. He had a person with him to take care of and wait on him. He was drawn about in the carriage, and I directed him to be as much in the open air as he could pleasantly. He improved gradually in all respects. He gained flesh rapidly. The sore on the sacrum healed entirely. The orifice made to allow the free discharge of matter from under

the flap soon closed up, and there was but very little after the matter originally collected there had been evacuated. The parts acquired firmness and tone. The large flap, keeping pace with the rest of the muscular system, became plumper as he gained flesh in other parts. A weak solution of the sulphate of zinc was injected into the orifices through which the matter was discharged from the dorsum ilii; and to my surprise a little came out at the fissure in the groin, on the other side of the operation-wound, shewing that the union of the large flap with the parts underneath, had not even yet been quite complete in all points. He did not gain strength apparently so fast as he gained flesh.

When he left Kegworth, August 28th, he might be said to be in good health. He ate well, slept well, had no pain, bowels regular; scarcely any tenderness remained about the parts concerned in the operation. The sinuses also on the ilium seemed to be closing up; there was scarcely any discharge. The large flap forms an excellent cushion; it feels so sound and well, that he says he could bear, he thinks, a good hard kick on it.

September 10th.— (Three months after the operation.) He is now perfectly well; in very good general health, and is getting quite fat. His friends think that he would weigh heavier now than he would have done at any time for the last

several years back, when he had his leg on. He has been in the stocking-frame; finds that he can work a little, and thinks that he shall soon be able to work tolerably well.

Thus has terminated this very interesting surgical case : and my efforts and anxieties, which have been neither few nor small, have been crowned with the most complete success.

January 1825.—He remains perfectly well. I have been obliged however to bleed him twice since the last report, as well as to entice him to take medicine occasionally, to purge and to lessen his appetite. He now works regularly in the stocking-frame, and is in as good health as need be.

January 1826.—He remains well.

I beg leave to subjoin a few practical remarks :

1. This case is a good instance in proof of the correctness and importance of the position so ably laid down and maintained by Mr. Guthrie in his excellent work on Gun-shot Wounds and on Amputation : namely, that this is a practicable operation, recovery from which is not impossible ; that the chance of success is fully sufficient to warrant a surgeon in recommending it, in all those cases in which the recovery of the patient is despaired of without it; and, moreover, to render it his duty,

where no other chance appears, to offer to his patient this chance ; and not, as has often been the case, by shrinking from it, suffer him to die, without any effort being made to save him.

2. I am disposed indeed to go a step or two farther than this : for, as far as a conclusion can fairly be drawn from a single case, I think we are justified by this in concluding, that amputation at the hip-joint is not so very much more formidable, either with respect to its performance, or the prospect of recovery after it, than the ordinary operation of amputating the thigh very high up, although a vast difference is usually made between the two cases. Amputation at the hip-joint, so far as I am aware, is not much more difficult to be performed than the other ; it takes up no more time, the loss of blood is not greater, neither is it attended by any greater loss of substance of any consequence. There are, to be sure, a few inches more of bone removed in one case than in the other ; but the saving of skin and muscle is much the same in both. What then constitutes the difference ?—a difference so vast and terrible, that the one operation is constantly performed without hesitation, while the other is shrunk back from, as horrible, desperate, and almost hopeless.

3. The great dread seems to be of mischief from opening the joint in this operation ; yet no such mischief occurred in this case, nor was the

acetabulum, at any time subsequently to the operation, the seat of any particular pain, tenderness, or irritation, not so much so, I think, as the end of the bone commonly is in cases of the ordinary amputation of the thigh.

4. No care was taken in this instance to remove the cartilage and ligaments, not even the ragged portions, about the acetabulum. Yet there was no sloughing of these parts, no extensive suppurations in consequence, nor any of the evil effects of such irritation on the system. The capsular ligament was simply divided in the course of the operation, to lay open the joint, and remove the head of the bone; and in that state were the parts left, and the flap brought over them, under the idea that the cartilage, ligament, &c. would retain their vitality, and become so organized as to granulate, and eventually unite to the contiguous parts.

