

1859



Notes on the Surgery of the  
Indian Campaign of 1854-58.

by  
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I propose, in the following pages  
to describe, the most important  
features in the surgical cases which  
have come under my notice, during  
the late memorable Indian camp-  
aign; these observations extend-  
ing over a period of fifteen months  
from June 1854 to October 1858.

It appears to  
me that before entering into the  
purely surgical part of my paper,  
I ought, in some measure at  
least, to describe the individuals  
in whom the injuries occurred

and the varying Circumstances,  
under which they took place, as  
this is necessary to a proper  
understanding of the results  
observed at different times  
and places.

The greater part of  
these injuries occurred among  
the Sepoys and others belonging  
to the Sikh Regiment of Seringapat,  
which as a Regiment (although  
containing not a few men of  
middle age), was in as fine  
a state of efficiency as any  
one that ever took the field.  
and its powers of endurance so great,  
that beyond the injuries incidental  
to warfare, and epidemics (Cholera  
<sup>an outbreak of</sup>  
<sup>there was almost no sickness</sup>  
<sup>and no medical treatment</sup>)  
little else occurred - and only one  
Case of Sun Stroke occurred and this  
occurred,

was at Allahabad after the meeting,  
and before he commenced the fearful  
marches for the relief of Sawanpore.

The Sikhs are a taller,  
more muscular and more race than  
the Hindustaness, their religion is  
a very liberal Hinduism. which  
permits them to eat and drink  
more freely than their co-religion-  
ists of Hindustan. The flesh  
of Goats & Sheep is used when they  
can afford it, <sup>as well as</sup> ~~of~~ the common  
fowl. a bird interdicted by the  
Hindoo Shastres of lower India. some  
drink intoxicating liquor, but it must  
be confessed that in a disciplined  
Regiment cases of intoxication are  
exceedingly rare.

Their diseases, as one  
might expect from their habits-

partake more of the ethnic character  
than those of the Hindustanes.

By an article of their faith they  
are, curiously enough, debarred from  
the use of Tobacco in any form and

he who does <sup>use it</sup> is excommunicated  
and <sup>is</sup> no longer a Sikh, but I regret

to say, that for this custom is substit-  
uted, the eating of Opium, a <sup>total practice</sup> custom

which appears to me, <sup>after having</sup> <sup>seen</sup> it  
on a large scale, to be more injurious

to them than Tobacco smoking,

& which gives <sup>rise</sup> a tendency to  
Dyspepsia and Colic, and in untemperate  
Opium eaters, a tendency <sup>to</sup> debility

and emaciation; and although I  
am upon the whole inclined to think

that the habitual use of Opium

it may lessen the tendency to  
inflammatory diseases, it appears

to increase the frequency of Neuralgia

disorders, and lessens <sup>to</sup> the power of  
 recovery from Diseases and Injuries,  
 as well as seriously <sup>to</sup> interfering with  
 the reparative processes of nature;  
 in fact, the continuous use of Opium,  
 in excess like that of Alcohol, seems  
 to produce emaciation - although it  
 seems pretty clear that both in mod-  
 erate doses prevent waste of tissue like  
 Tea, Coffee &c and probably Tobacco; and  
 it <sup>is</sup> curious as showing the almost universal  
 tendency of some or entirely civilized  
 communities to use one or other of these  
 articles - that the Sicks, while abjuring  
 Tobacco, are slaves to Opium.

This habit of Opium eating I may  
 further add when suddenly stopped  
 seems to increase the mortality after  
 injuries, and to this cause I in some  
 measure attribute the large mort.

ality among the Sikhs at Lucknow for there, Opium could scarcely be obtained by them at all.

Of the Hindus, I have little to say as their number was comparatively small with one or two exceptions they belonged to a labouring class, and most of them had been suffering privations similar to the others.

Owing the long periods to which my remarks will refer the toil - privations & struggles which the Regt: underwent were very great. They were <sup>impart</sup> employed at the mutiny of Allahabad; in every engagement with Sir H. Havelock, the rescue of the Garrison of Lucknow, and the subsequent two months defence; where they defended an important

outpost, were present during the  
arduous four months defence of the  
Alumbagh. under Sir J. Paterson &  
at the final taking of Lucknow where  
with a few Europeans they stormed  
and took the Kais erbagh. & prin-  
cipal palace, and latterly had a  
slight share in the hot weather  
Campaign of 1858. This period  
embraces a time when all the in-  
fluences which impair health and  
produce <sup>disease</sup> were rife - yet to the con-  
tinuous excitement of a winning  
Cause must be attributed the small  
number of attacks from disease - with  
the exception of Epidemic Cholera  
which destroyed not a few.

At Allahabad in June 1857. the  
work was of the most trying descrip-  
tion, supplies were scarce and the

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overworked men were crowded in tents,  
to this and the presence of the Cholera  
poison in great intensity - must be  
attributed the many attacks of Cholera  
in the Regiment at the time, but when  
we commenced to march on the 30<sup>th</sup> June 17  
with Major Pezant's advanced column  
towards Caenpore, although the men  
were exhausted - footsore - weary & often  
wet, Cholera entirely left us, and  
during the glorious struggles under  
Havelock which ensued - and which  
ended by our retaking Caenpore -,  
including wounds, scarcely a case of  
disease occurred to attend to; - but on  
arriving at Caenpore, Cholera again  
attacked us - again, with one slight ex-  
ceptional case leading us on our first  
entry into Oude.

Our first Campaign in Oude, without

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tents - in the rainy season. I need scarcely allude, as it is perhaps unpar-  
alleled hardships are generally  
known. but here again very few  
cases of sickness occurred in our  
regiment - and the wounds had  
generally a healthy character, but  
the Europeans were literally melting  
away under Cholera and sun strokes.

Sad, dispirited and weary  
were we all when a retrograde move-  
-ment to Calcutta became necessary,  
and no sooner did we arrive there,  
than Cholera fell upon our devoted  
band with renewed force. In  
a few days our skeleton, plague str-  
icken force had to march to Bithoor  
and gained a signal victory over  
the overwhelming hordes collected  
there. In returning next day to

Cawnpore, we rested midway in a top  
 of trees during the heat of the day  
 and at short intervals the melanch-  
 -oly wail of the brass 78 Highlanders  
 was heard, as our brave fellows were  
 thrown in to the hastily dug graves  
 prepared for them. On our return to  
 Cawnpore the force encamped on an open  
 plain, but it became so flooded that the  
 force became housed in the old Cavalry  
 stable, the Cholera was still raging  
 with redoubled fury among Europeans  
 and Sikhs, six officers of our small  
 force dying in 48 hours; and people more  
 truthful than desponding asserted, that  
 without reinforcements our devoted  
 band would soon have been "last man".

Here again I would wish  
 to draw attention to the remarkable  
 influence of change from a place where

cholera is raging, in diminishing the attacks. At the time I speak of my regiment was suffering most severely from cholera, when we were ordered to escort the sick & wounded to near Allahabad, an arduous task requiring forced marches during the night of from 20 to 24 miles, but we lost the pestilence for one or at most two cases occurred after we left Calcutta - and it entirely ceased on our road back to our camp.

I forbear speculating on the cause of this interesting fact in the natural history of cholera - as it is foreign to the scope & object of this paper - and now proceed to conclude my short introductory narrative

Towards the end of Sept-1857. Commenced our second

17 Sept  
1857

Campaign in Oule. which terminated in  
 our forced entry into Suknow ended  
 Harlock on the 26<sup>th</sup> Sept. 1854, and from  
 this time may be dated the untoward  
 results attendant upon wounds both  
 in Europeans & Natives, while impris-  
 oned for the next two months in  
 Suknow. Overworked and cramped up  
 as every one was, with the depres-  
 sing influence of a small diet, extreme  
 danger and incessant anxiety; such  
 results are not to be wondered at  
 while I fear our hospitals were in  
 no small measure so poisoned  
 by the number of wounded who  
 had been in them that the mater-  
 ials which produce - Hooping - Cough-  
 ing Phagedaena &c. in individuals  
 predisp. were ripe enough.  
 As there is some scepticism on the

point of our being under fed in darkness  
 and as it strictly bears upon my subject  
 I have noted below what our diet  
 beyond a few days at the entrance  
 & retreat from Larknow Consisted of  
 viz for 1<sup>st</sup> Europeans -

- 1<sup>st</sup> Beef (bones included) 12 oz
- Wheat 14 oz
- Rice 1 1/4 oz
- Salt 1/4 oz. daily

2<sup>nd</sup> Native Fighting Men -

- Wheat - 18 1/2 oz
- Dal (a kind of Peas) 12 oz
- Ghee (Clarified butter) 1/2 oz
- Salt - 1/4 oz

3<sup>rd</sup> Native Followers

- Wheat 12 oz
- Gram (a kind of pulse) 1 oz
- Salt 1/8<sup>th</sup> of oz

Thus it will be seen that our food

was not of the choicest description or even plentiful - the Coarse flour was baked into Cakes, but so coarse was it that Diarrhoea from the mechanical irritation of the particles ensued, a short time after it was eaten. Tea could be occasionally obtained at an exorbitant price - but sugar was generally not procurable at all. Tobacco was only possessed by a few and the European soldiers smoked tea leaves and the leaves of the Guano - Spirit. there were none of, and it must be said that among the Europeans little sickness occurred indeed very little during the time of enforced abstinence, but every one felt that he was in point of strength and physical vigour much different from what he was on entering Canton.

when we were relieved from  
our imprisonment.

And now I proceed  
to offer such remarks as my experience  
of Casualties in my own Regiment &  
while in charge of the Native Camp  
Hospital at Alumbaugh, will enable  
me to offer

I find that I have had  
205 Casualties to attend to and  
this includes I fear some of my earliest  
cases for many of my notes & memoranda  
were seized by the rebels in Lucknow,  
only 5 of the numbered were Europeans  
about twenty were Hindus, Panches  
and the rest were Sikhs, from  
having occasionally to draw for my cases  
& my notes being imperfect from the above  
noted cause. I forbear trying to state  
the mortality of the whole preferring to

state, under each serious form of injury  
the mortality.

Before entering Lucknow the wounds  
had nothing special super added to  
them beyond the effects of the injury  
which had been inflicted, after our  
entry; the case was very different - other  
diseases formerly practically unknown  
as Malaria - Malaria - & Secondary  
Haemorrhage - and death from  
apparent exhaustion, were compar-  
atively common, yet it must be  
added that the wounds in-  
flicted during and forced entry  
into Lucknow were far more  
serious in their degree - as compar-  
ed to the numbers wounded,  
than any I had before  
seen in our former engagements.

with the enemy.

