On amputation at the Hip-joint
and excision of the head of the Femur.

Joseph Fayrer
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I have selected, as material for this paper, the subjects of amputation at the hip-joint and excision of the head of the femur, as they are illustrated by some interesting cases that have come under my own observation and care. I do not however venture to suppose that beyond my own experience in a few such instances, I have anything original to communicate on these topics; but as personal observation, when faithfully recorded, is never valueless, I submit what follows, trusting that the very limited time which is at my disposal for the composition of a thesis, will excuse its imperfections. The subject of amputation at the hip-joint has been especially impressed upon my mind from having been on one occasion called upon to operate, and in another to assist at the operation. Both of these cases I shall refer to subsequently, as they
illustrate interesting points in connection
with the subject generally.
It would be exceedingly difficult, our
have I even attempted to obtain a
correct and detailed account of all the
instances in which this operation has been
performed: but easy enough to show
that it has been accomplished so fre-
quently with success, that nothing more
than the exigency of the case is required
to justify its performance.
I think it more than probable that many
of the cases in which amputation was
formerly performed would now be treated
difficultly, and that excision of the head
of the tibia and not removal of the
entire limb, would be had recourse to.
During the last 30 years the excision of
joints generally has been followed by
such marked success in cases where
amputation would formerly have been
considered inevitable, that it is ever
unreasonable to hope, especially in
traumatic cases, such as result from
ground is confined to the head and neck of the limb, for a like proportion of success in the limb that has attended it during other joints, as the shoulder for example, and relating to the alternative of amputation.

It is in the field of battle that the accidents and injuries rendering these operations necessary are most likely to occur, the injuries in civil life and disease under certain circumstances, may be no uncommon cause, to military surgeons therefore, we may look for the greatest amount of experience, this from the variety of the great portion of these injuries that come under their care, I mean not the greatest portion of success.

I am inclined to believe, as to decision of the head of the fence, that it is in accidents incident to warfare, that the operation has perhaps a better chance of success than under other circumstances, for it is only in such cases, that we can
hope to meet with the conditions ne-
cessary to ensure a chance of it; or the
lesion confined to that part of the joint
which can be removed; for in civil
practice, excepting by the nearest chance
of accident from fire arms, it is difficult
to conceive how an injury could be
inflicted so severe as to require exci-
dion of the head of the bone; yet this suffi-
ciently prone to necessitate amputation
at the joint.
In Caries of the hips, the disease generally
believe always, involves the pelvis,
also the external half of the joint
in the mischief. And this force caus-
are recorded in cases in which removal of the
head of the bone has attended with
benefit by the abstraction of a sore of
extreme limitation; yet generally I
believe it will be found to afford
little relief of permanent benefit.
While, in addition to the rule in-
herited by the operation, the disease
remains, perhaps advances more
rapidly in the pelvis and sooner or later proves fatal.

On this subject it must be said however
that the highest authorities differ. I
resort in as further opinion on the
operation in disease of the joint; but
in such accidents as I have already
alluded to—small wounds from
small muskets, rifle or pistol bullets.

On the head the scalp on the back of
the fenesse, without injuring the large
veins or nerves, causing no laceration
of the soft parts, I have no hesitation
in expressing my opinion, that in any
hope of success may be entertained;
and this the statistics of the operation
up to this time prove to small a pro-
portion of recovery as one in ten,
yet I still think further experience
will probably prove it to be the safer
treatment. Something must be done,
there is no hope for the patient
without operative interference; the
injured part must be removed.
or he will certainly die of irritation and exhaustion. In order to make their separation effectual, amputation at the joint is the only alternative. Excision, and especially in such a case, so extreme a measure is not needed. Excision of the head of the femur has as yet been but seldom tried. I have never seen it performed in a case of injury, and I have in disease many years ago by Dr. Tafsson, but do I know of any other than those that occurred during the Crimean War. But to them, as well as to the operation as performed in civil practice in disease, I shall again refer.

Amputation at the Hip-joint

I propose to offer a slight sketch of the history of this operation, and the return in which it has been held by eminent surgeons; to point out the cases in which it is required, the mode of performing it, the danger and difficulties incident
to, and consequently upon it; and finally
to contribute my own quota of experience,
with such reminiscence as may be appropriate
to the cases that have come under my own
observation.

Accepting the Caravonian section, or, that I
have lately seen, the removal of the entire
tripe from its attachment to the Stomodeum,
this is one of the most formidable operations
in Surgery; dangerous from the magnitude
and importance of the part removed; the
inestimable severity of the Viscera to the system
of mixed ventilation; and from the nature
of the circumstances, which have ensued it
necessary: It can be considered only as the
extremity of Operative Surgery in and
of particular cases, and as the sole alter-
avation of certain death; as much however
when circumstance indicate its necessity,
it must be undertaken without hesitation.

History.

Morcell, a French Surgeon, seems to have been
the first to suggest the possibility and
practicability of this Operation: he wrote an
elaborate treatise on it, discussing fully all its aspects, and pointing out the various modes of operating; the dangers and difficulties attending it; and the cases in which it might be necessary. His two pupils, Duber and Patand, also wrote on the same subject and formally proposed it to the French Academy of Surgery in the year 1739; they received a favourable report on it from LeSueur and the younger Guerin on the 26th July 1740.

Paretur, a French Surgeon, would have performed the operation in 1743 if the Surgeon would have supported him; they declined to countenance it.

In 1759 Barbier received a prize from the French Academy for the best 34 essays submitted to it on this operation. Other writers about this time published monographs on the subject; nearly all were agreed that it was practicable and advantageous in certain cases, and founded their conclusions or deductions drawn from the results of operations performed upon the dead human body.
or on living animals. Barbot found his conclusions mainly on the partial amputation of a French surgeon named La Croix, who performed the operation in 1784 at the Hotel Dieu of Orleans in the presence of Mr. Blandine, on a boy of 14 years of age. He had both lower extremities gangrenous from eating diseased eggs. Both limbs were amputated, one at the joint, the other through the thigh. The boy died on the eleventh day after the hip amputation, being the forty-seventh after that of the thigh.

Mr. Perault of St. Maurde in Touraine, quant in 1774 on a man who had gangrene of the thigh caused by the crushing of the limb against a wall by the pole of a carriage; the result was favourable, and the patient lived for some years after in robust health. In England it is said to have been first performed in 1774 by Mr. Kerr, Surgeon of the "Blue", at Northampton, on a girl of 11 years of age, for disease of the hip joint accompanied by hectic and irritative fever; she lived until the 11th day.
case is reported by Dr. Todd, surgeon at the 4th Dragoons. Mr. Pott describes the fracture and the post mortem appearances, and says that the acetabulum and pelvis were in a carious state, combined with tubercular abscess and disease of the lungs. Mr. Pott also alludes to a case performed by Mr. Henry Thompson of St Vincent’s Hospital. Probably about the same time, He describes it as “hideous! it is not impracticable,” but that he could not undertake it himself. To the results of Mr. Kerr’s case make it evident that such of immediate danger are speedily.

Mr. Pott and Mr. Callison, with others, apparently have objected strongly to this operation. But since, I think, and other distinguished surgeons, as strongly defended it.

