Thesis
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entitled
"Notes on some of the more Prevalent Diseases of the Egyptian Expedition of 1882-83"
by
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Notes on some of the more prevalent Diseases of the Egyptian Expedition of 1882–83.

During the Egyptian Expedition of 1882–83, from the landing of the troops at Somaolia till after the battle of Tel-el-Kebir, the amount of sickness was neither very great nor of a severe type.

The most numerous cases of illness at the commencement arose from bad water, bad food, insufficient protection from the heat during the day and from the cold by night.

On the present occasion, I do not include the number of wounded that arose during the various engagements with the enemy at Mahuta, Mythamneh, Nassa, Amen (on 28th August 9th Sept.) and Tel-el-Kebir, (as the number of wounded bears a very small proportion to the numbers who were ill or died from disease), but shall confine myself entirely to the latter class of cases.

Before proceeding further, I may as well give a short account of the various means of rendering assistance to the sick wounded of our army in the field.

For that end, there were different kinds of hospitals, each adapted for a particular purpose.

First of all there were the Base Hospitals...
Hospitals to which all the most serious cases were sent, from which the men, who were unfit for further service, either by reason of wounds or disease were transferred on board ship for removal either home or to some other station.

These hospitals were at first, owing to the exigencies of the service, the change of base of operations, the rapid nature of the advance, merely Stationary Field Hospitals & it was some time before they could be properly equipped as Base Hospitals as in the case of the hospital at Jamaica.

Next to the Base Hospitals, Came the Field Hospitals, which were used for the reception of minor cases which were not likely to require treatment for any length of time.

These were again subdivided into Movable & Stationary Hospitals, the former moving along with the Divisions of the Army to which they were attached, the latter being stationed at some fixed point to relieve the pressure on the former.

In these Hospitals, Cases were received which required more treatment in the way of medicines & medical compo.

Before an engagement they were emptied.
emptied as far as possible by sending all the glibtair cases to the base hospitals in the rear.

After an engagement, all the wounded, after being first taken to the dressing stations, were brought to the field hospitals, where the more serious operations, that were necessary, were performed, such as amputations, extraction of bullets, setting up fractures &c.

Afterwards, as far as practicable, the wounded were transmitted by the various lines of communication to the base hospitals, where they underwent prolonged treatment, and were ultimately fit for further service, sent on board ships for transmission home.

The field hospitals, being thus emptied, were ready to advance with the army and receive more pick of wounded when necessary.

In addition to this, each regiment had one or more medical officers attached to it, to attend to any slight cases of illness or accident.

For removing the wounded from the battle-field, there were the Bear companies whose duties were, to apply the first dressings, arret haemorrhage, put on temporary bandages, give want, &c. to remove the wounded to the field hospitals for further and more detailed treatment.

It will be seen that there is thus
A complete system of communication, from the time the man falls wounded on the field, till the time he is put on board ship for home.

In the present case the communication between the front and the base, was kept up by means of the railway and the canal. The former was the more expeditious but it was very rough and jolting; the latter was farther longer owing to the small quantity of water in the Canal but it was cheaper and did not shake the wounded so much.

I have thus endeavoured to give a short account of the means of affording relief treatment to the sick and wounded during war, in order to explain the difficulties which attend the carrying on of the Careful and Continuous treatment of cases, which is so requisite for the well-being of the patient and which on the present occasion, owing to the exigencies of the service and the necessities of war, could not be so carefully carried out.

The pick were constantly being passed on from the hospitals in the front to those in the rear in order to prevent the former getting filled up so as to keep them always available for contingencies which might arise at any moment.
If we take into consideration that the bulk of the troops landed at Somaiali only towards the latter end of August, that the battle of Tel-el-Kebir was fought on the 13th September, it is scarcely to be wondered at that, during that period, there was no time for illness of a grave or serious nature to arise.

There were a few cases of diarrhoea, dysentery, and sunstroke, which latter arose from direct exposure to the sun's rays, while employed in arduous of fatiguing duty. But they were of a mild nature and quickly recovered under appropriate treatment.