1<sup>st</sup> Of the treatment of Gunshot Wounds  
In a Country where animal life  
is so abundant, and the materials  
for its nourishment so quickly form-  
ed, by decomposition of secretions &  
excretions from the living body, it  
must be obvious that the Surgeon  
has on his difficulties to contend  
against in the maintenance of Cleanli-  
ness, among the wounded. often with-  
all his care in the suppurative stage  
of a Gunshot wound, maggots will  
infest the sore, and these in addi-  
tion to causing great anxiety - on the  
part of the patient, change the  
character of the wound frequently &  
cause great pain & Constitutional  
disturbance. When such a  
complication occurs, the best treatment

is to carefully pick out the worms  
with a pair of forceps, to have the  
wound frequently washed in such a  
manner that the water will enter  
the wound in a stream & remove  
as much of the pus & debris as pos-  
sible, and to introduce partly into &  
wholly over the wound lint soaked  
in Turpentine, or in Camphor water;  
the latter remedy I had to adapt  
in consequence of the want of Turp-  
entine. Here I may be allowed  
to pronounce a veto against the indis-  
criminate use of oiled silk or Gutta-  
Serena cloth in the treatment of gunshot  
wounds; appliances useful at certain  
times but not throughout the progress  
of these injuries. I need scarcely  
repeat that gunshot wounds are  
peculiar in many respects - from

the injuries of civil life, in so far  
 as they are the results of a foreign  
 body with a given force passing through  
 the tissues, those wounds however  
 inflicted by Cannon balls & shell  
 are ~~however~~ very analogous to those  
 of Civil life, in causing great des-  
 truction to the soft parts & open  
 wounds, although the tearing process  
 of a machine; and the pressure  
 exerted in railway accidents make  
 certain differences. Yet I imagine  
 that the principal difference in  
 these cases will be found to be  
 in the relative frequency & intens-  
 ity of shock - in the one case  
 an individual not particularly ex-  
 cited sees an impending danger  
 & is conscious for some time of  
 its operation - in the other you

Generally have a high state of excitement, disregard of danger, sudden injury without previous knowledge of its approach - and little pain in its infliction - I will however consider this question under Shock of injury in a subsequent part of this paper -

Cases have been recorded in which Gun-shot wounds particularly in the dark races have healed by the first intention,<sup>11</sup> but when the ball perforates a limb or the deeper tissues - such a result must be very rare in one case a flesh wound of the upper arm - I thought such an event likely, the wound closing up, it however reopened & suppurated like many of our cases of amputation which seemed to be healing by the first intention but afterwards opened & required - Surgery (Linnæus Tra p 107-8

out and suppurated.

It follows as a general rule with scarcely an exception - that in a perforating gun shot wound (by far the most common form of gun shot wounds in my experience), you have a large tract suppurating & sloughing with generally from its position one opening the lower, for the exit of the debris, <sup>that</sup> if on this opening a small piece of lint & oiled silk be placed, the cavity is distended & converted into an abscess, instead of this; in the suppurative stage - very thin lint or porous cloth should be placed over the wound - to permit of the early exit of the purulent discharge, to facilitate this I used when necessary - two dressings a day and by means of the nozzle of a

of a native utensil - like one tea pot on  
the skin of the Rheetic or water  
carrier - a stream of water is poured  
on & into the wound - cleaning out all  
the debris, this <sup>treatment</sup> was attended with the  
greatest benefit. sometimes the stream  
would penetrate and run out at the  
smaller aperture of entrance.

This treatment is suitable when the  
dead parts were being separated from  
the living, was just as unsuitable in  
the stage of healing - when the discharge  
of Pus is just of such a quantity as to  
protect the surface of the sore, and  
besides, though by the microscope it  
can only be termed Pus, it is a Pus  
which need not be feared to con-  
taminate the tissues - in this stage  
then we used our oiled silk or gutta  
serena & Lent - with plain water.

which scarcely ever required to be medicated in my experience.

## 2 Sloughing Phagedaena.

This horrible disease commenced shortly after our entering Suifuow - and in two of my own cases at least was the cause of death - the tendency of every wound - <sup>almost</sup> however simple (and the simplest wounds were often the worst) was to take on either this action or the milder one of sloughing and this was observed in Europeans as well as natives. There can be little doubt that in the native Hospital

I am aware of at least 3 cases occurring among European Officers after slight wounds. one of which proved fatal - Lt Col P. Madras Fusilier. sustained a Contusion from a spent musket ball over the stomach, which scarcely

and probably in other parts of  
the Residency - by the inevitable  
crowding of the wounded men into  
a small space, numbers of the wounded  
having <sup>had</sup> the disease produced in  
them and acting <sup>as</sup> foci of Con-  
tagion, as there had done who  
immediately preceded them

In a word the place gave it to indivi-  
duals - enfeebled by previous hardships  
and privations, and now overworked  
and insufficiently fed, and amongst

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if at all raised the skin - something that  
- a dam came on & he died. Lt Col. T. Staff  
had a slight wound of the back which took  
on this action and nearly cost him  
his life. Capt F. M. 90<sup>th</sup> L.I. - had a small  
wound on the front of the thigh - which took  
on this action. & I also think Assist. Surg. McCall of the  
78<sup>th</sup> had it too after a small wound of the back

my own regiment. - I am sure the want of their accustomed opinion may have made them more susceptible although as I have already stated, I believe it retarded the healthy healing process.

Seeing the almost inevitable tendency of wounds to take on this action in our overcrowded hospital - I removed as many of the cases as I could, to a small convalescent hospital, I established in our out post, and always with the best effect; but as our out-post had been already once cut off from the Garrison & surrounded by the enemy, and mines exploding were often rendering our position one of great peril, I could only tick such cases as might on an emergency have

been able to accompany us, in our  
retreat on foot.

Treatment - As far as my scanty-  
means would permit of it was of  
a stimulating & nourishing character  
as regarded the system - but beyond  
a little extra rice & a little rum  
I had nothing else to give beyond <sup>but</sup>  
the Garrison fare.

The local treatment was somewhat  
peculiar - and consisted of a mixture  
of two methods. The one consisted in the  
destruction of the surface of the cornea  
its edges by Nitric Acid - and the  
other consisting of irrigation by water  
a plan brought into notice by my friend  
Dr Sutherland of Katum, and which  
he found successful in several cases. he  
having used nothing but water. (1)

Indian Annals Med. Science No 8 p. 470

I think I have had one case which  
 recovered under this treatment  
 above - but I have found the  
 combination above noted, more  
 successful than either used  
 singly. After touching both  
 the sore and the edges with Nitric  
 Acid, a dry piece of lint was  
 then applied - and some hours  
 thereafter a stream of water was  
 applied upon the sore till frequently  
 you would see the cellular tissue  
 hanging like silky threads in the  
 wound; this irrigation was con-  
 -tinued three or four times a day  
 according to the nature of the case,  
 and in the interim the part  
 was covered with moist charcoal  
 enclosed in a layer of cloth. This  
 might or might not affect the

were beneficially, but which held  
down the effluvia - and from  
its deodorizing properties diminished  
the chances of infection.

With reference to the object & aim  
of the treatment adverted to I  
think it is generally admitted that  
the poison of Staphylog. thapsidina,  
like that of Erysipelas. & several  
pestiferous is of the most powerful kind  
and acts violently even in states  
of extreme debility, I am also  
inclined to think that this powerful  
poison lying upon a part can often  
be first removed by itself alone  
by supporting the nutritive action  
of the tissues, just as Cancer seems  
to do. and that the benefit of  
the irrigation treatment principally  
consists in the speedy removal &

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The complete removal at short intervals of this poisonous discharge I can only <sup>say</sup> that the more cases I have treated in this way the firmer is my belief in its efficacy, the Nitric Acid may only be applied once or if necessary may be re-applied again.

As already stated two cases proved fatal in my own practice from this disease - both were men of 50 or above. In the one, ~~the~~ the case was originally a non-perforating wound of the hip, which took on Phagedaenic action and rapidly extended - and <sup>was</sup> accompanied with extreme debility and Diarrhoea, the wound took on healthy action for a short time - but sloughing again came on and the man died of exhaustion. The other case

was more one of sloughing probably  
than of sloughing phagadaena -

"Seyt Singh out 50 Sepahi

This man was injured on the 26<sup>th</sup> Sept  
by some splinters of wood, and a large  
one entered his neck above the right  
Clavicle near its sternal end.

The wound which was not very large

The circumstances under which this occurred  
may be worth briefly mentioning, after Havelock's  
force had entered Lucknow on the 25<sup>th</sup> Sept 1857  
some of the force had to go out the next  
day to protect the bringing in of the heavy  
guns, my regt. was ordered out also,  
at first the enemy had probably not  
perceived us, but latterly as we hurried  
along they poured a heavy fire upon  
us. The rendezvous was a house on the  
river's bank and we had to plunge

was after wards enlarged and a  
piece of wood extracted about  
one inch square and situated rather  
deeply in the neck, the wound  
enlarged and discharged freely  
but 9 days after the injury severe  
haemorrhage came on apparently

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through a stream up to the waist,  
one man was mortally wounded and  
one killed here and just as we scrambled  
into the house two of our brave  
fellows had each a leg left  
dangling by a piece of skin - inside all  
was confusion, a 32 pr shot came in  
every few minutes against the wooden  
beams of the house & each splinter of wood  
formed a dangerous projectile, knocking  
down men here & there, we escaped  
early next morning after an anxious night.

veins. The wound was plugged - the  
haemorrhage ceased and the wound  
seemed to be granulating. (several  
splinters of wood deep in the wound  
were extracted before it was plugged)  
slight haemorrhage occurred ~~three~~ <sup>once</sup>  
~~days afterwards~~ - but 3 days after  
profuse haemorrhage came on of  
an arterial character. To reach  
the bleeding point part of the  
Clavicular portion of sternum mastoid  
had to be cut - and deep in the  
wound an artery was tied which  
seemed from its position to be  
the transversalis Collic or the poster-  
ior scapular. when given off by  
the subclavian above. no further  
haemorrhage took place but  
the man died two days after "  
I now proceed to say a few

words regarding Tetanus. -

3 Tetanus. - No cases of this Complication occurred in my Regt. until we entered <sup>unknown</sup> among Europeans and natives, it was very prevalent there. In my practice

6 Cases occurred 1 was an European officer the rest were Sikhs.

In the European officer the Tetanus came on after he had passed from my care, and as far as I recollect twelve days after the injury - and while the wound was granulating. The injury was a compound fracture of the humerus near the elbow and apparently not implicating the joint, several pieces of bone were removed along with pieces of the Coat sleeve. he was with me in a newly occupied

post, and orders were given that all the sick and wounded should be removed from it, and he had to go with the rest in a state of great nervous depression, to the entrenchment where Tetanus speedily ensued and proved fatal very quickly.

Of the other cases three occurred while besieged in Xanthou.

In one case a Co. fracture of fibula Tetanus supervened while the wound was sloughing. In the 2<sup>d</sup> case perforating gun shot wounds of the shoulder and leg; <sup>initially</sup> the wound which had formerly been sloughing were healing when the disease supervened & proved fatal.