In 1817 Mr. Pottich wrote a pamphlet on the subject in which he combats Mr. Pott’s views.

Mr. Kerr was so satisfied of its validity from his own experience in the case as to declare he never
would again have any hesitation in per-
forming it.

It was not however until the com-
mencement of the next Century, that the
operation seems to have received serious
consideration in England and Germany,
and it was in the French armies that
it received the earliest and most decided
treats.

Dr. Blandin performed it three times,
and two of the cases are said to have been
successful.

About this time Dr. Parrot, a military
surgeon, operated successfully; but I have
not been able to find particulars of the case.

In 1798, Mulerer operated successfully
on a girl 18 years of age.

Larrey was probably the next who attempted
it, and during his campaigns in Russia
and in the Rhine, he performed it. Shelling
seven times, in most of the cases, under un-
favourable circumstances. Two of his cases
are said to have recovered perfectly, and
some of the others to have died from Causes
independent of the operation, or from privation and fatigue.

Mr. McMillan is said to have had two successful cases about this time.

Mr. Bafort performed the operation in 1812 upon a child aged 7 years, who recovered notwithstanding that the cavity was diseased; the patient however died subsequently from peritonitis and peritonitis of the pelvis.

Mr. Brownlow operated on a soldier wounded at Merida in 1812, with success. The man lived for some years after in England. Mr. Guttierre also operated successfully in 1815 on a French soldier, after the Battle of Waterloo; the man was afterwards an inmate of the Pal de Grace, a regency of the Invalides. Mr. Guttierre says, "18 or 20 ways have been suggested for this operation, and twenty persons are believed to have success without success.
Dr. Emery performed the operation about this time; the patient surviving 30 days. Mr. Blicke had a case of secondary amputation, two months after the injury had been inflicted; the patient survived 8 days. Mr. Delfoch about this time had also a successful case.

In 1823 Mr. Syme operated on a lady of 19, who had suffered from necrosis of the entire limb; an unusual number of vessels had to be tied, and the operation was followed by obstructive vomiting for 36 hours, but the patient recovered. Mr. Syme has had, I believe, other cases since and certainly one successful one. The patient recovered perfectly, and died ultimately by his own hand long after his recovery from the operation. Dr. Tinton operated twice, I believe, in Edinburgh; I think Handside once; the latter successfully. Successful cases by Mr. Bennfield and Sir A. Cuthbert, in 1824, by Mr. Mann in 1826, by Dr. Scott, New York in 1824
by Sir Bryce in 1825; by Dr. Redemeyer about the same time are recorded.

In 1836 Mr. Mayo amputated the thigh of a previously amputated thigh, for the
incurable neuralgia, which was rapidly
wearing out the patient, and unanswerable
to its treatment. The result was perfectly
satisfactory: the pain disappeared, and the patient recovered. In 1844, or 46
D. Henderson operated successfully in
Edinburgh.

Thus, as Delpean says, "an operation
done by Richerand the hardly admirable
had been successful nearly 20 times in
less than ten years."

The number of unsuccessful cases I
have not been able to ascertain, nor is
there, so far as I am aware, any means
of doing so.

I would add that amongst those names
eminent in surgery, Sauer, Bandens,
Steele, Genter, Rhiner, Peliken and
Vinceine are recorded as having pursued
this operation, but I am in advance with

what amount of success.
In more recent times Langenbeck reports that seven cases of amputation at the hip-joint occurred during the Schleswig-Holstein war, from injuries incident to military service, in five of which he was the operator; only one of the seven cases only one recovered.
It was performed, as far as I can ascertain, three times during the Punjab Campaign, but all terminated fatally.
This is said by Dr. McRae the field surgeon to have been owing to the extent of the original injury and fatal shock caused to the constitution by it. All the cases were cannon-shot wounds high up in the thigh, with extensive lacerations, loss of soft parts, and comminution of the bone.
The case lived only six hours, one two hours, and the third thirty-six hours.
Stimulants and opium were rejected by vomiting, the system being under fatal collapse from which nothing could save it. Necropsy was held.
excurse to as the only chance of life "
During the last Campaign in India as far as I can get learn, amputation at the hip joint has been performed only twice, but in both cases unsuccessfully. The cases were the results of severe injuries, by sword thrust in one instance, a shell in the other.
The first case was that of a soldier aged 27 years who received a compound comminuted fracture of the thigh, the injury extending within an inch of the trochanter, with extreme laceration of soft parts. The flap operation was performed, the best flaps, that the circumstances would admit of, being made. The patient was easier for it, and his pulse improved, but the soul in 12 hours. Very little blood was lost.
The other case was that of a native 18 years of age, who received a compound comminuted fracture of the upper third of the femur, the integuments being severely lacerated but the artery uninjured. Amputation by amputator's flaps
was performed. The operation was followed by excessive vomiting, which was partially alleviated by Chloric Ether and Opium with effusing draughts. He survived 24 hours after the operation. In both these cases Chloroform was used. The original wounds were so extensive as to leave little hope of life; the amputation, however, certainly increased the chance, allayed pain, and delayed death.

Another case occurred which is nearly allied to amputation at the joint, that I just mentioned. An officer, aged 36 years, had the upper third of the thigh fractured by a musket ball; the femoral vein was also wounded. In this case the bone was comminuted as high up that amputation was performed at the joint. The operation had been commenced and the incision made, that it might be necessary to remove the bone at the joint. It is stated that the venous hemorrhage in the operation was excessive, whilst the arterial was trifling. The patient suffered greatly
from the shock of the operation. It was performed under the influence of Chloroform. Reaction never took place and he sank within six hours.

Another case of amputation at the trochanters recorded after a comminuted fracture by a Jap bullet. The patient sank from inflammation during the night after the operation. He was a sickly man when wounded and had suffered much from the climate of India, and was depressed exceedingly by the shock of the wound and the operation. Amputations of the thigh have been innumerable, but these are the only cases where the operation has been performed at the front. So far as I have been able to ascertain, during the last Burma Campaign in 1882-83 it was performed twice. The case, hereafter described, lived 29 days and died of sepsis. The other sank within a few hours after the operation. Mr. Leguenot, a French surgeon, placed in record some interesting
information on this subject. It appears that the French had thirteen cases of primary and secondary after the battle of Alma and Tschernaya. All terminated fatally. One Russian soldier who was treated by Mr. Segneshch on the 31st October 1853 at Constantiopol, died on the 1st Feb. 1856, from the effect of an accident. He fell, causing hemorrhage from the stump, which so reduced him that he sank under an attack of Pneumonia. Though fairly the lobe one of a secondary as far as the amputation was concerned, Mr. Brownie reports three of the cases. One patient lived 15 days; another 20 days; the third died of Cholera. Mr. Segneshch states that out of 144 cases collected by him he finds that there were Primary cases 30, all fatal; Early secondary 11, three cured; Later secondary 7, one cured; Total 48 - 44 ceased. A total of 4 cures out of 44 cases.
Some of the primary cases died on the table, all except two, before the tenth day. Thus, if we reckon the cases recorded by Regel, our own Cumbian ones, the Holstein and Indian ones, we find a total of 970 cases, out of which 5 only recovered; or a mortality of 92.86 per cent.