This immunity from illness may be accounted for by the fact, that when the men landed, they were all in good health; although they were exposed to intense heat, want of water, (at least good water), bad bread &c; yet the excitement of the campaign had a great influence in sustaining them during their trying and arduous work, but when they arrived at Cairo, after the conclusion of the campaign, the excitement being withdrawn, being surrounded by peculiar hygienic conditions, the strain which they had undergone began to tell upon their health.

The result in the first place, take a glance at the hygienic surroundings of the men during the campaign and immediately.
immediately afterwards.

After they were landed at So-
manda, they were pushed forwards to
the front line as fast as possible.

At the various camps along the
line of the Sweetwater Canal, they
were encamped under single-tented

tents, which afforded insufficient

protection from the heat during the
day & the cold by night.

Many of the men had no tents
at all, & were not even provided with

greatcoats for some time after they

landed.

Most of the camps were formed
on or near old encampments of

the enemy & in the vicinity of those-

\center battlefields.

As the Egyptians had apparently
no sanitary arrangements in their at-

temy, the air was distinctly tainted
with the putrid emanations which


preceded from their camps & also from

the numbers of dead men & animals

which were buried in the neighbour-

hood.

All the water for drinking & other

purposes had to be obtained from

the Canal, which was in a very low-

condition, owing to its having been

dammed at several places, giving

up, which was at that time nothing

more nor less than a stagnant pool & few
Hygienic surroundings...

(Continued)

The Canal had been used by the enemy for every imaginable purpose besides that of drinking.

It had been used for washing, cooling, and emptying the filth of their camps, in fact it was a convenient receptacle for anything that had to be disposed of, either likewise used as a means of transit for large quantities of stores.

Consequently, the water, when we came to use it, was of the colour and consistency of thick coffee.

It contained a large quantity of decayed vegetable and animal organic matter, both suspended and dissolved. Besides its unpleasant appearance, it had a distinctly unpleasant foetid odour which could be perceived at some distance, which pervaded the breath, and expiration of those who drank it.

Filtration, although it removed most of the suspended matter, released the water to a considerable extent, was unable to remove this unpleasant smell.

Notwithstanding the water was fairly pleasant to the taste, having a peculiar sweetness which is characteristic of the Nile water.

At some of the Bembo wells were sunk in the sandy soil at some distance from the banks of the Canal and the water.
water having percolated through the gravel washed into the well, was pumped up from them for use.
This had the effect of purifying the water to a great extent, if it were subsequently boiled & a little alum added to it, it was rendered fairly potable.

It was recommended, that if possible weak tea should be carried in the men's water bottles, instead of the water alone, the used for quenching the thirst on the line of march.

A little of the limejuice, which was issued as a ration, when mixed with water, to a weak tea made a very refreshing drink.

The men were likewise provided with pocket filters of Siliceous Carbon, where practicable boiled water, afterwards or added alum to it.

But after great exertions of fatigue, the men were so exhausted, that they readily drank the water in its natural condition without waiting to employ any method of purification.
This was a very fruitful cause of illness & sickness, producing gastric disturbances, irritant anthesis after marked by the passing of blood & a certain amount of tachyly, this simulating mild cases of dysentery, but readily cured by appropriate treatment.

Cause of Illness. Cause I. Bad Water.
No III.
Cures of illness (continued)

Another predisposing cause of illness was the insufficient protection of the men from the great variation in temperature between the day & the night.

During the day the heat of the sun was exceedingly great, & this was rendered still more intense from the sandy nature of the soil, on which they were encamped.

In the evening & during the night a heavy dew used to fall which wetted the men & chilled them thoroughly, as many of them had no great coat & few had blankets.

This produced many cases of dia-

There was supplied for rations sour, dark in colour & sodden, so that when it was a day old, it got perfectly hard & unedible.

Ship biscuits which were issued every second day were much liked & preferred, if they were relished by the men.