In the 3<sup>d</sup> case - a bad Co. fracture of <sup>both-bones of</sup> leg, amputation was frequently

urged but as frequently refused by the man and his relatives - twenty six days after the injury - the bones were still without an attempt at union and slight stiffness of the jaws and difficulty in swallowing solid food was observed - these symptoms continued & two days after I have noted that the granulations of the wound were beginning to slough, and the foot to sphacelate. Amputation was again urged as a last resource and agreed to - the limb was amputated below the knee. The tetanic symptoms seemed much relieved, but the man always of a feeble constitution, died 3 days after the operation of exhaustion -

The 5<sup>th</sup> Case occurred after the final

Taking of Lucknow, and while the regt: was quartered in a large building in the suburbs (La Martiniere) the individual had newly re-joined the regt: from leave & had not shared in its privations -

Some of the Sepoys were throwing a large shell supposed to be empty when it exploded - and injured this drummer boy abt 20 in the arm

"On examination the right arm is found to be injured - and a round of about two inches in size is found <sup>radius</sup> over - and one over the ulna, fracturing this bone at the wrist Two days after the injury severe inflammation came on requiring free incisions & several pieces of bone were extracted Seven days after the wound is noted as beginning

to granular, on the 8<sup>th</sup> day symptoms of Tetanus came on. and he died 5 days after; the sore looking flabby & as if about to slough. In this case the symptoms were so severe & the excruciating so great that amputation was not thought expedient. In the 6<sup>th</sup> case - which was transferred to the field Hospital at the time taking of Lucknow - and again brought under my care a day before his death. Tetanus supervened on a S.S. wound of the foot which was sloughing when he died 9 days after. The recital of the injury - the date on which Tetanus supervened I cannot state the man's age was 40 years.

In India Tetanus is much more common than in more temperate climates and I

have little doubt that were the  
 statistics of this Campaign made  
 out, Tetanus would be found to  
 have caused a great mortality -  
 even in my own Cases 205. but prob-  
 ably a little more. 6 cases of Tetanus  
 occurred, while in the whole Crim-  
 ean Campaign 29 Cases only occurred  
 5 at Scutari, 24 in the Crimea &  
 one in England or 0.2 per Cent of  
 the wounded! The probable exciting  
 cause in our Cases was - extremes  
 of temperature, as during October  
 and Nov. when most Cases occurred  
 the days were warm and the  
 nights - generally cold. while our  
 clothing &c was very scanty.

With reference to the Cases whose  
 notes I may just draw attention

'Blue Book. Med. & Surgical History of the  
 Campaign Vol. 2 p 279.

to the fact that in three cases  
the wounds were sloughing, and  
in three healing.

Treatment. As may be sup-  
posed I have little to say  
with regard to this. The medicines  
most frequently used were  
Cannabis Indica and Opium  
and when difficulty of swallow-  
ing was a prominent <sup>symptom</sup>, and  
it could be done. The med-  
icines were administered by  
the rectum. along with Nutrit-  
ive enemata, but it appears to  
me that our medical treatment  
of this disease is nearly inert  
and sometimes more than that,  
perhaps hurtful, when medicines  
are given by the mouth especially,  
but the method by the rectum, carries

less spasms. To increase our  
 scepticism of the influence of  
 remedies in this disease we  
 find that in most cases in  
 which individuals have recovered  
 under the Javornite medicines  
 the attack has been of a Chronic  
 Character - and bearing in  
 mind that Tetanus is generally  
 fatal before the twelfth day  
 we must be cautious in attrib-  
 uting the favourable result to  
 our remedies.

It appears to me from all I have  
 seen of the disease that by  
 adopting the suggestion of  
 Marshall Hall and performing  
 Tracheotomy - we would at  
 least get rid of I believe one  
 of the most distressing features

to

of the disease and one which causes the most mischief the spasm of the Glottis and the sense of impending suffocation, while the distressing efforts to swallow might in great part be avoided by the giving of nutritive enemata in small quantities. The large doses of medicines given & the fact of solid opium having been found undigested in the stomach after death in Cases of Tetanus would lead us to believe that little absorption of remedies goes on in the stomach. The frequent use of purgatives when there is little to remove except what has been secreted by their irritating effects seems also a part of the treatment which might be with

It may be doubted whether this occurs & I think in the stomach. It probably does - in a recent case of Hydrophobia the patient was unable to swallow with success. (A very similar disease.)  
 Mr. Scrimm at Calcutta.

benefit modified, for all admit  
the effect of irritating substances in  
the alimentary Canal in producing  
convulsive diseases. Probably the  
most successful treatment of this  
disease would be by pulmonary  
inhalation of medicines, and al-  
-though Chloroform inhalation only  
alleviates the paroxysms of the  
disease, as I have seen in my  
own practice in Scotland - yet  
Belladonna - Camphor India  
or Opium might prove beneficial  
if thus administered - if they  
did not we might be sure of  
one thing, that it was not caused  
by deficient absorption - and estimate  
their value more clearly.

One conclusion which I have  
come to is that the frequent

swallowing of medicines is a powerful excitant of the spasms while I am inclined to suppose that frequent purging is a doubtful remedy - if we consider the intimate connection between the intestine & the spinal cord, these remedies are however advanced with great diffidence but in a disease which I consider to be at present necessarily fatal in its acute form, under our present treatment they may be deemed permissible . . .

4 Mark.

This complex and difficult state to be described, although easily recognized ~~states~~ - is often a product of causes not necessarily produced by the injury - and I have

thought proper to give an abstract  
of the most recent view on the  
subject - in many respects - an  
admirable one, which appears  
in the Med. & Surgical History  
of the Crimea (Blue Book) Vol II p 265:6  
"Among the first effects of a gunshot  
wound is what has been denomi-  
-ated shock. This word is in gen-  
-eral use among Surgeons to denote  
a certain state of the System  
immediately consequent upon  
injuries, and it follows all  
severe injuries, in a greater or  
less degree. But it may be fairly  
-questioned whether under this  
-generic head, many and perhaps  
-essentially different states have  
-not been included. An amount  
of shock and generally a very

5. marked and follows perforation into the abdominal cavity; by ulcer of the intestine; but although the symptoms are similar, it by no means follows that the effect upon the vital processes is the same as that consequent on the sudden and unforeseen <sup>ending</sup> occurrence of a limb. Powerful mental impressions again produce shock, but this is probably of a different nature from the former. Leaving this subject however where we find it, and using the word in the acceptation usually given to it by surgeons, the shock of the accident differs often in a very material degree and possibly in kind also from that witnessed in Civil

life. When a Cannon shot strikes a limb and carries it away. the immense velocity and momentum of the impinging force can scarcely be supposed to have no physical effect upon the neighbouring or even distant parts; independent of, and in addition to the "shock" in the ordinary acceptation of the term, which would result from the removal of the same part by the knife of the surgeon or the crushing of it by a heavy stone or the wheel of a railway wagon. The vitality of the parts more immediately struck is destroyed as in any ordinary crushing of a limb, but in addition bones are often split for long distances above the point of immediate contact, and nerves violently stretched

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or otherwise injured. The vessels  
appear to escape best, for there is  
rarely much bleeding or for more  
than a few seconds duration.

In the great majority of cases the whole  
frame is likewise violently shaken or  
contused, and probably independently  
of these physical effects, a further  
vital influence is exerted which exists  
in a very minor degree, if at all in the  
last named injuries, and may pos-  
sibly depend upon the sympathetic  
nervous system.

The shock, again, in men wounded  
in action, often differs from that state  
to which the term is usually applied  
in civil life, in the mental condi-  
-tion of the patient at the time of the  
injury. There is an amount of mental  
strain more felt by some than by

others, but to the existence of which  
any one who has been under heavy  
fire can testify, if he has taken the  
trouble to analyze his feelings. In  
very old soldiers, and in much of  
the trench work, this condition per-  
haps only existed in a minor degree;  
but there is a state of apprehension,  
expectancy or high nervous tension,  
common more or less to all men  
when they find themselves face to  
face with an armed enemy.  
Some hope to attain the object they  
are striving for, some fear personal  
injury, but the bravest cannot re-  
main long under fire without  
being more or less affected, and  
whether he becomes excited or  
apprehensive matters little so far  
as the effect on the nervous

9. system is concerned. The strain in both cases leads to subsequent exhaustion, and in the event of a severe wound being inflicted, this exhaustion is an important element in the "shock induced. + + +

Men were occasionally received for treatment in whom the state of nervous tension alluded to had not subsided, and they seemed to bear operations, either with or without Chloroform - and indeed in some instances begged that it might not be given. + + + In these cases, the immediate effect of the injury (or shock as ordinarily understood, existed and yet its effects were counterbalanced, and its symptoms in great measure held

in abeyance by the mental  
 Condition & & It often happened, <sup>however</sup>  
 that there was considerable delay  
 before men could be removed  
 from under the enemy's fire,  
 and the state of nervous tension  
 was then found to have subsided  
 and to have been replaced by  
 the state of shock. & & -

Shortly to recapitulate the "Shock"  
 as usually coming under the cog-  
 nizance of a military surgeon is  
 of a compound nature, in the  
 composition of which the following  
 elements may often be recognized  
 1. The vital effects following all  
 severe injuries  
 2. The mechanical effects - pro-  
 bably many and various, of  
 the peculiar velocity & momentum

of the impinging force, especially in reference to cannon shot injuries.

3<sup>d</sup> Probably, additional vital effects - of the above mentioned velocity - and momentum.

4: Nervous depression, consequent on previous high nervous tension

5 loss of blood to a considerable extent, sometimes by a large quantity suddenly effused; sometimes by a longer process of gradual decain!!

Before saying any thing of my own experience of cases of Shock or of the conditions forced upon me in this Campaign I will further quote a passage from an author who writing upwards of 40 years

asp. has yet in a few words described  
 most accurately, the condition  
 frequently found in individuals  
 when during the excitement of  
 a warlike struggle, they are wounded,  
 my object is to show that shock in  
 warfare, is not at first developed  
 if the struggle be an exciting one  
 but that it is a secondary com-  
 plication, in cases which by opera-  
 tive measures afford a ground  
 for recovery. "All our amputa-  
 tions were performed without wait-  
 ing for reaction and it may  
 be necessary to observe that though  
 many of the men were carried down  
 with their limbs torn from them,  
 others with the most severe lacer-  
 ations and fractures and one  
 young officer in particular with

the spine of the ilium and all  
 the anterior abdominal muscles,  
 torn away, exposing the contents  
 of the abdomen, yet in no in-  
 stance could we perceive the dread-  
 ful perturbation and Constitutional  
 shock so frequently described by authors  
 on Gunshot wounds, until some time  
 after the injury had been received;  
 and I have every reason to conceive  
 that amputations having so promptly  
 followed the wound was the only  
 effectual means of saving many  
 from its baneful influence, even under  
 the unfavourable circumstances in  
 which we were placed.

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Medico Chir. Trans. Vol 8. 1817. Statement of the  
 wounded on board his Majesty's ship  
 Leander in the action before Algiers.