The Russians in Sebastopol had 3 cases, N. Piozoff was the Operator, all proved fatal. One died in three hours, one in two hours, another in two days. This is very alarming for military surgeons, the proportion of deaths being enormous. But it must be reflected that most of these cases occurred under unfavorable circumstances. We know how our men suffered from privations and hardships in the Crimea and in India; and it is impossible that the debilitated state of constitution in which they were when they received the wounds, added to the effect indelicacy of the injuries inflicted, might have encouraged them
more likely to succeed, than under more favorable circumstances.

Thompson says, "To form a judgment on the result of great operations performed in military practice, it is necessary that we should be acquainted with the situation and accommodation of the hospital, into which the wounded were received, the diseases of the civilians, the season of the year, the healthy or unhealthy condition of the air, the treatment of the wounded with the period, manner and circumstances in which operation had been performed and with the cause resulting in death in particular cases."

The history of most of the Crimean Campaign is still sufficiently particular in memory to obviate any difficulty in receiving our half-starved, half-furnished men as having been in an unfavorable state for bearing such operations. It must also not be forgotten that the operation of amputation at the hip joint is a terrible one, as it proves was the only
alternative of still more certain death. The records of civil practice are more encouraging, but here also the adven-
ture proposed by both surgeon and patient should receive due allowance.
Mr. Sanders quotes that the experience of civil and military practice combined up to 1846 gives in all 84 Cases, only which were 26 recoveries: 14 of the successful Cases being after accidents, 20 of the unsuccessful, after injuries. He gives two statistical tables of the results: one of the successful Cases, the other of the unsuccessful. There is mention in them but one Case mentioned by Jelfs as having been seen by Delamay at Marseilles, in which the patient had partially escaped from amputation of the hip-joint after gangrene of the limb. It is also said that a sailor who was operated on at the battle of Aboukir escaped from the effect of the operation; but this was well authenticated.
Mr. Cot himself performed a successful operation on a girl of 18, who had previously undergone amputation of the thigh for disease of the knee joint. This is the third case in which disarticulation of the limb had been performed after amputation of the thigh. Here down, and all three successful cases.

Of the successful cases mentioned by Mr. Cot, 14 were transected, 7 from disease. In 6 the nature of the cause is unknown. In 20 more from injuries. 18 " " disease. 20 " " Cause unknown.

In the Medical Times for April 1857 I read a further record of 8 cases, of which 5 were in accidents, are being primary and the other secondary, the other 31 of cases were for disease. There were three recoveries and nine deaths. One from haemorrhage in the second day. One from exhaustion on the eleventh day. One from shock, in two cases one from haemorrhage in two cases, one from shock immediately.
Two reconed, amputation performed for Malig. These
are named "... Necrosis.
The 8 cases were
2 Compound fracture
3 Malignant growth
1 Necrosis.
In the Medical Journals of 1857 April, I
find that W. Stanley treated for Malig.
Malignant growth & the case of Ovarian Malignancy.
The patient died from hemorrhage after
the operation.
A Case is also mentioned by W. Curley
for Medullary Cancer in the breast; the
patient survived the operation a month.
I believe this has been reported more
than once since in civil practice,
and I have no doubt in the present
Causes cancer in India, but as I accu-
рист in hope near ACs satisfactory
information on this head I do no
more than allude to it.
In this brief and imperfect sketch
of the History of this Operation I do not
propose to have communicated all the
Cases in which it has been performed can
be referred to as the authorities, the
have written on, and described it. My
object is simply, in giving an outline
of its history. Need that it has been
always advocated and continued by the
authorities, that its statistics
prove that it has had an account of
success to warrant its being performed.

When the exigency of the case indicates
that it is the only remaining chance of
life to the patient, that decision has
been arrived at after mature deliberation.
Chevires says that the proportion of suc-
cessful and unsuccessful cases is about
as 1 to 2½. This has reference to the death
one solely to the operation, and does not
include such as have resulted from
other extraordinary causes. I am not
in possession of a sufficiently accurate detail
of all the cases, with the results, in which
it has been performed to enable me to arrive
at any distinct conclusion on the subject
of various results, but are things evident,
that the mortality attending this operation is necessarily high, whether in military or civil practice, but greater in the former as shown by the surgical statistics of civil hospitals, compared with the records of military practice: nevertheless, as M. Roux says: "C'est toujours en balance autant les avantages et les inconvénients d'une operation quelconque qu'il faut jurer de son utile". And if the result proves that it saved life at all, that much other-wise inevitably be lost, sufficient has been said in its favor.

Cases in which Amputation at the Hip-Joint is required.

With reference to the necessity for amputation and the cases requiring it. First of all it is to be remembered, that it is never to be resorted to, but when the patient's case affords us hope otherwise of escape from certain death. Sabatier says that Barthe recommended it in cases "There a Cancer
not or other such cause has crushed
the limb or carried it off, the remainder
should be amputated at the hip joint,
it too high to admit of amputation
through the thigh. Complete amputation
extending close to the joint and which
has destroyed the greater part of the
surrounding soft tissues, renders the
operation equally necessary and easy.
It would also be required if the femoral
artery should be divided, or an aneurism
should have occurred beneath the tipment
of the femur, which did not leave hopes
that the circulation could be reestablished
in the wounded limb. The treatment
would be entirely different. Now,
Sarrey says, "amputation at the joint
must be performed when the limb is
disorganised or carried off by a cancer
that or shell so near the joint that it is
impossible to amputate below it.

2nd. When a blow from a ball of large
size has crushed the limb near the
trochanter and divided the femur.
Artery, or crushed and chondrified the obturator nerve.

And where the limb is consequence of an injury is threatened with a fracture close to the superior joint.

Then the case sup. Where a musket ball, bit of skull, or fracture has fractured the neck of the femur, or the head, and gashed through it, or lodges in the joint—such a case would not be treated by excision.

If a principal artery, in addition to the bone be wounded, the operation is still more necessary; but if the ball have entered the pelvis, the operation is useless. If it have merely wounded the acetabulum, without entering the pelvis, there is hope of success. But the case is very doubtful.

Where the capsule is opened, but the bone not injured, amputation will probably be necessary, but such case may also terminate by enchondrosis secondary amputation at the joint.
1. In cases such as have already been mentioned where the primary operation has been deferred, or neglected.

2. In cases where the disease has extended to the joint, after an attempt to save the limb, hectic supervening.

3. In cases of dangerous hidacchara, ulceration or sloughing of the soft parts, or if incurable disease of the bone supervenes after amputation of the upper part of the thigh.

Balls may open the capsule, and only a styloides be the result, but more probably abscess, disease of the bone, caries, hectic and death. If no operation he had recourse to.

Balls may also lodge in the joint, and injure parts in its vicinity, or causemy abscess in or about it, also they may induce ulceration of the articulating cartilages, and absorption of the head and neck of the femur.