So the bad bread were attributed many of the cases of diarrhoea & chills.

The meal supplied was in the whole good, fresh meal being issued every second day & at other times tinned Australian meal.

Tea, coffee, sugar, &c. were issued in sufficient quantities & were found to be very efficacious.
A ration of limejuice was added every day after the troops had been a week or so in the field.

Rum was issued every third day as it was thought to have a beneficial effect, but the evidence on that point is somewhat doubtful and insufficient data could be obtained to speak positively, as the issue was of short duration.

It was issued to the men at the end of the day before going to rest so that probably if it did no good it at least produced a minimum of harm.

Dr. Parker's conclusions from the Ashanti Campaign of 1874, as of the opinion, that when given in this way it seemed to do good.

On the whole, the necessity for rum ration was by no means proved, although some officers returned after their return in their previous belief that alcohol was absolutely unnecessary in a military expedition" (vide Parker's Hygiene, 3rd Edition, page 305).

However, the mere fact of the rum ration being issued seemed to make the men more contented under their hardships.

While mentioning the various causes of sickness, during the time the men were in the field, I must likewise mention...
tion that the sandy nature of the soil of the desert, which looked upon as an exciting cause of disease.

The close sand varied in depth from 3 inches to half a foot or more, and was constantly being stirred up by the traffic or by the wind.

Large quantities of it in consequence passed into the system, being swallowed along with the meat food and drink, and undoubtedly caused many cases of intestinal irritation, diarrhoea, or cholera.

After the battle of Tel-el-Kebir, the troops moved forward to Cairo, as rapidly as possible, some by rail and others by forced marches.

One regiment went to Sohag, another to Bensber, some to Zagazig, but after a short stay at these places, as they proved to be very unhealthy, there were numerous cases of malaria, dysentery, intermittent fever, & ophthalmia occurring amongst them, they were with

The cause of the unhealthiness of these places was their nearness to low-lying land in the vicinity of the Nile, the water supply which was derived from these sources.

On the arrival of the troops at Cairo, they were stationed at the

Citadel.
Citadel, at Abbassiyeh, about four miles to the east of Cairo, and Chezir, about two miles to the west of the town.

At the Citadel which is situated on a rising ground to the South of the city, and the termination of a range of low sandy hills which run down towards the Nile, the troops were located in barracks, which had previously been used by the Egyptians for many years.

Any one who knows the habits of these people may imagine the state of filth they were in.

Their water closets consisted of mere circular holes, cut in the stone floor leading by a pipe or sometimes a simple shaft into the cess-pits underneath.

There were no traps of any description nor was there any water supply to flush the pipes.

There was consequently a free access for fetid gases from the cess-pits underneath into the room above, in fact everything tended to that effect.

The cess-pits had probably not been cleaned out for years, possibly not since they were made, many years ago.

(There was no drainage at all)
and the water supply was obtained partly from wells and partly from the Nile water, brought in by means of pipes. After the occupation by the British Forces, most of these latrines, if they may be so called, were shut up and latrines dug in the ground near the barracks.

In the case of patients, there were latrines provided for those who were able to use them, and for the others pans on the earth. Close system were placed in small rooms near the wards which were emptied as soon as used into trenches dug for that purpose, then covered with earth.

Subsequently the ordinary sieve close stools were used, and their contents similarly disposed of.

At Abbassiyeh, the Cavalry Artillery were stationed, mostly under canvas, but partly in barracks. What has been stated about the condition of the barracks at the Citadel applies equally to this case.

Tents were pitched on the sand, which however was harder than the earth. The barracks at this place were found to be so unhealthy both for the men and horses, that the Cavalry Royal Horse Artillery had to be moved.
Moved to a place called Helwan, Abbassiyah (cont.
noted for its sulphur baths, about
15 miles further south, where they
enjoyed better health.

At Shezirah, which is a sandy
island in the Nile, connected to the
mainland by a bridge, the men
were all under canvas.

They were exposed to much the
same conditions, as they were, when
on the desert.