After this extract - I have given it may  
 be supposed that enough has been  
 said, with regard to this question  
 but I will at least venture on  
 a few remarks, as I believe we  
 have as a general rule in this  
 Campaign seen and patients under  
 fire, and as soon as they were

x + by D Quarries. - I may state that I owe  
 a knowledge of these extracts - to Prof: Syms  
 who in a late clinical lecture brought them to  
 the knowledge of his class, in some remarks  
 he made with reverence to the shock of  
 injury in Civil life and the conclusions he  
 arrived at were that if in these injuries  
 amputation be required - and the shock  
 not subdued Chloroform should be given  
 and amputation performed, as the one gives  
 a chance while leaving the patient alone  
 will necessarily prove fatal in most.

wounded. I would begin by excluding those cases which as a general rule are necessarily fatal as wounds of the lung, Intestine &c., for to them the term shock is in practical language inapplicable. For the state which immediately ensues is part of the death-agony and has one termination death, in other instances death may occur but reaction is the event we hope for, the injuries are principally those of the extremities. From shock I would likewise exclude those cases often confounded with it, in which haemorrhage and its usual immediate results are denominated by this convenient generic term. There is another class of cases - which might perhaps

be also included in which the individual dies after a slight wound - sometimes owing to a peculiar idiosyncrasy at other times owing to visceral disease, but in which the wound bears no relation to the effect produced, but while thus limiting the scope my remarks will have more reference to a state which precedes shock - than to that state itself & I purpose now to say a few words on the differences which occur in the after effects of injuries in Civil and Military life - While House Surgeon to the Seville Hospital for nearly two years, I had ample opportunities of seeing the effects of injuries immediately after their infliction

and the impression conveyed to my mind was that shock was an immediate result of the injury sustained, and from which the individual might or might not recover, and indeed when we consider the usual character of these injuries, but more particularly the agony of mind which must occur previous to the infliction of a foreseen danger - and the fearful pain which ensues - as in machinery accidents - as well as the time occupied during the infliction of the injury - while even in railway accidents - is greater than in casualties received in warfare we find enough to cause this state. But we will also find another influence in the rapid emission of depressing ideas, always vivid &

and extremely rapid and precise,  
which flit across the minds of the  
class usually injured - want, if  
he survives a maimed & useless in-  
dividual or worse still death  
and the consequences of either to  
his wife and children - these are  
I fear often felt in injuries rapid  
enough in their infliction, and  
are still more appreciated if the  
injury prevents - of after thought.  
I believe then, that shock limiting  
it as I have done to injuries not  
necessarily fatal from irreparable  
injury to vital organs, is immediate  
in Civil life, and that in such  
Cases a reasonable delay for a  
short period if symptoms of  
an aneurism are visible should  
be granted, before operating but

that in Cases necessarily fatal  
without operations, a Chance should  
be given by operating -

In the injuries  
incidental to military warfare  
there is a wide difference in many  
respects - both in its physical and  
psychical aspects - In the soldier  
there is always more or less excitement  
arising with the nature of his duty,  
a state which banishes the fear  
of danger unless in store for  
the first time under fire - if he  
is wounded unless in a vital organ  
he is scarcely conscious of it and  
looks with a degree of astonish-  
ment at his wound, while in not  
a few there mingle with it a  
degree of pride at being wounded  
and he feels that his country



will provide for him, 'but in a variable period varying much from the nature of the injury and the previous excitement but probably never beyond half an hour the shock comes on. of course there are exceptional cases & there are generally cases of slight wounds in which the individual h. are a popular supposition "is more frightened than hurt." The differences of opinion with regard h. this question formerly existing between surgeons in the Army and Navy had

I know of one distinguished officer who had been in Afghanistan - the Punjab Campaign &c who told me when wounded that he had often wished to be wounded. it is I believe not an uncommon feeling in those who have seen much service.

doubtless its origin mainly in the time at which the wounds were seen after the receipt of the injury, Dr. Quain's statement of his experience upon this point already quoted, is explicit enough - while we find authentic in his (common) utterance page 34 stating that "A Surgeon on the field of battle can rarely have a patient brought to him requiring amputation, under less time than from a quarter to half an hour; a surgeon in a ship may see his patient in less than five minutes after the receipt of the injury; and to the surgeons of the navy we must hereafter defer for their testimony as to the absence or presence of

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the constitutional alarm or shock to which I have alluded, cannot to great degree they follow, immediately after the receipt of such injuries -" The order given during the Crimean Campaign that one med. officer should always be with his regiment under fire has doubtless done much to show that injuries on the field or the deck if seen early are similar in their effects - for instead of half an hour elapsing, med. officers now see their wounded as soon as the injury has been inflicted. The Crimean reports - although most likely compiled from the reports of Surgeons who received their wounded after they had been attended to in the trenches by their Assistant Surgeons,

still it allude to cases in which should had not been established or as it is termed the state of nervous tension had not subsided.

In the Indian Campaign especially at its first commencement. To lag behind was often equivalent to death as the hordes of rebel Cavalry often closed on our rear, and I dare say most of our surgeons can tell of dangers escaped from while detained by some severe case rather long. One <sup>th</sup> surgeon was always alongside of the regt. sometimes two, while the surgeon followed closely at no small distance behind - he notices regt. with one surgeon he was of course always under fire in action & by this is meant a distance of 15 or 20 yards in rear of his regt -

It is scarcely worth while after  
 what has been said to state  
 any opinion that if operative meas-  
 -ures are necessary the wound  
 the knife follows the wound the  
 better - less haemorrhage will

The Med<sup>l</sup> service considering its numbers has  
 suffered pretty severely in this Campaign excluding  
 those manacred at least 22. I am aware of <sup>have sustained injured that</sup>  
 it have been killed & of the rest many have  
 been severely & some mortally wounded.  
 But let me be understood the Med<sup>l</sup> Officers  
 must always be such; but I should like  
 to see it more recognized that in the  
 strict exercise of his duties and with a  
 more keen perception of danger than the  
 military aspirant for glory. he incurs  
 no little danger, and is equally eligible  
 for rewards & honours.

be also incurred and should a  
 Chloroform unfortunately not be  
 at hand the operation will be  
 scarcely felt at all. In Lucknow  
 when I had to operate without Chloro-  
 form, I have performed double  
 amputations immediately after  
 the injury. in the case alluded  
 to, the individual a strong robust Sicke  
 had been injured by the explosion  
 of a mine & several ribs on the right  
 side were fractured making a  
 depression into which the fist might  
 almost be placed, amputation  
 below the shoulder joint was  
 performed on one side and im-  
 mediately after the forearm of the  
 other side was amputated. he died  
 of shock the next day - in another  
 case a rebel, I amputated the thigh

on one side & crushed the knee  
joint on the other side. The man  
also died the next evening from shock

In three cases I have seen  
well marked shock. even after  
injury, one was quite exceptional  
The 90<sup>th</sup> I was practicing or at  
drill at the Alumburg when a <sup>musket</sup> ball  
belonging to one of them went off  
accidentally - the Enfield rifle ball  
going clean through the legs of  
two men & slightly injuring the  
head of a third. In one the  
shock was so great that no operation  
could be performed the individual  
being "in articulo mortis" almost but  
a good deal of venous haem-  
orrhage had occurred. In the  
other amputation of the leg was  
performed under Chloroform

while the man was in a state of great exhaustion. I administered the Chloroform on that occasion and although the pulse was latterly not perceptible at the wrist I continued it as the breathing was good - the man revived.

These two cases illustrate the occurrence of an injury in circumstances somewhat analogous to what occurs in civil life, in one respect that there was no state of excitement. The third & unusual case occurred in my own person during the storming of the principal palace at Lucknow. The man had a perforating wound of the fleshy part of the leg, which I attended to & hurried on an returning I found him dying

there was no haemorrhage,  
but he died immediately after;  
the death might have been owing  
to some organic disease, or the  
idiosyncrasy of the individual.

I will now  
close this part of my subject  
with a few aphorisms which I  
believe to be warranted;

1<sup>o</sup> Shock in military warfare is  
a state which, except in cases of  
injury to vital organs or severe haem-  
orrhage, does not supervene till some  
time after the injury

2<sup>o</sup> In this stage the  
knife should follow the wound  
if amputation be necessary, as  
less haemorrhage occurs, & no ad-  
ditional shock is produced

3<sup>o</sup> If shock be

69. established, and show no sign of amendment, Chloroform may be given and amputation performed with the chance of success.

5 Primary & Secondary Haemorrhage.

Of these two conditions I have little to say, as a great many injuries on the field the arteries escape. The veins being perhaps more liable to injury. I have had in my experience one case of haemorrhage on the field from wound of the femoral vein, as far as I could ascertain, and two cases of severe haemorrhage from the facial artery. To be afterwards noticed in connection with fracture of the lower jaw. In some injuries where the limbs are so hi

speaks nearly torn off the haemorrhage  
is not great, in one of these cases  
where the thigh was nearly torn off  
high up by a shell. I tied the femor-  
al on the field but there was really  
very little haemorrhage from it - the  
sum of the other side was nearly  
torn off - but no arteries were tied  
as there was only an oozing. In two  
other cases I have seen similar  
results: both men had their legs  
dangling below the knee by the skin  
almost - & here there was only  
oozing after I chopped them off  
with a native sword for the purpose  
of applying a bandage. a compress  
was applied over the site of  
the femoral as a precautionary  
measure. I have seen other  
severe injuries of the extremities

with little haemorrhage but in  
them I have not examined the  
state of the <sup>main</sup> artery before amputation  
" A perforating wound  
is fortunately rare - and is attended  
with serious haemorrhage. but I  
have seen one <sup>case</sup> of the division  
of the radial - one of course of  
the posterior tibial & another of  
probably the superficial tibial

In the two cases above alluded to I  
adopted a plan, which a patient of Prof.  
Byrne's many years ago adopted. he had  
a wound of the femoral artery & he was  
sent safely from a long distance with  
a compress over it of half penny pieces  
in these two cases I used a coin of  
a similar size - and they did  
very well.

in which interference was required  
only some time after the injury  
in consequence of attacks of hæmorrhage.  
These cases were under Dr. Home  
of the 90<sup>th</sup> R.I., but except in perf-  
orating wounds and and wounds  
in which I believe the bone is  
fractured & then cut. The artery  
or is cut cleanly by its proxi-  
mity. In a bone - hæmorrhage  
to a great extent is not so freq-  
uently met with.

### Secondary Hæmorrhage

As the result of sloughing  
either with or without ampu-  
tation this complication  
was not uncommon in Luskow

I have already related  
one case in which the post-  
erior scapular was tied

and other 4 cases occurred to me  
 one of these was apparently haemorrhage  
 from the femoral vein, consequent  
 upon sloughing, about 3 weeks or less as  
 I recollect after the original injury  
 a wound of the vein, there was pro-  
 fuse haemorrhage at the time of injury  
 controlled by a compress, and from that  
 time had not bled till after the period  
 I have stated. there was no further haem-  
 orrhage, the wound becoming more  
 healthy. In the other three the  
 bleeding occurred after amputation  
 In the first case severe haemorrhage occurred  
 after severe inflammation of the hand  
 consequent upon amputation of a  
 finger - the case did well. In  
 the 2<sup>d</sup> case an amputation below  
 knee - sloughing ensued the stump  
 was taken down and the portion

tial test. the man died of exhaustion  
some time after. In the 3<sup>d</sup> case - sec-  
-ondary haemorrhage occurred after  
amputation through the ankle - one  
of the plantars was retained - the man  
died some time after of exhaustion.

### 6 Wounds of the Head & Face

In all I have had  
ten cases of importance under  
this head, six of these were wounds  
of the skull with 4 deaths - 4 -  
more fractures of the lower jaw  
with two deaths.