5. It was not thought necessary to make an external opening communicating with the acetabulum, as recommended by Mr. Guthrie, for the discharge of matter which might collect there. And I would ask whether scraping off the cartilage, paring away ligament, &c., together with the making of such an opening as above mentioned, would not have tended to produce the very evils they are intended to guard against?

6. From the ulcerated and diseased state of the integuments and muscles on the outside of the thigh, we were obliged to depend entirely on those of the inside for a covering. But although in this case, there was no choice whether to finish the operation with one or two flaps, so excellent a cushion and covering was procured by the one formed from the soft parts on the inside of the thigh, and so well did it fit and unite, yet I doubt whether there would have been any advantage in two flaps, had the case been favourable for that mode of operating.

7. I would observe, however, that when only one flap is to be made use of, it should be a very large one, for it takes a larger piece to cover the wound well, than would in general be expected; of which a person might soon convince himself by performing the operation in that manner on a dead subject, or on an animal.

8. Although securing the femoral artery by ligature previously to the operation, is of itself, as it were, an additional operation, and may be considered by some as unnecessary, I do not repent having done it. By the knife being passed down for several inches close to the bone, in order to make the large flap, the femoral artery was not divided until after the giving off the profunda: if therefore the former vessel had not been pre-

viously secured, there would probably have been more ligatures required, and there might consequently have been a greater hemorrhage; a circumstance which, independently of the embarrassment it often occasions to the operator, it behoved us, in this case, particularly to guard against, on account of the exceedingly reduced state of the patient.

9. It will be seen by the preceding notes that opium was used very largely in this case; and as I think that the recovery of the patient may, in no inconsiderable degree, be attributed to its beneficial effects, I may be allowed to say a few words on the principles by which I was guided in its exhibition. I consider it a very important medicine in many surgical cases; it was my sheet-anchor, as it were, in this; and I feel particularly obliged to my friend Mr. Oldknow for communicating to me his high opinion of its utility, from the good effects he had often witnessed from a similar use of it, by which I was induced to give it so largely, and with such entire reliance on its powers.

Our aim was, not only at the first, by liberal doses of laudanum, to sustain the patient under, and, as it were, to ward off the shock immediately resulting from the operation, but also afterwards, by continued efficient doses of opium, to raise the tone of the system during the stage of depression until a restorative process should be established.

It was to excite and keep up an artificial nervous energy in the system, and thus, by diminishing the irritability of the general habit, prevent, in some measure, the morbid effects usually resulting from local irritation.

It is remarkable that although five grains of opium were given daily for a long time, it did not seem at all to confine the bowels, or disturb the head.

10. I beg leave to hint at another particular about surgical operations, which has been strongly impressed on my mind by this case; viz. the paramount importance of strict and almost uninterrupted attention, on the part of the surgeon, to the after-treatment. This is a matter which is not generally considered of so much importance as I think it ought to be. It is not enough that an operation be well and properly performed in the first instance; nor is it enough that proper directions be given to the nurse, &c. Surely the whole of the treatment, including not only that of the part itself, but also the diet, (the withholding as well as the giving of food,) the temperature of the patient, the medical treatment, all the ordinary sources of excitement, in short every thing by which the health of the patient is affected, should be under the superintendence and management of some competent person, who, taking on himself, in some measure, the duties of sur-

geon, physician, and nurse, should vary them as occasion might require. I hesitate not to say that the recovery of the patient, after severe surgical operations, depends fully as much, and in many cases more, on the after-treatment—on the judicious regulation of these oftentimes considered trivial matters,—than on the skill and science displayed in the operation. It is of the utmost importance to anticipate, ward off, and remove as speedily as possible, dangers as they arise. And yet how little is said about it, comparatively, either in books or lectures on surgery. And how little attention is paid generally to this part of the business, by the pupils at our hospitals. Will they not flock in crowds to witness a good operation, while not one in fifty of them will trouble themselves at all about the after-treatment of the patient?