Added to these, however, they were,
exposed to malarial influences, from
the situation of their Camp on low-
lying land close to the Nile.

But this Camp had to be oc-
tained on account of its strategic
value, as it commanded the ap-
proach to Cairo from that side.

I have dwelt at considerable
length on the hygienic surroundings of
the men, both during & after the cam-
paign, in order to account for the
large amount of sickness amongst
the troops which subsequently arose.

I will now notice briefly the
state of affairs at Alexandria & give
a more detailed account of the sickness
there, as it was with that station
that I was more intimately con-
tacted after the termination of the
campaign, previous to which time
I accompanied the troops from I.-
= Ma'dia.
Mailia all the way along the Sweetwater Canal to Mahute, Mahsumeh Kassassin, Tel-el-Kebir & Cairo, remaining in the latter place for some time.

I may merely add that what applies, as regards kinds, causes and amount of sickness, to Alexandria, applies in a still greater degree to Cairo, where the sickness was, if anything, more extensive & more fatal.

At Alexandria the troops were distributed as follows.

The 2nd Battalion of the Royal Irish Regiment was stationed at the New Quarantine Barracks about 1/2 mile to the west of Alexandria, in the direction of Fort Mack.

This situation proved to be very unhealthy as there was a larger proportion of sick in that regiment than in any of the others at that station.

Most of the cases admitted from there were of a fever nature & many of them proved fatal.

The ground in that locality was very flat, in the immediate vicinity were extensive marshes & swamps connected with the system of canals which pass close to that spot.

It lay quite near to Lake Maracaibo, the shores of which were marshy & surrounded with reeds.

In hot weather, a distinct effluvium proceeded.
proceeded from the shores of the lake

undoubtedly caused many of

the cases of sickness, as fevers of a

paludial nature (intermittent or

remittent) were more common in

that regiment, than in any of

the others & most of the diseases were

accompanied by a malarial ele-

ment as will be seen in the more de-

tailed account of some of the cases

later on.

This place had been used for a

considerable time by the Egyptians

as a Quarantine & consequently was

not in a good sanitary condition,

there being no drains of any de-

scription.

For sometime, part of this regi-

ment was under Canvas & after rain

the neighbourhood of the tents became

well retained the moisture for some

time.

The men at that time were not

sufficiently protected from the change

in the weather & after rain there was

decrease in the admis-

sions to Hospital

The 1st Battalion of the Royal

1st Kent Regiment were stationed in

barracks (at Pao-el-Din Palace), on

the opposite shore of the harbour &

being on a narrow strip of land, with sea

on both sides, were under favorable circumstances.
The 2nd Battalion, Duke of Cornwall's Light Infantry, were stationed in barracks at Ramleh Palace about 2 miles to the east of the town, and near the sea, were on the whole favorably circumstanced.

The 5th Battery of the 1st Scottish Division were stationed at Nom el Dik, a fort on an eminence in the centre of the town, and were in a good position.

The remainder of the troops in Alexandria, viz., the Royal Engineers, the Commissariat and Transport Corps, the Ordnance Store Corps, & the Army Hospital Corps, were stationed in various parts of the town under fairly good circumstances.

During the first three months of the occupation, there were two hospitals at Alexandria for the reception of the sick & wounded.

One of these was situated at Helma, and the other in Alexandria itself, at a place called Gabarto.

The former had, on account of several bad cases in it, to be kept open till the 23rd of November, but was practically closed for the reception of sick in the middle of October, as by that time all the regiments of that station had left, either for home or for Cairo.
I shall now proceed to give the statistics of the Hospital at Ramleh from the 2nd September till the 30th November 1882, at which date the hospital was finally broken up.

Before the 2nd September, all the sick and wounded were treated in the Alexandria Hospital, which was the first one to be established.

During September the average September strength of the troops at Ramleh was 2795 vo 93 that number 330 were admitted to hospital, with 3 deaths.

Remaining in Hospital on the last Friday of the month 137.