### Wounds of the Skull

In the first case the notes of which  
were lost - the injury consisted of  
a gunshot injury behind the ear  
a small hole being visible but  
no ball being felt & no cerebral  
symptoms present - the only thing

Complained of being pain of the ear. The man was wounded at the retaking of Cawnpore. & lay the night following the injury with the rest on the late battle field. on reaching Cawnpore the next day he only complained of pain. next day we marched & he was suddenly seized with restlessness & soon an incision was made down to the temporal bone & a ball intracranial lying over it, the bone was extensively fractured, the brain ruptured and quantities of brain substance escaping, in a few hours he died.

No 2. In this case a small part of the external table of the frontal bone about half an inch square was driven in by a musket ball producing a

slight depression - This man recovered without a cerebral symptoms - the notes of this case were lost - but my impression is that he was sent to Allahabad some weeks after the injury in case he might have got worse so the case is as far imperfect that he might have turned ill after he left me.

No 3. - This case occurred in Lucknow "Lunda Singh Oct 35 - Sepahis  
 This man was wounded on the 31<sup>st</sup> Sept 1854 by a musket ball - which struck him on the head - just at junction of parietal with frontal bone but a little to the right - the bone was exposed to about the extent of an inch. He was seen immediately after the injury and complained a good deal of pain over the

left temporal bone. apparently  
 a Contusion. for he has also slight  
 paralysis of the right leg. with drag-  
 ging of the limb & slight loss of  
 sensation - (this however disappeared  
<sup>greatly</sup>  
 in a few hours.) pupils equal  
 & normal. pulse do.

On the 1<sup>st</sup> of Oct I have noted that  
 he is doing well & the leg improving  
 & round looking well. no pain  
 of head slight irritability of  
 stomach. Some days after  
 took fever with rapid pulse, no  
 head symptoms but irritability of  
 stomach continued. The extremities  
 soon got dry & dark coloured he  
 gradually sank although revives  
 & died exhausted 12 days after his  
 injury. Some operative measures  
 it may be thought would have

been advisable in this case as there  
 might have been cerebral abscess,  
 but the man's death was rather  
 unexpected, and the cerebral  
 symptoms at this time were not  
 of a nature in my mind to  
 justify trephining. although I believe  
 the man had occasionally some con-  
 vulsive attacks in my absence the  
 nature of which I failed to discover  
 No 4. Kingan Singh Act 35 (opium C.  
 while this man was on duty at a  
 post in Daktarow. where bricks were  
 frequently thrown over a high wall  
 at us by the rebels. he was struck on  
 the head by a missile which was  
 supposed to be one of these.  
 On examination he is found to  
 have sustained a severe wound  
 over left frontal bone. at upper

& posterior part. severe haemorrhage. two arteries tied. - the bone was found to have sustained a comminuted fracture the pieces were removed leaving an irregular space of about an inch, and the brain is lacerated and protruding. he is insensible. the pupils are equal & semi-dilated pulse slow - vomit. some -

Four hours after - ligatures have been forced out by brain which protrudes & bleeds considerably no bleeding from former vessels, insensible - no stertor - breathing seems not slower than usual. - pulse very slow and feeble. tones about left arm and leg. right arm & leg on being handled rigid or stiff. Next day he is reported

80  
h. breathe with - sterbor, state  
insensible, tosses about left arm  
and leg - right leg and arm have  
lost their rigidity. Died about 11

A.M. protrusion of brain much less  
no haemorrhage - a dry sponge had  
been applied over wound -

No 5. Stubbs - Oct 25. 54.

This man when out cutting grass at one  
side of the entrenchment at Luchuan  
on Oct. 29/57. was shot through the  
head by a musket ball and  
brought to Hospital. It was found  
that the ball had entered at the  
temporal ridge of frontal bone of  
right side and made its exit  
at the opposite temporal ridge, the  
fracture was comminuted, an incision  
was made over the wound  
of exit and three pieces of bone

removed. in all about 2 inches  
 square of the frontal - a good deal  
 of lacerated brain escaped from  
 both orifices - sensible - pupils eq-  
 uable - moves about - a good deal  
 next day. Still sensible - i.e. stupidly  
 answers questions & - reasons arising  
 from wounds - 31<sup>st</sup> Oct - 3<sup>rd</sup> day.  
 Semi-insensible died...

6 Sudeen Shobie Oct 40. Rebel.

This man while leading on the insurgents  
 at Alumbangh on Aug 16<sup>th</sup> /54 - was wounded  
 and brought away for the purpose of  
 eliciting information.

He is found to have sustained a gunshot  
 fracture of the humerus, through or immediately  
 below the tuberosity; the ball supposed to  
 be an Enfield having lodged - he has  
 a superficial sword cut of the abdomen,  
 another sword cut has cut the fleshy part.

of chin and a slice of the symphysis  
which is left dangling, there are also  
two sword cuts which have taken out  
both eyes and separated a slice of frontal  
bone - exposing about a square inch of brain  
In consequence of the injury of the head  
I did not amputate at the hip joint,  
but put the thigh in an easy position  
as the case seemed hopeless, bandage were  
applied to it & the head, the chin wound  
being also approximated - he is perfectly  
sensible. - Two days after the chin  
wound seemed to have united - piece  
of frontal bone loose - brain pale beneath  
sensible. 22<sup>d</sup> - In much the same  
state is perfectly sensible but refuses  
his food takes a little milk daily.  
23<sup>d</sup> - loose bone directed out from scalp  
ground - is evidently better, the sword  
cut has divided nasal bones

and water poured into the wound  
reached the pharynx.

About this time or probably before as  
he seemed to be going to live the  
thigh was put in a long splint - some  
days after he commenced to take his  
food. and on the 25<sup>th</sup> march I have  
noted that the thigh bone has united  
the other wounds healed up leaving  
the brain however exposed - an auto-  
plastic operation was thought of but  
the contemplated march of the  
regt. obliged me to hand him over  
to the Civil Authorities.

0

This man had formerly been a Sebahi  
in our service, but, as I was informed  
by an Eurasian woman, who was concealed  
in Lucturn at the time, he was the spiri-  
tual leader of the Hinders. his caste

This case is one of the most singular I ever met with - perhaps the most singular - considering the nature

was that of a Bramhin, and he was said to have  $\pm$  20 a day from the Govt. At the attack he came on bravely leading his men - attired as Kuroomann or Mahabed - the Monkey God & the god of war - he had on a tail of twisted cane with a flag attached to it, and a turban on his head, and his followers had the mark of Kuroomann but - seen their eyes in red paint. He was very penitent - & I carried him on to the siege of Karkann - & kept him in our Standing Camp - at last I gave him over to the Civil Authorities, hoping they might deal leniently with him as he had been treated by me. with

of the injuries - the most curious  
 fact being that the thigh united  
 aft. The ball supposed to be an  
 Enfield, had fractured the bone &  
 lodged. Only one case had previously  
 occurred in my practice at all like it  
 & this was a machinery accident in  
 which the individual recovered after Co.  
 fracture of middle third of thigh - simple  
 fracture of tibia of opposite side - So. fracture  
 of both bones of arm - & a bruise of chest  
 with pleurisy following. This had recovered  
 the case occurred in quite many years ago.

Consent of Genl. Putnam. They sent  
 him to death, but recommended  
 him to mercy & I after wards heard  
 that he was allowed to go to his  
 own home, indeed as a blind man  
 he could do us no further harm -

With regard to the cases collectively there is little to say. most of them have terminated fatally, in one of them Nos. 11 & 12 may have formed and the application of the trephine have been of benefit - but the evident symptoms of cerebral congestion, the want of urgent symptoms of compression - and the rather sudden deaths - prevented that treatment being adopted which looking back upon the case as a whole would almost seem to have been warranted but which before death did not seem to be so.

Wounds of the Jaw (lower)

There were four cases of this form of injury. No 1 - was a Gunshot injury of the jaw on the field attended with profuse haemorrhage the facial artery was tied, and

87  
a large portion of the comminuted bone removed - the case did well and was transferred some weeks after -

No 2. This was a Gun Shot wound of lower jaw at symphysis. There existed a depression in the bone the ball not having perforated it - This case did well. This case <sup>it</sup> occurred in one of our Hindustanee dandy bangers at Lucknow

No 3.- This case also occurred in Lucknow. "Huzoor Singh Oct 30 Sepahis. This man while upon sentry duty was shot in the right lower jaw seen immediately afterwards lying in a pool of blood from arterial haemorrhage - smaller wound over angle of jaw - larger over symphysis - both wounds laid into one - and fractured

pieces removed from about an inch  
from articulation to *scapularis*, <sup>leaving</sup> <sup>shell of bone</sup>  
facial and a smaller branch  
tid, upper portion of facial could  
not be found, and a compress was  
applied. In the evening there was

a slight tinge of blood in the sputa  
4:40: Third day after injury - Intestines  
removed - whole extent of wound  
apparently healed with - exception  
of small points of exit and entrance  
of ball - Feverish.

8: Has very pleurisy of lower left  
side 1/8: Ex: Antimony every 3 hours

10: Wound doing well, pleurisy still,  
slight dulness of left lower dorsum  
respiration audible, friction sound  
continues, no egophony.

12: Pain of chest less signs as before  
The pleuritic symptoms increased and

effusion followed. The wound began to fester and symptoms of embolism came on - a blister was applied & Carb. of Ammonia in the nose given but he died on the evening of the 13<sup>th</sup> eleven days after the injury.

No 4 - Khan Singh Oct 30 1841  
 This man sustained a gun shot wound at the final taking of Lucknow - on 16<sup>th</sup> March. The ball traversed the mouth & fractured both lower jaws near the angles. He was sent to the Field Hospital - and again admitted into Regt. Hospital 16 days after the injury. He was very feeble & could only swallow liquid food. He gradually sank with bronchial symptoms & extreme prostration evidently from Pyæmia & died 21 days after the injury.

With regard to these cases my time will  
not permit me to do more than  
scarcely refer to. These two interesting  
fatal cases. & I would also refer  
to the extreme and violent haemorrhage  
which attended division of  
the facial artery, in the two cases in  
which it was wounded and which  
is quite peculiar, as contrasted with  
division of arteries in other parts of  
the body by missiles, than I believe is  
owing to the artery being cut not  
from, as in other injuries & may be  
owing to its being divided on the  
bone, but it is probably more often  
owing to the bone being first  
fractured and the sharp edge  
cutting the artery as with a knife  
certainly the haemorrhage is most  
alarming & in case No 3. seemed to

41  
have nearly proved fatal,  
although I saw him immediately  
after the injury on the spot where he  
fell.

### 7. Wounds of the Chest

Of severe cases eight cases occurred  
and six proved fatal - in one of  
the recovered cases it is doubtful  
if the lung was injured - in one of  
the fatal cases it was not.

No 1. An old man five major of the regt.  
was wounded at the battle of Cawnpore  
in the area of I think the right lung  
above scapula he was apparently doing  
well, but was seized with Cholera &  
died, I have no notes of the case.

No 2. Beldan. Oct 21. Pse. This man  
my own servant - a stout healthy Hindustanee  
was wounded in the chest on the 25<sup>th</sup> Feb 1851  
at the forced entry into Lucknow

The ball had entered, the apex of  
the left lung and made its exit  
on the left dorsum, below scapula.  
He was seized with Pythoid Pneum.  
on account of which he died 12 days  
after the injury, on that day some  
haemorrhage, serious, took place by  
the hole of exit.