Dr. Guthrie says "It may be laid down as a principle in all cases of accident; whether
from this, shell, or railway carriages, that no man should suffer amputation at the hip-joint. When the thigh bone is entire, it should never be done in cases of injury, when the bone can be sawn through immediately below the trochanter major, and sufficient flap can be preserved to close the wound thus made: an injury warranting this operation should extend to the head or neck of the bone, and it may be possible, as I have proposed, even then to avoid it by removing the broken parts. If, after a fracture, in course of treatment, the principal artery should be wounded by some accidental motion of the bone, the operation should be in general, resorted to: a ligature on the artery, likewise, would fail. When the femur is suffering from malignant disease commencing in the periosteum or its cancellous structure, I am reluctantly obliged to say, that the amoral of the whole bone at the hip-joint, after the best, perhaps the only, chance of success.
Delpau says, "A comminuted fracture of necrosis, Caries, osteo Sarcoma, Spicentosa, any incurable alteration that
aever of the femur extending to the
upper part of the shaft, Salpingea, or
in a word, any other disease that exists
close up to that cup-point, and which is of
to have a character as to need amputa-
tion, require it: provided that the cavity
cautery, and the bones of the pelvis be not
affected. Crushed wounds with injury to
the bone in the upper third of the thigh
are the most formal indications of its
necessity. Even in such cases it is requisite
that the knife should divide at a certain
distance above the evil. See no reason
why it should not be attempted. Deep
sections, and a knowledge of previous
facts, leads us to believe that, unless
Sambuc, it is not more dangerous
than amputation in the upper fifth of
the thigh. The execution is easier and
infinite quicker, the wound in
larger. One divides the same muscle,
and vessels: and there is no need of so much material to obtain adaptation of the flaps. Only let it be practiced in less desperate circumstances, and I am convinced that it will have a sufficiently large proportion of success.”

Sir A. Cooper says, “A question in the first place arises whether we should perform the disarticulation at the hip joint when it can be done through the trochanter major. I say no, unless the disease of the thigh bone extends quite up to the joint. If it is undoubtedly better to saw through the trochanter major than to cut the bone from the acetabulum. When the acetabulum is filled with pus, constitutional irritation is produced by the suppuration process. Abscess after abscess arises and the life of the patient is placed in imminent danger.”

Chelius says “to put an extention of suppuration on the thigh, through its whole thickness, and such extension of the bone and of the soft parts endure
Flap amputation below the great trochanter impossible, can alone be considered as indication for amputation at the hip joint. Caries in the hip joint can never indicate this operation because the socket is always affected."

"Mr. Syrne says: The thigh may be amputated at the hip joint; but in this case the shock inflicted on the system is so great, and the wound which remains to be healed is so extensive, that the operation ought not to be performed unless the patient's situation affords him no other chance of escape from certain and speedy death. Other authorities might be quoted to the same effect, but I think that from the above I may deduce the cause accentuating amputation at the hip joint: to be the following.

Injuries from bullet, shell, machinery, railway carriages, or musketry, rifle and pistols, causing compound comminuted fracture of the femur near or at the joint.
Combined with wound of the principal vessels and nerves, malignant growth, necrosis, and cancer of the femur, destructive erosion of the soft parts of the limb from machinery, shot, shell or shell, or any other cause of violence by which the vitality of the limb is destroyed, or the great vessels and nerves torn across, with laceration of the muscles, statements to help up as to render amputation through the thigh impossible, or any part of the whole limb extending near the pelvis and diseased, thetrue test implicating the pelvis.

It has also been considered necessary in the case of painful and obstinate neuralgia in the stump of a previously amputated thigh; but the propriety of the proceeding may certainly admit of question. In cases of injury of the head and neck of the femur, or indeed of the upper part of the pelvis complicated with wound of the femoral artery or vein, or cases of osteitis necrotica or much laceration, the test of amputation is not indicated.
decision of the injured part of the bone should be had recourse to. This I shall
again refer to; as also to the proper time for Operating.

Mode of Operating.

It would prove curious than interesting for
profitable, to enter into a description of the
various ways in which this Operation has
been performed. I shall therefore content
myself by describing the one recommended
by many of the various methods proposed by different Surgeons have adopted
their respective advantages, so it is mani-
fest that in a large proportion of cases
they would be inapplicable, as it surely
happens that the Surgeon has to be guided by
the peculiar circumstances of each case
as to the mode after which he will operate.

When the injury necessitating the Opera-
tion has been attended by much laceration of
the soft parts, the Flaps must be elevated
from what is left according to the injury
of the Surgeon and as he may be able to

In Cases of Surgeons the may have thee
still greater difficulty. Where the soft parts have remained comparatively uninjured, as in cases of discharge of the bone, or where the wound has been inflicted by a small bullet wounding the artery, as well as communicating the bone, a choice is left to the surgeon; and in such cases he has the option of selecting the method which may appear to him best adapted to the case.

In such an instance, I should, as I have done, perform the traction-shot, maybe called a modification of Beclard's incision: it is recommended by Mr. Sykes and other distinguished surgeons.

Some of the older surgeons, and among them Lancy, Delpech, and even Sir Astley Cooper, placed a ligature on the external artery before commencing the traction. This plan is not now recommended, for it is unnecessary. The artery is then compressed by an assistant against the bone, who following in the track of the knife after it has transected the vein for the anterior flap, arrests the artery and thus commends
until a ligature can be applied. The arteries in the posterior flap are the places for in a similar manner. The knife should be long, narrow, and sharpened, the flaps may be made by cutting from without inwards or the reverse. The latter is the plan recommended. Supposing the surgeon to have his choice of the mode in which he will operate, the best plan is to cut the knife midway between the anterior superior spine of the scapula and the trochanter major, letting it emerge near the arms, cutting outwards and backwards posterior to the bone, and downward, to form the posterior flap. The anterior flap is made by cutting down close to the bone to a sufficient extent to make it sufficient and large to adapt itself well to the posterior flap which is shortest. Mallet's in cutting the anterior flap, the finger of the assistant should follow the knife to guide and command the descent as soon as divided, which will happen as the knife is directed away from the bone.
the flap. The limb should now be fully abducted, the point of the knife inserted into the capsular ligament, and as the head of the bone is turned out, the round ligament should be divided. Any muscular attachments left undivided may now be separated, and the limb removed. In fractures of the neck of the femur from gunshot wounds, the advantage of being able to use the limb as a lever is lost, and the detached head of the bone must be disarticulated by the best manipulation the surgeon can adopt: it renders this part of the operation much more difficult than when the shaft of the femur has remained entire.

Of course in cases where the destruction of the integuments and soft parts precludes the possibility of adopting the above-described mode of operating, the surgeon must use his own discretion and ingenuity in selecting and devising the best flaps that the occurrence admits of.
to secure sufficient union and soft parts to close the wound perfectly, and form as good a stump as possible. The various modes of operating proposed by different surgeons are described and arranged by Chelius under the following heads: the Circular, Oral, and Flap amputations; he describes each fully and by experiment recommended. I have neither time nor space to transcribe them, nor would it serve any purpose to do so. Unless the double flap amputation I have described with such modification of it as the circumstance, peculiar to each particular case may require, the best