Average number constantly sick was 157.86.

During October the average strength October for the whole month was only 269.2, as the most of the troops had left the station by that time.

Number of admissions during the month 30, with 9 deaths. Remaining on the last Friday of the month 32.

Average number constantly sick 57.35.

No admissions in November, but 1 died. Average number constantly sick 10.17.

Average strength for the whole period November 1021, admitted during the period 380.
385. Total number of deaths 13.

Average number constantly sick 42.46

Out of the 385 Cases admitted during the period, there were 69 Cases of Enteric Fever with 13 deaths.

Therefore 3.42 percent of the admissions died. Of the Enteric Cases 18.84 percent died.

Percentage of admissions to strength 12.36

" Admissions to strength 1.26

" Enteric cases to admissions 18.15

Invalidating during that period, i.e. transport to England for change as not being likely to recover and be fit for further service in Egypt within a reasonable time, 15 cases. Of these 12 had suffered from Enteric Fever 9 from Remittent Fever.

Of the Enteric Cases invalided, given between 20-24 years of age 43 between 25-29 years of age.

The case of Remittent Fever was over 40 years of age.

12 of the Enteric Cases were over 14, less than 5 years service, and 2 were over 5 less than 10 years service.

The case of Remittent Fever had over 15 years less than 20 years service.

The two following tables show the admissions according to age served.
### Table I.

Showing Admissions, Deaths & Incubility, according to age in Quintennial Periods.

<table>
<thead>
<tr>
<th>Under 20 years of age</th>
<th>20-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40+</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted</td>
<td>3</td>
<td>23</td>
<td>16</td>
<td>23</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Died</td>
<td>0</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>In Quotients</td>
<td>0</td>
<td>9</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table II.

Return Showing Admissions into Hospital & Deaths by Periods of Service.

<table>
<thead>
<tr>
<th>Under 1 Year of Service</th>
<th>1-2 Years</th>
<th>2-3 Years</th>
<th>3-4 Years</th>
<th>4-5 Years</th>
<th>5-6 Years</th>
<th>6-7 Years</th>
<th>7-8 Years</th>
<th>8-9 Years</th>
<th>9-10 Years</th>
<th>10+ Years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted</td>
<td>1</td>
<td>25</td>
<td>93</td>
<td>44</td>
<td>29</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>47</td>
<td>37</td>
<td>380</td>
</tr>
<tr>
<td>Died</td>
<td>0</td>
<td>4</td>
<td>11</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

No information was obtainable as to the total number of men, of each of the quintennial periods in Table II, who were present at the station during the period and under consideration, so that only a general idea can be got of the relative healthiness or otherwise, of each of these quinquennial periods.

The greatest number of admissions was between 20 to 24 years of age, with deaths all from Syphilis & Quinsy, i.e. 4 & 3 respectively of those admissions died.

Again.
Again in the period from 25-29 years of age, there were 116 admissions & 3 deaths, giving 2.58 percent of deaths to admissions.

These two periods give 12 out of the 13 deaths from Enteric Fever & 14 out of the 15 cases invalided, all being caused by the same disease. (End Fever)

This shows, as has already often been shown, that amongst young soldiers the most fatal disease is Enteric Fever, which attacks them generally between the ages of 20 to 30, & more especially during the first few years of their service, the older men the more longer service escaping almost entirely.

We must bear in mind, however, that the greater portion of our soldiers now always are between the ages of 20-30, the average being about 25 years. Although less so on this occasion than on others, because many of the younger men were left behind, when their regiment embarked for the war, their places being taken by older men drafted from the reserves.

The average age of the men who died during the period under consideration was 24.34 years.

The most fatal period seems to extend for a few years on entering the point.

Average age of the 14 cases from the same disease.
Disease was 23-21 years.

Of the other cases admitted, conjunctivitis gives 51; Simple continued fever 26 (probably some of these were mild cases of Cholera, Remittent or Intermittent. See:p. 190). Paraspanal fever i.e. Remittent and Intermittent 418 cases.