No 3- A septicum was that in the back  
at the final taking of Lucknow the  
ball lodged - this case proved fatal &  
gave no notice of it.

No 4- Capt. D. aged about 35 was wounded  
at the final taking of Lucknow - the  
ball entered the fleshy part of right  
shoulder perforated chest in an oblique  
space & made its exit at the left  
lower dorsum. he never rallied but  
in a few hours died.

No 5- This was an injury of the brain in

3 a sepah at Lucknow. The man died  
 of Typhoid fever. The ball entered  
 apex of left lung & came out at base behind  
 No 6 - Basail Singh Oct 30. This  
 man was wounded at the final  
 taking of Lucknow. The ball entered  
 the chest at left lower extremum & lodged  
 he suffered a good deal from pain  
 afterwards obliging him to sit upright.  
 There was no evidence however of the  
 ball being loose in the chest lying  
 upon the diaphragm. This man  
 ultimately recovered.

† he died  
 18 days  
 after injury

No 7. Lal Singh. Hindustani. Native Officer  
 This man was admitted into Hospital  
 at Alumbang. in consequence of  
 having accidentally wounded himself  
 with his own musket. It was found  
 that the ball had entered to  
 the outside of the left nipple about

an inch and came out in a straight line over second rib - the entrance of the arm and chest is burred round about - the probe does not enter chest but runs towards axilla. There is however slight crepitation felt in the cellular tissue near upper or lower end of rib - no chest signs.

Two days after he spat up a little blood and mucus - but beyond this no further signs occurred & he was discharged some time after.

No 8. See Column Art 20. Hindustanee Soldier (see). This man was admitted into the Camp Native Hospital at Allahpore, in consequence of having been shot by an Enfield rifle in the back. He had been previously seen by Dr. Home 30<sup>th</sup> H.I. and then had spat blood, he is a large stout man - but as

73  
some time has elapsed since the  
injury he labours under shock. On  
examination it is found that the  
ball has entered right lateral region  
just to right of scapula and on a level  
with its middle. It has apparently  
gone through the lung & made its  
exit at posterior angle of axilla of  
opposite side - then going through  
fleshy part of arm & coming out  
in front. The rib seems perforated  
at wound of entrance but not com-  
minuted - at wound of exit severely  
comminuted. Respiratory murmur  
audible, slight swelling over left  
dorsum - a little oozing from wound  
of exit. - He was put upon Opium  
& small doses of Perm. Signs of vacuum  
over of both lungs came on & he died  
two days after the injury.

The body was examined 4 hours after  
death. on 6<sup>th</sup> Febry 1868.

Major Hunter well marked, body stout  
Head not examined

Thorax - Pericardium contains about  
2 $\frac{3}{4}$  of clear fluid. - Heart healthy. left  
ventricle contracted. - right contains  
a small semi-decolorized clot  
lungs. left. Soft recent lymphatic  
in thin patches on anterior surface.  
lower lobe non-crepitant & congested  
Right - old adhesions universal, most  
firm in front. upper and middle lobes  
imperfectly crepitant and emphysematous  
in part - the upper part of lower lobe  
is condensed from red hepatisation.  
Liver large fatty - Spleen large, firm  
Kidneys normal. The track of  
the wound from the wound of entrance  
on right side. was through below the

of the middle of the right scapula - fract.  
 wing it, the left scapula is also  
 fractured at its middle and the  
 fourth-rib of left side is also  
 fractured near its articulation with  
 spine - in no part of its course  
does the wound communicate  
with the pleura -

With-reference to these cases I would  
 only draw attention to few of them  
 In the case of the European Officer both  
 the effect of a wound through both  
 lungs is exemplified, in the rapid  
 death; doubtless such injuries are  
 invariably fatal, for the collapse of  
 the lung which must invariably fol-  
 low on the admission of air into  
 both pleurae, will quickly prove  
 fatal

Case No 6 is interesting as showing

is that a ball lodging in the lung is not necessarily fatal.

In Case No 7. The lung was as far as physical signs were to be trusted to uninjured, yet there was slight internal emphysema, and the man spat up blood once.

In Case No 8. The most interesting of the series, and which others as well as myself took for a wound of the lung - blood was spat up immediately after the injury and all the symptoms pointed to wound of the lung. Emphysema and Haemoptysis are therefore not invariable tests of wound of the lung - an opinion which a recent work upon penetrating wounds of the Chest has announced.

## 8. Wounds of the Abdomen -

In 4 Cases the abdominal Curly-  
was punctured or other wise injured  
In all the result was fatal - in  
one case Cholera carried the  
man off the ball had lodged,  
in another death followed in  
a few hours -

Case No 3. Francis. Aet 32. Hindustani  
Officer's servant. This man was admit-  
ted into the Camp Hospital at  
Bombay in consequence of an  
injury from wound shot. It appears  
that while sitting cleaning knives  
in the usual Asiatic posture<sup>(1)</sup> a  
round shot came and struck a  
Cart in front of him - it then re-

<sup>(1)</sup> That is in the position he would assume  
when seated on a low stool - but with Asiatics  
no stool is used generally -

wounded and struck him.

On examination it is found that the scrotum of left side is torn at the Pubis. There is an oblique mark over right side of abdomen where shot has glanced past where there exists a good deal of swelling. The testicle has escaped - the scrotum has retracted and some of the muscles of the thigh are exposed. The bladder is seen at the bottom of the wound there is a little venous haemorrhage. Compresses applied. Next day there was coughing with great depression. The urethra was uninjured & urine passed freely - Two days after the injury he died of exhaustion & was sensible but complaining of great pain of lower part of abdomen.

On examination

after death (a slight one only could be made), the pubis of the left side was found split up into wedge shaped fragments - & the upper part of os pubis of same side fractured the swelling of lower part of abdomen was owing to subcutaneous infiltration the bladder was sound - a small patch of erysipelas was observed on one of the small intestines, but no traces of Peritonitis.

No 4 - Kuma Oct 36 Hindustani Labourer. This man is admitted in consequence of being struck by a round shot in the Alumbang. On examination it is found that about two inches below right nipple a space of about three inches square has had the cuticle rubbed off there are no other signs of injury

but he is in a state of Collapse  
 He died the next day -  
 Post Mortem - Chest organs healthy,  
 liver firm & healthy - Stomach  
 distended - Transverse Colon  
 infiltrated externally with blood  
 Mesocolon (transverse) in a like  
 state - Peritoneum filled with  
 a bloody fluid -

The two last cases are  
 extremely interesting. In Case No 3 - the  
 injury was extremely severe, the  
 fracture of the sacrum - taken in  
 connection with the course of the  
 round shot is very curious and  
 somewhat inexplicable. It may  
 have been however fractured by an  
 action similar to what occurs in  
 fracture by Centre Comb in hand injuries.

In Case No 4 - The result of a round

that passing over a surface at some distance from the injury which caused death, and the extremely slight nature of the external wound are both circumstances of great importance. It is a very curious case although some medico-legal cases not dissimilar have been recorded.

9. Wounds of Joints.

Six cases of this form of injury occurred & 5 cases died - One case was an injury (very slight) of the shoulder joint, the knee cases were 5 & all proved fatal.

No 1. This case was admitted into hospital at Allahabad. but not seen by me, the man was said to have sustained a wound of the knee joint - he died no operation was performed.

No 2. Karam Singh Aet 30 Sepakhi  
This man was wounded in the leg by

a musket ball in darkness on the  
 26<sup>th</sup> Sept-184. The ball had  
 penetrated, the knee joint and  
 lodged, no bone being apparently inj-  
 -ured. The ball could not be found.  
 Amputation was proposed but refused.  
 The limb became much swollen  
 and spreading gangrene ensued,  
 of which he died 7 days after  
 the injury.

No. 3. Sub. Singh Oct 25 Sepakia

This man while in the act of throw-  
 -ing a 6 lb. shell from his hand. was  
 injured by its prematurely exploding  
 in darkness on the 11<sup>th</sup> Oct.

On examination the right hand &  
 arm are found completely shattered.  
 The knee of the same side was also  
 injured, on its outer side was an  
 opening of about one inch square

extended fairly into joint and  
a loose piece of articular surface of  
tibia about half an inch square  
and of a wedge shape was extracted.  
The forearm was immediately ampu-  
tated at its middle, the radial  
& ulnar were tied but the interossea  
could not bleed. another twig was tied

Excision of the joint was  
proposed but refused, a compress  
and bandage was applied

12: 04 - Skin cool, knee not swollen  
wound occupied by a fine clot - which  
is not removed, stump doing well  
no hemorrhage. 15: Slight effusion  
into knee, which on being squeezed  
through the now decolored clot  
is seen to be limpid, clear and non-  
purulent. most part of the arm stump  
is healing by the first intention

16<sup>th</sup> Pulse 70. skin cool. 17<sup>th</sup> Pulse 100. few  
crick at night

18<sup>th</sup> Discharge when pressed from knee more  
yellow.

22<sup>nd</sup> A good deal of discharge from  
several openings in the stump - febrile  
symptoms continue.

From this time the bad symptoms  
continued, the arm stump opened  
out and sloughed - the discharge  
from the knee became purulent  
and he died exhausted on 5<sup>th</sup> Nov. 1877  
25 days after the injury - the  
treatment consisted of the administration  
of Quinine + Opium -

No 4 - Mahan Singh Oct 30 Rebel  
This man was wounded on the 16<sup>th</sup>  
Jan<sup>y</sup> in an attack made upon us by  
the enemy at Alumbagh - One wound  
is above the knee (left) and the

limb is dangling by a piece of  
skin. in the other knee there  
was a fracture of patella.  
left thigh was amputated  
immediately at middle third - & the  
knee of other leg was circled immediately after  
by H incision. no haemorrhage  
followed & although no Chloroform  
was given he scarcely seemed to feel  
it - He died next evening from  
symptoms of shock.

N 15 - Gormuk Singh. Aet 30. Corporal

This man was wounded on the 14<sup>th</sup> March  
at the final taking of Lucknow - and  
removed to the Field Hospital. in consequence  
of a perforating wound of the knee joint  
he was readmitted into the Regt. Hosp.  
on the 1<sup>st</sup> April - emaciated and  
labouring under a typhoid form of  
fever - the knee was much swollen

and discharging profusely - he died exhausted the next day.

No 6. Lt. Col. B. was wounded by a musket ball at the taking of Lucknow - the smaller wound was near the shoulder & above clavicle - the larger into which the finger ~~was placed~~ could have been admitted was placed at the outer margin of deltoid - a clear fluid issued from the upper wound - the joint seemed to have been opened but the head of the bone seemed uninjured - no further examination was made & this officer made a quick recovery.