In no operation is the surgeon more dependent on his assistants for its successful and satisfactory termination than in this. It is essential that the general act be committed to the care of an experienced surgeon, whose presence of mind and nerve would
be as left than that of the Operator. His duty is to compress the vessels where it passes over the bone until it is divided in forming the flap, and then follow the knife to raise and compress the cut extremity until a ligature can be applied: he will truly have the pleasure, but the small branches of the anterior flap to attend to. The vessels of the posterior flap must be managed by another assistant. The proper management of the third two is of the greatest importance: and assistance to the Operator to assist in making the flaps and in disarticulating the head of the femur. Should the neck of the bone or its upper third be broken, the femur and its fragments with the severed joints and head, must be removed as they best can by grasping them with the fingers and dissecting them as best he can with the aid of the knife in dividing the ligaments.
The greatest danger of the operation is the terrible shock to the system, the loss of blood which may occur if the vessels be not skillfully handled and promptly secured. The dangers subsequent to the operation are all those peculiar to those great amputations, intensified in proportion to the size and importance of the part removed: the exposure of a large articulating surface, undue inunction and consequent exhaustion or irritative fever, secondary haemorrhage, ulceration, sepsis, or inflammation of the stump, pyaemia, phlebitis, etc. or, in the shock of the operation, may be so severe, the apparently partially recovered from, to never to be succeeded by perfect healing, and the patient may sink within immediate after, or within two or three days subsequent to the operation. Chlorosis is, I believe, the greatest service. I prevent pain and alarms to a great extent the head of the operation, it diminishes the shock.
of the injury and the amputation, and to economize the patient's vital powers; under its influence I believe the operation may be earlier performed than it could be without it, and this is a point of great importance. The great mortality that has attended amputation at the hip-joint is perhaps more due to the extent of the injury for which it has been performed than to the operation itself, which indeed so far from aggravating the patient's suffering, or increasing his danger, has usually been followed by complete cure and freedom from pain, as well as improvement in the pulse, and other signs of reaction, such as jaundice, would not have been manifested, had the patient not been so assisted. Lartey and other Surgeons have thought that were the operation done immediately attended to and in hopeless cases, a greater proportion of success...
might be anticipated. The corps, "Le pense que si un habile chirurippien
avait le courage de faire cette operation
sans les blessures que commandait
inmediatement aprs l'accident, elle
cesserait en proportion plus ou
moins, de l'articulation de l'epaule.

The opportunities offered during the
civil wars in the Crimea and India
have been frequent, but in many cases
the extent of the injury has rendered
the operation all but useless; while
the privations and other disadvantages
circumstances attending the patients'
position have been so great, that the
mortality has been exceedingly
high. Surgeons in civil practice have
been more successful, particularly
when the cases have been of a more favorable
nature and the circumstances under
which the patient underwent opera-
tion were more favorable. "Respite
for amputation.
"Cut off the limb strictly," says Lister.
"Whilst the soldier is heated and mutilated, with few exceptions since his day early amputation after sundry wounds has been recommended. The discovery of the anaesthetic properties of ether and chloroform has been much under the need of primary operations, as contrasted with secondary, yet none marked; as by it, all peeling intensifying the result by operation is avoided. Consequently, the tendency at present is to still earlier interference than formerly. There seems to be but little doubt that as a general rule amputation after an injury can hardly be performed too soon, especially in cases where the arm, forearm or leg below the knee are concerned. But it is somewhat different with the thigh; for the shock is so great, that in many probably would cases, immediate amputation would be fatal.

My own experience derived from three campaigns, the change of the
Field hospital of an army in the field, and of a large civil hospital. In practice for some years, lead me to the conclusion that in those cases where the patient is ever to recover from the shock to which he will be able within the course of a few hours, I sought almost my immediately, to undertake amputation, if it be of the arm or leg below the knee, but that the collapse following extensive, musketry practice of a thigh, and still more extensive injuries and disorganization caused by round shot, shell or mine. Chains, is not to the body received from, and that to amputate in such a case before reaction had set in would be intolerable, fatal. In many cases of injury of the thigh to plane, as to require amputation, the collapse is so complete that reaction never occurs, and the prostrated power of life fails within a few hours after the infliction of the wound, or perhaps much sooner, without an attempt at reaction. Adequate
Now became with cold perspiration, a 
shudder and almost inaudible voice, 
shockingly perceptible pulse, treachery, somnolence, with sometimes twitting of the 
convulsed muscles frequently absence 
of all pain are the signs of this state 
of fatal collapse. To accentuate in this 
condition would be useless. 
I should add that I have occasionally 
sen the same results from compounding 
frankly wounds, but that the exception 
doesn't the rule in such cases. 
Particular constitutions predisposed 
of falling after severe injuries that they 
are incapable of, and I have seen 
shattered teeth cause less alarming 
shock and physical prostration 
than a simple and compounding hand 
flush wound, but these also are exception. 
Examples, Miss P— and Mrs. 
and the time carried away completely 
at the middle of the theft by a sound 
that which had passed through the 
wall opposite to which she was standing.
In an arm she was able to undergo amputation, which I performed in the hope of saving her life, but as happened in most other of our field operations during the Siege of Lucknow, the lady under the effects of

the shot of the Artillery aged 28, a powerful young man and as healthy as could be expected under the circumstances. So it was towards the end of the Siege that the case occurred, had her thigh shattered by a 6 pounder. She remained from the moment she received the wound up to the death in a perfect state of collapse. She survived about 8 hours. This case the injury was not so extensive as the other. Yet there was no attempt at reaction.

Sir H. L — another Officer about 50 years of age, with an invincible constitution and suffering from chronic disease had the upper part of the thigh lacerated and the head of the femur comminuted by a piece of a shell. He lived 2 days.
and within an hour after receiving the wound was perfectly able to give his attention. What was going on about him, he directed the operations. He deferred up to a much time before his death, appointed his successor, and gave all the instructions that he thought would be most useful after his death. He was, notwithstanding, never in a state to submit to operation, had such been deemed advisable, which, from the extent of the injury involving fracture of the pelvis was not the case.

Joseph D—— aged about 19 years had bullet left below the knee carried away by a round shot. The underneath commutation within 3 hours after the injury, and revived several days. Death was due ultimately to privation and the results of a burned march when the Residency was evacuated. I could easily multiply illustrations but it is unnecessary.
that the proper time for amputation is when reaction has well set in, as I think that under the influence of Chloroform, a little earlier than with nitrous. The pulse, condition of the patient before amputation is recognized by a change at his face, on a touch of his skin or pulse. I have used, and have seen Chloroform used extensively used, and I believe it to be of the greatest benefit. I have repeatedly used it when I had no professional assistance and when it was administered by natives or by other equally ignorant, and have never seen any accident or evil result. I believe it to be of the greatest benefit, as for a form and keeping in Militia, as it is in Civil practice. I have been fortunate to have a good supply of it during the siege of Lucknow, enough to last throughout the entire siege, in the most serious cases, how much suffering it spared me mitigated...
Companions and Emulate. May be
imagined: it was freely used, and
highly appreciated.

The question of primary amputation
can hardly admit of doubt as to its
propriety. When the circumstances
are such as to admit of its being
had recourse to, and especially in
the head-joint; for the additional
wear and tear of the vital powers in-
local on the inflammation and
depuration of a joint of this magnitude,
during the time that precedes
a secondary amputation, with the
additional difficulty of the operation
owing to the alteration in the condition
of the structures about the joint, and
the renewal of blood always affec-
duced the patient’s chance presence.
at the task according to statistics
in the proportion of one to three.
Decision or excision of the head of the femur. Mr. C. White of Manchester is said to have been the first to perform this operation in 1769. Mr. A. White of the Westminster Hospital first performed it in the year 1821. He removed 4 inches of the femur for Martinus Cotarianus, the head of this bone lying on the common skin. The boy who had suffered for 8 years, recovered; at the end of a year he was able to walk, lived 5 years after the operation, and died of phthisis.