Diseases of the Digestive System gave 91 admissions including 69 of diarrhoea and 14 of dysentery.

General Diseases of the Segular only gave 12 admissions, but the small probability arose from the want of the opportunity to contract them, as at the period under consideration, the men were encamped at some distance from town to which they had little access as the war was going on at the time.

At the end of September, most of the troops were withdrawn from the Station and all had left by the middle of October. So that at this time, most likely to reduce these diseases, the men had all gone to Cairo & Alexandria, a very large number of these Cases were admitted.

The Cases of diarrhoea and dysentery were not of an aggravated nature and quickly recovered under appropriate treatent.

The Conjunctivitis was of a mild type, caused by the irritation of the sand & dust, glare of the sun; Ramleh being very exposed to the sun's rays. This was...
Conjunctivitis. - Two of the pole being bystanders in the case did permanent injury to the eyes ensuing.

The much dreaded Egyptian Ophthalmitis either did not occur at all or in an exceedingly mild form.

The cause (of the Enteric Fever) was found to be water from a well, contaminated by sewage from a cesspit in the neighborhood.

Several cases of the disease arose among the patients in Hospital, and the attendants on the sick (officers of the Army Hospital Corps), through the use of a contaminated well in the vicinity of the Hospital.

All the wells of that part of the country are exceedingly liable to be contaminated by sewage, as cesspits are in universal use and the soil very porous. In some years, Enteric Fever appears as an epidemic, and is never entirely absent.

On post mortem examination of the men who died from that disease, well-marked typical lesions were found.

Of the whole the diseases which occurred were such as might have been expected, if they are those that always occur during and after every campaign.

If we take into consideration the exposure, fatigue and hard work, the men had undergone during the Campaign, and
and for some time afterwards, I do not think that either the amount of sickness or mortality can be looked 11
ed upon as excessive or exceptional.

The Hospital for the treatment of the sick at Alexandria was situated to the west of the town, near the harbour & near the Gabari Bridge over the Mahmoudieh Canal and not far from a railway station.

The first advantage of this site was its nearness to the harbour, was a point of considerable importance as during the war, invalids were constantly being sent from the hospital to the ships for treatment or return to other stations.

The Hospital itself "Cantare" used to lie in the harbour, close to the hospital and receiving the most of the convalescent patients.

After the conclusion of the war, its proximity to the Canal & Railway Station was likewise of great advantage as it was by these routes that the sick & invalids arrived from Cairo.

It had the further advantage of being near the troops and the stores of supplies.
On the other hand, there were several grave disadvantages, which were as follows.

The building, which was used as an hospital, had formerly been a store for cotton & cottonseed, and was a large one-storied block, rectangular in shape & with a flat roof, supported by a large number of iron pillars & covered externally with a thick layer of con- 

...ndings attached. 

Being intended for a store, the building had only a few small windows from gratings with wooden shutters near the roof, which made the supply of light very bad & caused the place to be 

...very gloomy

Ventilation was also bad as there was either a draught from the doors or the doors being closed the ventilation became defective.

Subsequently to remedy this, a number of ventilators had to be cut in the roof furnished with protection from the wind & rain, but notwithstanding, in wet weather, the rain used to come down through them, as well as by the windows before mentioned.

If under these circumstances the windows & ventilators were shut, the wards became very dark & the air 

In the north of the Hospital and 

between
between it and the harbour, there was a large piece of waste ground which had been used for many years for emptying the refuse of the town into.

On the side next to the hospital it was hard to firm there the latrines were placed, trenches cut, in which to bury the excreta from the wards. On the side next the harbour, the ground was swampy and pools of stagnant water lying all over it except in very hot weather when it was dry.

As the wind generally blew from the North, we had to pass over the swamp & the ground on which the latrines stood before reaching the hospital. In the hot pulty days and nights, a distinctly offensive smell used to come from this swampy spot. From the nature of the surroundings, streets on every side, this was the only place where the latrines could be erected.