The best cure No 6 owes it. favorable issue in no small degree to the want of all exploratory measures into the joint after - The first examination

In the case of wound of the knee joint. all fatal - speedy amputation <sup>or excision</sup> would have been the proper treatment, <sup>in some</sup> and if there is a class of cases in military warfare which demand that the knee should follow the wound, it is this class in which the knee joint is injured by a musket ball, occasional wounds do not affect the function at all - for operative measures should always be had recourse to when there is no chance of recovery without them - and that chance is too remote to be considered in comparison with the greater chance of a fatal result in this form of injury. The operation of resection of the joint while still doubtful in most cases.

of disease seems to me to be applicable  
 to some of the cases of sun's hot injury  
 of the knee, provided there be little  
 injury to the bones and the limb  
 be a standing one in marching  
 armies the operation is decidedly  
 inadmissible. It is singular  
 why the knee joint should be  
 so peculiar in the results observed  
 for other joints: albeit with a  
 smaller articulating surface have  
 symptoms much less in degree than  
 their size would warrant. It  
 is possible that the plan recommended  
 by Otto Meyer & Maslow of laying  
 the articulation freely open might  
 lead to a cure in slight cases.

Maslow's Surgery (Ginn's) p. 316.

In Stromeyer's one case the results  
are stated to be most encouraging  
10 Fractures of Extremities

I will divide my observations into cases in which operations were or were not performed the cause of operation will be detailed under the head of Amputation.

The total number of cases was 27<sup>26</sup> of those treated without operation - 11<sup>10-11</sup> cases occurred & five<sup>4</sup> proved fatal, both fractures of the thigh bone - died - & one of fracture of the Humerus & do-forearm

The cases stand thus - fracture of thigh - 3<sup>2</sup> fatal - 2 of leg one recovered & one died - of metatarsal bone one case recovered - Arm & 2 recovered one result not accurately <sup>known</sup> supposed to be

he doing well when trans ferred  
 of freem - 2. - In one result  
 favourable - other under treatment,  
 third proved fatal from Tetanus -  
 Fracture of the thigh - No 1. Muttu  
 Singh Aet 40 - Sepahis. This man  
 was wounded by a musket ball  
 in the thigh, at the forced entry  
 into Lucknow on the 25<sup>th</sup> Sept.  
 As it was pretty cleanly fractured  
 through the middle; an attempt  
 was made to save the limb - it  
 was therefore placed in Desault's  
 splint

Spreading gangrene came on  
 and reached above the knee  
 & he died on the 6<sup>th</sup> day after  
 the injury.

No 2. Botta Singh Aet 50 Sepahis  
 This man was also wounded in

the thigh on the 25<sup>th</sup> Sept-187-

The wound perforated middle third of thigh - & the femur was fractured without comminution apparently, at its middle third. As the man was old and feeble the wound small and the fracture not comminuted an attempt was made to save the limb - it was put in Desault's Splint - Discharge subsequently came on with occasional venous haemorrhage - no attempt at union took place & he died emaciated 27 days after the injury -

No 3 - This Case (Success Iliotibial) has been detailed under the head of wounds of the head. he recovered -

Fractures of leg. Two Cases occurred

No 1 - Sujau Singh Act 30 Sepahi

This man sustained a compound comminuted gunshot wound of Tibia and fibula at the fore end entering into Lucknow on the 25<sup>th</sup> Sept. 1857. The ball had perforated leg at middle seven-  
-al pieces of bone were extracted and the limb was put into splints.

Fifty nine days after - the bones were found united - and he ultimately recovered well. The case gave me a great deal of trouble but as both the injuries of soft parts & bones were small I felt sanguine as to the result - which occurred while we were half starved in Lucknow -

No 2 - This case was noticed already under the head of Tetanus -

Bahadur Khan Act 35 Sepahi

This man was wounded in Kashmir  
 on the 6<sup>th</sup> Oct - by a musket ball  
 on commination he is found to  
 have sustained a Co. Comm. fracture  
 of Tibula with large flake  
 round - several pieces of bone  
 were extracted and a splint  
 applied. The wound began to  
 slough and 5 days after the injury  
 he took Tetanus from which he  
 died two days after its advent -  
 Fractures of Humerus -

+ Bones  
 of Foot  
 One case  
 occurred  
 in Kashmir  
 Fracture  
 of a metatarsal  
 bone  
 it did  
 well -

The cases of this injury were  
 four in number No 1 - proved  
 fatal from Tetanus - it occurred  
 in an European Officer & has been  
 already detailed under that head  
 No 2. This case was doing well when  
 transpired but the fracture had  
 not then united -

No 3. - Capt King Act 30 - Corporal -

This man was wounded on the 14<sup>th</sup> March at the final taking of Lucknow - he had sustained a Co. Fracture of Humerus at upper third from a musket ball - (perforating) Forty-seven days after the injury the bone had united - some trouble had been incurred & an abscess had formed at lower edge of Pectoralis major.

No 4. - Sub High Act 32 - Corporal

This man was also wounded on the 14<sup>th</sup> March - and was found to have sustained a gunshot wound of upper third of arm fracturing humerus transversely - 91 days after the injury the bone was supported by one L. - he firmly united.

## Fractures of the Forearm.

Two cases of this injury occurred

No 1 - Baryam Singh Lt 40 (corporal)  
This man sustained a Gun shot  
injury of forearm on 25<sup>th</sup> Sept. at  
the forced entry into Lucknow,  
the ball perforated arm and  
fractured the ulna near elbow,  
an abscess formed but the bone  
ultimately united - He was followed  
& several pieces of bone came away,  
when last seen probably more  
bone would exfoliate -

No 2 - In this case the fracture  
was near the wrist - it was trans fixed  
and when I left Oudh. was in the  
heel: Now it latterly promoted  
well - after a good deal of inflam-  
mation.

I now proceed briefly to consider

the result of these cases. we have seen  
 that both attempts to save the thigh  
 in the fracture cases were unsuccessful,  
 although the injury was slight to the  
 bone & soft parts. the circumstances  
 in which they were placed in London  
 doubtless had much to do with the  
 fatal <sup>result</sup> - but upon the whole I am  
 inclined to think that amputation  
 as a general rule in such cases  
 is the proper <sup>treatment</sup> procedure - in the upper  
 third of the thigh. when amputation  
 seemed invariably fatal or nearly  
 so - in the Crimea, - under similar cir-  
 cumstances we might not amputate  
 provided the camp were a standing  
 one. In injuries of the leg  
 conservative surgery has more scope  
 and the case in which I tried it  
 did very well - in fractures of

the leg with little communication of  
the bones - small fleck round & the  
vessels untouched. an attempt should  
be made to save the limb.

In fractures of the upper arm. the  
results are as favourable, and  
under similar circumstances an  
attempt should be made. the same  
remarks apply to injuries of the  
forearm - but the treatment is  
exceedingly tedious and laborious  
in a hot climate - two cases of  
upper extremity - injury died of Tetanus  
but these I think must be looked  
upon as exceptional.

I now proceed to  
consider the cases of fracture of the  
extremities in which operative measures  
were had recourse to -

I find that 17 cases of Amputation

126  
have been performed.

11 Amputations.

Of the 17 amputations 15 were single  
& in one a double amputation was  
performed - so that 16 individuals  
were operated upon, of these  
13 were major operations & 3 survivors  
of the minor operations 3 in number  
all survive - Of the major operations  
in Lucknow, none survive, they were  
8 in number - of those operated  
upon out of Lucknow Residency  
5 in number - 3 survive.

Amputation of thigh - This oper-  
ation was performed 5 times  
only one case survives.

1851 - Fortas Singh Aet 30 years

This man was wounded on the  
26: Sept. 1857. by a 32. per shot  
which smashed his leg immediately

above knee. little haemorrhage  
occurred. dangling mass removed  
with a native sword - bandage  
applied, and a compress applied  
over femoral - amputation of the  
Thigh performed in the evening died  
of shock next day -

No. 2 - Fall Camp Oct 31 - Paphos  
This man was wounded at the same  
time & in the same place by the  
round shot which injured the other -  
The limb was also removed by a  
native sword & amputation per-  
formed in the evening - he died  
of shock next day -

Both these cases occurred when  
we were temporarily shut up in a  
house - The wounded managed to  
escape on camels in the night  
we remaining - these amputations

were performed in the Residence  
during my absence.

No 3- Mulean Singh Act 30 Rebels  
In this case the thigh was amputated  
at middle third. The man  
died next evening. The case is fully  
noticed at page 106 - he had also  
his other knee excised.

No 4 Gungor. Act 50. Dooly Beams  
Hindustani. This man was ad-  
mitted into the Camp native Hospital  
at Alumb-angh on the 27 Dec: 17 in  
consequence of an injury by round  
shot. On examination it is  
found that the left knee joint  
is completely smashed in front, with  
a large flesh wound behind &  
below. The condyles of the femur  
are un-injured. The patella &  
the upper wound are retracted

Chloroform given & amputation of  
 the thigh performed. I made a  
 semicircular incision down on  
 the femur - & took the posterior  
 flap from the leg, about two inches  
 of the femur however required to  
 be sawn off. The man did well  
 for several days, during which  
 I kept him on opium & 10z of  
 Vin. 4 times a day as he was a feeble  
 old man - 10 days after the oper-  
 ation Empysemous sloughing of  
 lower flap came on and he  
 died exhausted 18 days after  
 injury.

No 5 - Parvoic Oct. 25 - Madras Native Club  
 This man was struck by a round  
 shot on the right thigh on the  
 morning of the 21<sup>st</sup> July 1858 - On  
 examination it is found that

the knee and the lower third  
of femur are completely encased  
chloroform was administered & I  
amputated the thigh at its middle  
third - This man did well.

I had to transfer him but again  
saw him on 27<sup>th</sup> March - when he  
was looking well & the stump was  
said to be whole -

Amputation of the leg

Two amputations have been performed  
by me both - were in the Presidency  
of Lucknow & both proved fatal  
No 1 - This case was fully detailed  
at page 34 - the operation was secondary  
the man had symptoms of Tetanus  
when the operation was performed  
he died of exhaustion 3 days after  
the operation.

No 2 - A Dandy beaver Oct 25

was wounded on the 26<sup>th</sup> Sept. 1857  
at the Residency jail in Lucknow by gunshot.

Both bones of the right leg were found  
to be extensively fractured, and  
communicated at middle of leg  
with large flesh wound -  
leg amputated below knee without  
fluorine about one hour after  
injury - . The stump sloughed  
secondary haemorrhage came on,  
the posterior tibial was reticled  
the stump began to granulate  
again. but he died of exhaustion  
& decay after the injury . . .

Amputation at the ankle joint -

This operation was performed once  
& in the distant Residency - it  
proved fatal from other causes  
than the injury or the operation  
Ret. return Sept. 20 - This man

surrounded on the side of the heel  
 by a musket ball on the 20<sup>th</sup> 6<sup>th</sup>  
 Oct. in factious; which perforated  
 coming out on the opposite side  
 On examination, the os Calcis is  
 found fractured at the base &  
 several pieces of bone are extracted  
 22 days after the joint is reported  
 swollen. the man labours under  
 Diarrhoea. Operative measures refused.  
 35 days after the injury, the consent  
 of the man was obtained. the  
 injury in its Constitutional effect was  
 wearing him out. he was one of the  
 most manly men of the Regt. before.  
 To day. I performed amputation at  
 the ankle joint (Sympet) - the inci-  
 -sions were made through round, but  
 a good flap was formed. the tissues  
 are infiltrated with serum. at

the base of os Calcis - a large round eaten-looking cavity - where ball had passed. a piece of bone adhered to lower flap & was disintegrated out. slight clung separated from the old cover - secondary haemorrhage came on 7 days after operation & one of the plantars was resected. the lower flap had never united with upper. 9 days after flap reported granulating - This man was transferred. and was one of the sick who were hurried down to Allahabad when the rebels took Cawnpore in Nov: 1858 he died on the road I have little doubt of exhaustion & had he been stationary I have little doubt he would have lived.