Mr. Hewson of Dublin performed it but without success: the disease continued in the pelvis and proved fatal.

Mr. Green records a case: the patient survived the operation three months.

Mr. Cotte also excised the head of the femur and I believe the case terminated favourably. Senning, Oppenheim and Schwartz report removing several inches of the bone with the head, after comminuted fracture, from flushed wounds. Senning's case survived 4 days, Oppenheim's case 18 days.
In 1831, Brodie also performed the operation in a case where the bone had, from disease, been displaced into the division of the neck, the case terminated fatally.

Mr. Earle in 1845 recommended it in some rare cases of disease of the joint:

In 1845, Mr. Ferguson performed a successful operation for Rhexis Cuta in a boy, the patient recovering with a tolerably useful joint; about 4 inches of the bone measuring over the head of the neck of the femur, were removed. After recovering, the limb was apparently about two inches shorter than the other.

Mr. Greene records a case in which he
Operated: the patient survived three months. Mr. Cole excised the head of the femur in his disease, the case is said to have done well. Dr. Ross also in 1850, but the result was fatal. Mr. Howe also performed the operation and gives it as his opinion that the surgeon is justified in removing the head of the bone. Dr. Sayre of New York gives a case of excision for Morbus Cotz in 1855, and a summary of the operation up to that time. Of 36 cases Dr. Sayre says 20 recovered, 10 died.

Mr. Camelichael Shownce the motion on a young woman for medullary Sarcoma, but she died the next day. Cases are reported to have been reported on by Kieve, Ogle, Schwartz and Rogers but I can ascertain nothing of this history or results.

In the Medical Times of 1857 there is a further record of 4 cases. One by Mr. Hanceide, Dining Crop hospital, one by Mr. Schloise, priming.
of late years it has been frequently performed and is strongly advocated by some, the deprecated by other authorities. Mr. Jones of Jersey and Dr. H. Smith of London have already formally of the operation from their own experience. In short since 1845 it has been frequently performed for disease of the hip joint, and it is said, with success. How long the beneficial effect lasted it would be interesting to ascertain, but I doubt very much whether the subsequent history of the patient would bear out and confirm the reality of what has been said in its favor. Ferguson, who performed the second successful operation says of it: 'I can scarcely say more on the subject than express a belief that in some
instances of disease, or prevent injury of the head or neck of the bone such a proceeding might be serviceable. If the operation were undertaken for disease of the hip joint, it would probably be necessary in most cases to enter not only portions of the City of Cavity at the same time, but also in such cases, the extent of disease in the OS comminutum could not well be ascertained before making the incision, and probably not seen then, I fear that the results of the operation would often cause disappointment. But this I have for more than ten years meditated the performance of. This operation in Proctorian libraries, I have never attempted the numerous cases of this kind which have come under my notice, met with a single instance, where the practice could have been deemed justifiable. The incurable nature of the disease after caries has been established is but too well known—In pain most injurious, the operation lacerated
proposed to save the patient from almost certain death, or the fearful and procrisious alternative of amputation at the hip-joint; and in future was the recommendations of such high authorities as Mr. Cuthbert & Sir Ainge Baldyjall, and others of almost equal note, may possibly be put to the test of experience. Subsequently, Mr. Ferguson appears to have changed or modified his opinion for he relates a case in which, following the operation desirable, he performed it. Mr. Syme says of resection of the head of the femur in hip disease, "It is evident that the extent to which the acetabulum is almost always affected in the hip disease, renders any attempt at excision of the acetabulum impossible. Care of the hip joint can never indicate disarticulation, because the articular is always affected." For the same reason excision is contra-indicated. And I believe that the Surgeons of eminence, one of the Surgeons Prinicipal with reference to excision of the head of the
true on disease of the joint.

The records of military practice up to the time of the Crimean war, so far as I have been able to ascertain, furnish only 2 cases performed by
Dr. Seabrook at the Siege of Antwerp.

It has not been done, as far as I know, in any of the Indian Campaigns, but
mentioning the present one. In the
Crimea it was performed 3 times,
out of these, only one case recovered.
Three were 2 French, and one 2nd
Dr. Roy. The first case was
successful. The second case was
a primary one.

Sir Meldrum operated on the first:
the head and neck of the femur had
been fractured by a musket ball;
the man was wounded on the 18th of
June and operated upon on the 5th of July;
he died of Cholera in a week after the
operation; the wound being at the
time he was seized with Cholera in
a healthy state.

Mr. Blandford of the Guards did
The next operation: the head and neck of the femur had been flattened by a fragment of a shell; the patient died of pneumonia at the end of the 5th week.

Dr. Cramer of the Staff, operated in the third case; injury from a bursting shell, the head and neck of the femur being fractured; the patient died of exhaustion on the 15th day; nature having made no reparative effort.

Mr. O'Leary of the 68th I. I. operated successfully on a private of that Regt. The injury was inflicted by a shell. In this case, 5 inches of the femur were removed. The patient recovered in three months, and has been seen since with the limb, too much shorter, still useful.

Dr. Hyde operated on another; the injury was inflicted by a grape shot, and the patient died in the 5th day.

Dr. Crowe of the Artillery operated on the ninth case; the injury was a fracture from a saw-thick round
The operation was secondary; the patient survives a fortnight and dies at last from exhaustion.

In understanding that the joint was so weak in these set cases, I think there can be no doubt that the operation is a good one. At all events, it is the only alternative of the patient and more dangerous one of amputation at the hip joint, or certain death.

Cases in which operation is to be performed. One of the first living authorities has said, that in disease of the hip joint, owing to the presence of the disease also in the acetabulum, operation is not to be performed. In this opinion many authors, and those that they have Operated in such cases with advantage. There may be examples of disease in the hip joint, whereafter the head of the femur has been displaced by destruction of the hip socket; or the acetabulum. In such cases, the affected parts in the vicinity destroied by ulceration or disorganized by disease, and the
is a diseased part itself almost intruding through the skin, l\'et\'s subcutaneous bastard and unincapable tissues, the removal of the head and diseased portion of the bone may be of benefit, but they are the least time; and it would probably be found that the operations receives, if the history of the patients could be traced, which indicate to treat an amount of permanency benefit as has been attributed to them. This is true that in this operation you do not seize the head of the bone in the hope of preserving a useful limb, so much as that you substitute the Lepre of those dangerous operations, in the purpose saving life; and it is especially in this sense of views, that it should be (thutl) considered by both military and civil surgeons.

Mr. Guthrie says, "Picture to yourself a man lying with a small hole in the thigh, sitting before or behind, no bleeding, no pain, nothing but inability to stand on the limb or move it, and think that
he much inevitably die in a few weeks or months, womanly continuous pain and suffering, unless his thigh be amputated at the hip joint, or be relieved by the operation which I have upon it, ought first to be performed.