The mortuary was situated in a small house across the street at mortuary on the south side of the hospital.

The wards were divided into two large medical one (each nominally sub-divided into two smaller ones for ease in administration) and one large surgical ward.
Rough plan of the position of the Station Hospital, Alexandria, with its surroundings.

Explanations. The points marked 'D' on the plan are doors leading into the various wards.

The two divisions of the hospital were separated by a court-yard, entered by an arch-way at each end. Over these archways at each end was a level with the roof were three small rooms, used for sick officers & afterwards the Nursing Sisters. In the court-yard itself were the Hospital guard, the Oblation Rooms, the Hospital Kitchen for B osting purposes, & the Water-pipes. The archways were closed by large doors.

A. G. Road, 1848
Egypt arm'y
and one large ward, subdivided into a Venereal and Ophthalmic Ward. There was also a large ward, called the General Ward for slight cases, and the General Ward for Cases requiring Observation for a few days.

In this last ward, the officers of the Army Hospital Corps used to sleep.

This hospital was at first merely a Field Hospital, being called the 79th Field Hospital, but after the beginning of October it was converted into a Station Hospital, equipped and fitted as such, every comfort being provided.

In the courtyard between the two wings of the building were placed the cooking ranges, the ablution rooms of the Hospital guard.

Water was obtained from the pipes of the Alexandria Water Company and was abundant in quantity and of fair quality, being always filtered before use, either by means of the silicated carbon filters or the native earthenware filters which latter gave very good results, purifying the water to a great extent.

Owing to the large nature of the wards and the impossibility of treating patients separately, cases of enteric fever, dysentery, etc. were mixed with the other medical cases, but, although
A careful watch was kept in single Alexandria Hospital. Case of that description was believed to have originated in hospital.

One mild case of confluent small-pox occurred amongst the troops and was satisfactorily treated in an hospital mortuary placed on the flat roof of the hospital.

No other cases of that disease occurred in this district, although there were one or two mild cases at Theziris near Cairo.

All the wards, including the General Surgeon's Ward had accommodation for 362 patients if we include that ward then about 100 more could be accommodated. Although this was the arrangement latterly, yet at the time, when the sick were coming in, in great numbers, the wards held considerably more.

Numbers I & II Medical Wards contained 8836 feet of superficial area & accommodated 88 men, giving a little more than 100 feet of superficial area to each patient.

Numbers III & IV Medical Wards were of the same size & accommodated the same number of patients.

Numbers I & II Surgical Wards together had a superficial area of...
9300 feet and accommodated 93
patients each having 100 superficial feet.

The Ophthalmic & General Wards were of the same size as the Surgical
Wards and held the same number of pa-
ientes viz 93.

The General Ward being merely
for temporary cases contained more
patients in proportion than the others.

The Medical Wards contained
the Surgery & Dispensary & therefore
accommodated rather fewer pa-
ientes than the others.

The height of all the wards was
22 ft. so we reckon the whole of that
as available for the purposes of venti-
clation, and in this case I think we
may, on account of the large num-
er of ventilating shafts in the roof,
it gives to each patient 2200 cubic
feet of space.

If we take the height available for
thorough ventilation at about from
12 to 16 feet, that would give 1200 to
1600 cubic feet to each patient.

The ceilings of the wards after being
thoroughly disinfected by means of an
in-the-bead Burnetts Disinfecting Fluid
Condy's Fluid or McDougall's Dicin-
fecting Powder, were blown deep in
the waste ground previously men-
tioned.

In the latrines the dry earth was...
The meal was served and was found to
work very satisfactorily. The contents
of the vats being subsequently buried.

In the morning, casks tamped in
the inside were used, being emptied
frequently.

Cooking was carried on efficiently
by means of two large French
cooking ranges which could cook
for over 50 patients at once.

Beside the bed of each patient in
Hospital, there was a small bedside
table with shelves in it, for keep-
ing the patient's clothes, knives and
spoons etc; so that each bed was com-
plete in itself.