Amputations of the arm & forearm

No. 1. Muron Singh Oct 40. Punjab.

This man was blown up in a Masjid by the enemy on the 17<sup>th</sup> Oct. & dug out of the ruins. On examination it was found that the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> ribs of the right side were fractured near the sternum and again near the axilla - & in the interval there was a depression into which the clenched fist might be placed - the depressed portion not being felt and the skin rising and falling with inspiration and expiration.

The left hand is contused, both bones of arm fractured above wrist. Wound near base of radial artery intact.

The right arm is fractured above elbow, a large skin wound also extends to near shoulder joint.

The ulna is also bared in its whole extent. <sup>right</sup> Left arm amputated immediately after injury below shoulder without chloroform. Left forearm amputated at upper third. I found in such operations very little expression of pain. Died two days after of shock.

No 2. Gungoo, Act 40<sup>th</sup>, Coolie.

This man was admitted into the Station Hospital at Calcutta in consequence of an injury to his arm from wound shot on 26<sup>th</sup> June 1858

On examination it is found that he has sustained a compound fracture of upper third of humerus with a flesh wound on inner side of arm extending up to axilla, nearly a good deal of artificial haemorrhage I amputated the arm immediately

largest flap taken from outside.

This case did well - & he was ultimately pronounced by Evk.

No 2. Goolab Singh Art 35 Sergeant

This man was wounded at the storming of the Kaiserbagh on the 14<sup>th</sup> March at the final taking of Lucknow. He was found to have sustained a fracture of humerus with flesh wound - sent off to Field Hospital where arm was amputated at upper third under Chloroform - The stump healed rapidly -

No 3. Nihal Singh Art 40 Corporal

This man was wounded on the 15<sup>th</sup> March at the final taking of Lucknow, in the hand right, the injury was a severe sword cut. Amputation at the forearm was performed there - He was readmitted into

Regth. Morph. on 1<sup>st</sup> April - but died  
on 8<sup>th</sup> April, labouring under a typhoid  
form of Fever - .

No 4 - Pent. Lymph Oct 25. Sebacia  
In this case the forearm was ampute  
- ated - The man had also a wound  
of the knee joint the case proved  
fatal & is fully detailed at  
page 104

The amputations of Lymph 3 in  
numbers were all successful - one  
was attended in Lutterworth with  
secondary haemorrhage -

2 one -  
1<sup>st</sup> - the only  
of two fig

I may now in conclusion advert  
briefly to the unsatisfactory nature  
of these cases as a whole and parti-  
cularly to the unsatisfactory  
nature of operations in Lutterworth -  
already noted, and I must say  
that while the recovery of natives

in ordinary quiet Civil life is very remarkable after severe operations & injuries - in military life under the circumstances in which he were placed - the result - were even more unsatisfactory than with Europeans; a fact I will prove further on - and I am glad to see that the same remark has been already made by others in the King's Campaigns. "An opinion prevails that a native is a better subject for surgery than the European and this may be the case during the hot weather in our old provinces; but our experience during the late campaigns proved the contrary: at least as far as regards the sepsis, exposed to the incidencies of a Northern Climate, during the cold.

and rainy season of the year. The success of surgical operations was consequently greatest amongst the Europeans, - less so amongst the natives of our own army, and still less so amongst the spirit-broken and comfortless wounded of the enemy." And this leads me to say that in military surgery more than in civil we must be cautious in acting upon previous maxims derived from warfare under different circumstances and that often we will find that the safest rule will be to regard the nature of the injury, the individual in whom it has occurred, the circumstances in

D. Maxwell Report of the Field Hosp. Army of the Punjab. Indian Annals Med. Science. No 8. p. 667.

which he is pleased with the gen-  
 eral principles of Surgery as applied  
 to his case.

I append in a Tabular form the  
 major Operations performed with  
 their results including the minor

	Wound	Cured	Did P. Cure	Per cent.	Complications &c.
Comp. of Thigh	14	1	3	75	Shock in 2. Gangrene in 3 <sup>d</sup> fatal cases.
— of Leg	2	0	2	100	1 Died of embolism.
— Ankle.	1	0	1	100	Died of embolism
— Arm	3	1	2	66	1 Died of Shock after Pyaemia
Forearm	3	0	3	100	1 double Amp. died of Shock. Other 2 Pyaemia.
Truncheon	3	3	.	.	.
Wound of Os.	1	1	.	.	.
Total.	17	6	11	64	

Recollecting that these represent all  
 the operations & that the Lukens  
 operations were all fatal I  
 now table the operations performed

on the European part of Naval force. for that part relating to the 90<sup>th</sup> L.I. I am indebted to my friend Dr. Home. Then the Surgeon of the Corps, for the rest I am indebted to assist: Surgeon V. M. Mac. March. 18<sup>th</sup> 78: Highlanders -

Dist	Amputation	No.	Survived	Dead	% Each mortality	Complications
90 <sup>th</sup>	Of thigh	3		3	100	cause of death in the
"	Upper arm	6	3	3	50	6 fatal cases, Pyæmia
"	Forearm	3	3	-	-	in 3 cases, Exhaustion
"	Part of hand	1	1	.	.	in 2 - Sloughing in one.
4 <sup>th</sup> 84 <sup>th</sup>	Thigh	-	-	-	-	
"	leg	1		1	100	
"	Shoulder joint	2		2	100	
"	Upper arm	3	2	1	33	One had wounds in both thighs by Gravel Club - Drunken
"	Fingers	2	2	.	.	One with wounds of lower extremities -

Regt	Amputation	No.	(and	Died	<sup>F.C</sup> Survivors	Complications
Huss	Hand: of High	1		1	100	Died of Shock
	- Leg	2		2	.	Hospital Gangrene
	Suble.	0	0	0	0	
	Parts of Foot	2	2	-	-	
	Upper Arm	1	1	-	-	
	Parts of Hand	4	3	1	-	Fatal from venous hemorrhage.
Madras	- High.	3	0	3	100	
	- Leg	2	-	2	100	
	Sh. J.oe	1	1	.	.	
	Upper Arm	1	.	1	100.	
	Finger	9	9	-	-	
tab	-	47	27	20	42 1/2	

The results although gloomy enough  
it will be seen are more favorable

than those I have recorded amongst  
natives - my time does not permit  
me to criticize the results - more  
closely. I regret that I have not  
at present the results - of operations  
in the 78<sup>th</sup> Highlanders -

I now in spite of these  
melancholy results - distinctly believe  
& hold that in injuries of a severe  
nature <sup>to the thorax, and affections</sup> amputation immediately  
after the injury in military war-  
fare is the proper course & that  
conservative surgery - may under  
such circumstances be the means  
of losing life instead of saving  
it but that the greater proportion  
of injuries of the upper extremity  
may be saved <sup>without operation</sup> if the injury occurs  
under ordinarily favorable  
circumstances - and if it does

not implicate the main artery  
or is attended with a large flesh  
wound.

The operations performed in  
Lusknow during the whole siege  
upon patients, were more satisfac-  
-ory than in my melancholy list -  
my friend, Mr. Emslow then details  
them - "It will be remarked that  
two of these amputations were partial  
- Rays & Chopart's of the foot. (both  
were successful.) Of the thigh there  
were 10 amputations, of which two were  
erect. Of the leg 7. of which one  
was of the shoulder joint  
three of which one was of  
the arm, four; of which three were  
of the forearm one which was  
All the amputations were primary,  
except four - three of the arm, and

one of the thigh, two of the foot  
recovered.

There were also three. Cases of amput.  
ation of fingers, two of which did  
well; while one was followed  
by mortification and death.

The causes of death among  
amputations, as in other cases,  
may be divided under four heads,  
- viz - : Shock nine cases - irritation  
and exhaustion four; mortification  
(moist gangrene, two; and Tetanus  
two - + + + The shock of the

operation, in many cases, was no doubt  
increased in consequence of their  
being little or no Chloroform; while  
the degenerated atmosphere of the  
entrenchment, the want of many  
necessary comforts, and the  
generally depressing circumstances

740  
of the Garrison, made the patients  
an easy prey to the other causes of  
mortality.

It is a curious fact, that  
the operations performed on the  
wounded of the force, which, under  
Generals Outram and Havelock,  
so gloriously relieved Lucknow on  
the 25<sup>th</sup> Sept; were even more un-  
successful than those performed  
among the old Garrison. It  
would almost appear that the  
original inmates of the Garrison  
had become so to speak acclima-  
tized - At Delhi where  
the troops were not so much  
confined and where supplies

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were generally abundant. The mortality was much less. Of 53 operations in the Hosp. of the 1<sup>st</sup> Bengal Fusiliers - 10 only proved fatal 13. of the cases however were partial amputations of the hand or foot.

12 Chloroform. This agent was used whenever it could be had by me and every other surgeon to our fire

Where Chloroform is plentiful the handkerchief is probably the best vehicle - but it wastes not a little of the Chloroform, I, from notions of economy have been in the habit of using a simple vehicle invented by my friend S. Simpson.

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Civil Surgeon of Dacca - it is a small  
tin instrument - perforated with holes  
with a layer of sponge at the bottom  
and adapted for the mouth & nose  
by its margin being surrounded with  
chamois leather - it is held in the hand.

Some years ago I was struck  
by the small quantity of Chloroform  
required in operating upon natives, and  
for some time believed that this suscept-  
ibility was a peculiarity of the native  
probably from his using less alcohol  
than an European - I have found  
however as my experience has extended  
that Europeans are equally susceptible  
In a native 11 or 12 years old, I have performed  
dilatation with - certainly not above 3<sup>grs</sup> of  
Chloroform - and in a case of amputation  
of the thigh I have kept up <sup>the</sup> anæsthesia  
<sub>in an European</sub> during the operation with - only 1½ drs

of Chloroform - This occurred in 1844  
 95. 23. Dr. Home Surgeon of the Regt  
 operated - The instrument used un-  
 doubtedly caused the Chloroform heat  
 these exist in India & Guilely in  
 being anaesthetized, which should  
 be borne in mind, otherwise dang-  
 -erous consequences might ensue &  
 which is I am constrained to think  
 owing to the depressing influence of  
 climate, and the drowsy state which  
 all get into except in the cold season -  
 and which is probably owing to the  
 imperfect elimination of carbon.

And now I bring  
 these notes to a close sensible  
 that in many parts they are  
 too profuse, in others too sparing  
 but I would only remark that  
 from the hurried manner in which

They have been strung together,  
Condensation is more difficult  
than the reverse. I only hope  
that they may be of some  
service as a contribution to the  
original history of the memorable  
and arduous Indian Campaign  
of 1857 & 1858

John Brown

Edin<sup>g</sup>. June 14/59.