It is in such cases then, where the head and neck of the femur, or even also part of the upper third of the bone is injured by gunshot wounds comminuting the bone, but not injuring the principal arteries, or large nerves, nor extensively lacerating the integuments or muscles, in cases of malignant growths, disease Caries or necrosis confined to the femur, that the operation is indicated, and in which I trust will stand the test of future experience. In such cases as I have described Shelley Thane can be no doubt as to its propriety. Mr. Macfadyen and Sir G. Ballingall have recommended it, and I think it would be approved by other authorities who do not regard favourably in its application that disease.
Mode of Operating.

As in amputation, the mode of operating will depend a good deal on the circumstances of the case. Mr. Jaffeson recommends that a semilunar incision be carried across the posterior surface of the limb, about 3 inches above the trochanter; its ends being so limited as not to interfere with the internal nerve of the foot, nor the external artery behind; and from the centre of this, a straight line of incision should be carried downwards over the trochanter, the two being of a length proportioned to the bulk and depth of the parts. The flaps thus formed are to be reflected, and the head and neck of the bone and capsular ligament thus exposed. The capsular ligament should now be cut when by elevating the limb (which is seldom practicable owing to the fractured state of the bone) the head of the femur is exposed; the round ligament being divided, the part...
to be removed is separated by cutting through the shaft of the bone with a saw. Should the injury be found at this stage of the proceedings to be so extensive as to preclude hope of success from excision, the operation can be converted into that of amputation by making an anterior flap, having completed the incisions first made into the victim.

The treatment after the operation is simple, water dressing, strict, and perfect rest for the limb, supporting it on a splint for the purpose of keeping the upper limb from protruding through the wound or rudiment on the ulna side. The dressing should be so applied that they can be changed without unclosing the splints. Sir J. Ballingall and Mrs. Guthrie recommend a very mild antiseptic of mercapt.

I have now extracted this paper to such a length that I forbear further remarks on the subject of excision and proceed.
to relate briefly a few cases of injury to the hip-joint that have occurred in my own experience.

Cases.

Case No. 1. The following case occurred during the last Burmese war, when our forces were occupying Rangoon, I was at the time in Medical Charge of the Civil and Police duties of the Station, in addition to my military medical duties in the Field hospital.

A Burman aged 30, was wounded in an affray with Dai coits. The ball had entered the upper and outer part of the left thigh, taking an oblique direction upward and inward, had shattered the femur, and apparently lodged in the muscles on the inner side of the thigh, as there was no external spurring. The wound was small and admitting the little finger, and had been inflicted by one of the slugs with which the Burmans frequently load their muskets. He was brought to the hospital where I saw him on the
morning of the 16th March 1863; the limb was shortened, and the foot treated.
Some blood was oozing from the wound, and he said that he had lost a good
deal before he was admitted. An attempt to examine the extent of injury being
productive of further pain and additional
nervous trouble, I put him under the influ-
cence of Chloroform, and then ascertained
that the femur was comminuted and
shattered in the upper third. Deeming
amputation to be necessary, I requested
Dr. Balfour and the Medical Officer
of the Staff, to examine the wound; they
concluded that the operation was necessary.
Some delay was caused by waiting
for the Consent of the friends, without
which he would not submit. He arrived
and made no objection, so having
again brought him under the influence
of Chloroform, I proceeded, with the
assistance of my brother Officer of the
field hospital, to amputate the limb
at the upper third of the thigh, by amulec-
posterior flaps. I found on completing the anterior flaps that the bone was much more seriously injured than I had imagined it being communicated and split up through the neck into the joint. I therefore completed the flaps, and separating them higher up to enable me to view the head of the bone, I removed it, and the whole limb with some difficulty. The shortness and irregularity of the fragment left attached to the head caused great difficulty in its removal, but I effected it without much loss of blood or time, though the excellent assistance I received. Having sounded out the cavity, I found the necrosed bursae left by the operation, and tied 5 arteries and the femoral vein. The latter I was obliged to cauterize. I then stitched the flaps together when all bleeding had ceased, with half a dozen sutures, and placed the patient in bed, with cold water douching applied to the stump; he had
been kept throughout the operation under the full influence of Chloroform. Though he did not lose more blood than in an ordinary amputation of the thigh, he became very low on the table and at the completion of the operation his pulse was barely perceptible; however, on being placed in bed and stimulants given, his pulse gradually rose, and when I left him after three hours it had risen to 140. On examining the limb, the tibia was found to be split in the upper third and neck, and several fragments, one of which extended through the head of the femur. The preparation was subsequently deposited with another of a similar character, taken from a man who had received very much the same kind of wound, but refused to submit to amputation and ultimately died. The specimen is in the Museum of the Medical College of Calcutta. The case proceeded favorably, with the
ception of a slight attack of Dracoda on the 20th, which readily yielded to simple treatment, until the 4th of April, when symptoms of carcinoma made their appearance. The stump had been healing rapidly, the integuments had separated, and the discharge was healthy in character. A slight quantity coming from the interior of the stump had free issue by an opening in one of the flaps, the result of the original incision. When death occurred, the stump had healed all but in one or two places where the intestines had been. There was no tenderness on pressure, and no evidence of any internal mischief. The vest was kept dilated to allow free exit to the discharge. Should any accumulate – these symptoms made their appearance on the morning of the 4th, after a very restless and troubled night, during which he had been in great alarm from a drunken man.
The patient had been bitten in during the night, and had wandered about the hospital, trembling over the beds and alarming the patients. He said that he had been in a state of constant terror throughout the night lest he should injure his stump, and that this had caused the symptoms that now presented themselves.

The tetanic symptoms at first yielded to treatment, of which Truck: Cannabis Indica. Mixture of Opium were the chief elements, with bromatines. Subcutaneous Incisa. Soothing applications. Bellaolvera. Some applications to the stump, with a determined aim to the cure of the spine. I was a little hopeful at one time that he could have done well, but he sank from altitude on the 17th April after a redoubled and more severe attack. So the last the stump looked well, and excepting the atrophy of the fistula, had almost completely healed.
The body was at once examined, as the
friends refused it immediately after
death, avoiding strong objections to
post-mortem operations.

The case is described in detail in the
1st vol. of the Indian Annuals of Medical
Science. I have, for the sake of brevity,
given only a summary of it here.

Case No. 2. An officer, between 60 and
70 years of age, received a severe wound
in the hip during one of the stockade
actions near Donnabeok, on the Nile
Maraadgy, in the last Burmese
war of 1852. The limb was much
lacerated, and the thigh bone commi-
nitted. He was sent to head quarters
as soon as possible, but did not come
under regular treatment for two or
three days after the wound had been
inflicted. Great part of that time
having been consumed in transit to
the field depot hospital.

This case terminated fatally within
A few hours after amputation at the hip-joint; but the circumstance, attend
it was as unfavorable as they had been
favorable in the previous case. The patient
age, living in India, a Con-
titution impaired by exposure to the
influences of climate, hardships,
fatigue, and anxiety during the
operations in the banks of the Nile,
whose shelter from sun and rain was
early to be obtained, and whose
freed marches, rest, and the
constant anxiety of the harassing
burden with a crafty enemy, had
more or less injured the physical
functions of all. He had moreover
undergone the additional fatigue
of his journey to the hospital.
On examination, it was ascertained
that the head, neck, and upper
part of the femur had been Communi-
ated. The muscles much lacerated, but the
principal vessels uninjured.
There was much swelling of the
and distension of the lumen, which had to be freed from the stiffened membrane applied when the wound was received, and from the accumulated dirt and discomfort of two days in a hot and damp climate. Whilst examining the
wound, the presence of a foreign body was detected among the wound and lacerated muscles. By a little manipulation, a rough fragment in ball about the size of a small marble was extracted. It was enveloped in a part of the trouser; one would wonder how it had remained without detection when the wound was first temporarily healed upon the field. But such cases have occurred before. Amputation at the hip, first being the only chance of saving life, it was performed by Dr. Beaton and myself as soon as possible. The incision were made so as to secure the best possible flaps, but the lacerated state of the W.F. parts would admit of

The vessels were managed and secured as in the former case; little blood was lost, and under the influence of Chloroform the patient felt well through the operation: he seemed easier and free from pain after it. But he never completely rallied, and gradually sank, died a few hours after.

Case 38. A man of middle age, robust frame, and healthy constitution, was admitted into the field hospital at Rangoon, in a lance-shot wound of the upper third of the right thigh. The ball had passed through, fracturing the bone into several pieces, high up through the trochanter major, but had just injured the great vessels whence he was admitted two days after the wound had been inflicted, and was suffering much pain from the laceration and swelling about the wound, but there was very little constitutional disturbance. The wound was carefully
examined, and as either amputation, or resection of the head of the bone, appeared the only chance of saving life, an operation was refused, but he at once, and subsequently, steadily refused to submit to anything the kind. All that could be done under the circumstances, was to allay pain and irritation, and to place the limb in the easiest and most favorable position. He struggled manfully for 9 weeks, discharging incredible quantities of pus, and occasionally pieces of bone from the wound, but finally sank from complete exhaustion at the end of about the eighth week.

After death, the bone was found to have been fractured in the neck, as for a considerable distance down the shaft, much comminuted and several pieces separated and lost in the turbulent discharge. Nature had made most vigorous efforts to repair the mischief and in any other part
of the body &c. wheart would have been
successful. Quantities of bone had been formed about the upper
part of the shaft and trochanters, and
the bone altogether presented a much
singular appearance; from the aced
bone thrown out about the fracture,
I feel confident that had amputation
been performed in this case, the patient
would have had very chance of doing
well; he was a favorable Becen of
a race peculiarly fitted by their
simple temperament and active mode
of life, to sustain the shock and
subsequent trials of a peacetime
operation: he was placed in most
favorable circumstances, with food
and sufficient shelter, it being
at a time when we were supplied
with all necessary comforts and ap-
filiences for the sick & wounded, and
well lodged in a comfortable building.
This was a case where the fracture
was too extensive to admit of union,
and too near the head of the bone to have admitted of amputation at the trochanter, as the practice extended through the neck. Had I treated, as I discovered the extent of the injury to the bone, I should have commenced the operation with the view of amputating at the trochanter major, but prepared if I found the injury too extensive to admit of that proceeding, to amputate at the joint. And this I believe to be the proper practice in such cases, where the extent of injury to the bone cannot be positively determined before I have laid it bare: for it is impossible to estimate with certainty, in a single joint, from the wound of the femur near the hip, the amount of injury done to the bone: it may be fractured by a ball that has not passed through it, and into large and true pieces, especially if struck in the shaft; a small bullet may bury itself in the trochanter, and thus remain.
or it may pass through the bone, splitting it into innumerable fragments. These are the more common kinds of injuries, especially since the introduction of the iron cased bullet, for although sometimes happens that a musket ball will produce a simple fracture, I believe such cases to be rare. The fracture may set up the neck of the bone without any of the usual symptoms of that injury being presented: in the films fractured in bone will sometimes support and keep it in position. Such injuries have occurred, and only subsequently been detected by the profuse discharge and great constitutional irritation they have excited. The capsular ligaments may also be opened without the joint being injured, and such cases, it is said, may recover. I have never seen one. It is very probable I should think that an operation would do more to alleviate the consequence of such a wound.
Case No. 4. Mr. H., aged about 56, was struck by a fragment of a trusting eighteen inch shell, on the thigh. In the morning of the 2nd July 1857, during the early part of the defence of the Lucknow Residency. He was lying down at the time when the shell fell and was in his room, the piece struck him on his couch. I saw him a few minutes after the wound had been inflicted, and found that the piece of shell had entered the outer side of the thigh near the hip joint, passed completely through, lacerating the muscles, and commencing the tissue to a great extent. Its vessel of importance had been wounded, and the bleeding was trifling. He was pale, cold and flaccid. He was perfectly unconscious, and under the impression that he was at the point of death. I examined the wound and ascertained the extent of the mischief. The muscles were much lacerated, and the upper half of the femur lacerated to fragments!
Other medical officers examined the wound and found it as their opinion that the injury was mental and that amputation was out of the question. One wrote his opinion that the patient should not be operated on. From the debilitated state of the patient's health, resulting from long residence in India, and from chronic disease of the abdomen, the extremely state of prostration, and the extent and severity of the injury, with the probability of injury to the liver, I was of opinion that it would not be desirable to amputate.

The only treatment therefore was palliative, supporting the strength, and alleviating pain as much as possible by opium and chloroform occasionally administered. He remained perfectly sensible until a week before his death, and was able to give very important advice and instructions relating the defence of the fortress, and other matters of great interest.
He nominated his successor to both civil and military duties, and repeatedly asked for assistance. We were then in a most critical position, and under terrific fire, round shot piercing through the house in which he was lying, while trusting in the garden, and bullets falling like hail.

He suffered at times from severe and painful contractions of the lacerated muscles, but at other times calm, composed, and comparatively free from pain; he slept from exhaustion in the evening of the third day. Had an operation been performed in this case, I am satisfied that it would have been speedily fatal, even had the injury been confined to the thigh bone. The shock was so great, the reaction so imperfect, for theensible and able to talk and hear, giving directions, the vital power remained very low; his ability of constitution and general health to endure that operation was out of the question.
The subsequent loss of nearly every case in which a great operation had been performed went to the decaying and unhealthy condition into which all the parts had degenerated from bad air and want of food, exposure, fatigue and anxiety. Satisfied as afterwards that had we operated on the faint chance of their saving life the operation must have been ultimately fatal and that thus the instruction and advice which were given during the last few hours of his valuable life could have been lost.

Case No. 5. A young man aged about 25 years was struck by a cannon shot during the siege of Palermo in 1848. A shrapnel passed through having first ricocheted and then been somewhat diminished in the velocity of its flight. The muscles of the upper and outer part of the thigh were torn away and the thigh bone crushed to fragments. There was little or no hemorrhage, the muscle and collapse were extreme, he retained his consciousness the whole
Of pain he felt he was able to speak in a low, barely audible voice, expressing his wishes and sensations clearly. He had no pain, but was quite blind, perfectly and only conscious of life, to use his own expression, above the waist. I purchased stimulants and did all I could to induce reaction in the hope that I might by amputation at the hip joint afford him a chance of life, but however called sufficiently, and died about two hours after receiving the wound: his skin remained cold and clammy, pulse barely perceptible, occasional twitching of the muscles, to the last.