In hot weather, each patient who
wished it, had a mosquito curtain
over his bed. This was a great com-
fort on account of the swarms of flies
during the day and mosquitoes by
night.

During the winter as the weather
was occasionally very cold and stormy,
stoves were placed experimentally
in one of the wards were found
to answer fairly well, but they were
not required for any length of time
as the weather soon improved.

The treatment of the sick was
continued in the same manner
as at home.

There were a few nurses who
were employed in nursing the sick, in giving medicines & nourishments, and in carrying out the medical office instructions.

They were found to be of great use in this way.

The men of the Army Hospital Corps performed the ordinary ward duties, attended to the sick, cooked their food & did everything that was requisite in the wards.

They also acted as special attendants on the serious cases.

When patients became convalescent, they were sent on board the Hospital Ship "Carthage," which lay in the outer harbour a short distance from the Hospital.

Most of the patients did very well on board ship, but some of them seemed to suffer a good deal from colds, especially at night.

I shall now proceed to give the statistics of the 1st Field Hospital at Salamis from the 9th July 1882 (the date of its opening) till the 9th October 1882 when it became a Station Hospital, the statistics of which will be shown later on.

I have attached a tabulated return showing the admissions, deaths, invaliding &c from the principal dis-
of the total admissions were made up of lighter cases such as contusions, cut and lacerations, sprains, and a few cases of bronchitis and pneumonia. Of the 1934 cases, 1146 were admitted locally, that is, they were treated in Alexandria. Of the 788 non-local cases, 268 were invalided from the station for change of climate. If the non-local cases 360, or 0.28 per cent, were invalided, giving 23.57 per cent of the total admissions invalided.

All men were invalided for change of climate who were not likely to be cured by the facilities for service in the country within a reasonable time.

Of the 1934 cases mentioned above, 2 died, or 1.13 per cent.

Of the remaining 327 cases, 2 died, or 0.34 per cent, 1 from abscess of the liver.
<table>
<thead>
<tr>
<th>Diseases</th>
<th>Admissions</th>
<th>Deaths</th>
<th>Percentage of Deaths to Admissions</th>
<th>Invalidated</th>
<th>Percentage of Invalidated to Admissions</th>
<th>Percentage of Total Cases to Total Admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Return A.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diapentery</td>
<td>113</td>
<td>3</td>
<td>2.60</td>
<td>1.53</td>
<td>9.96</td>
<td>6.08</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>281</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>23.111</td>
<td>8.18</td>
</tr>
<tr>
<td>Simple Cold Fever</td>
<td>128</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>17.17</td>
<td>13.28</td>
</tr>
<tr>
<td>Enteric Fever</td>
<td>16</td>
<td>4</td>
<td>5.00</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Intermittent and Remittent Fevers</td>
<td>136</td>
<td>35</td>
<td>1.00</td>
<td>2.85</td>
<td>8.17</td>
<td>5.88</td>
</tr>
<tr>
<td>Diseases of the Eyes</td>
<td>231</td>
<td>152</td>
<td>0.00</td>
<td>0.00</td>
<td>157.107</td>
<td>67.96</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>239</td>
<td>37</td>
<td>0.00</td>
<td>0.00</td>
<td>28.12</td>
<td>11.71</td>
</tr>
<tr>
<td>General Diseases</td>
<td>483</td>
<td>44</td>
<td>0.91</td>
<td>0.00</td>
<td>28.00</td>
<td>5.79</td>
</tr>
<tr>
<td>Other Diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21.41</td>
</tr>
</tbody>
</table>

**Remarks:**
- After 9th Oct, this hospital became a Station Hospital.
- Influenza epidemic.
- 1 death from accident.
No IX.

Statistics of the 1st Field Hospital.
(Continued)

...lived, and the other from fracture of the spine, the result of an accident. Thus we have a total of 21 deaths in 24601 admissions or rather less than 1 death per cent.

Almost all the cases of Diseases of the eyes, shown on the Return were cases of Conjunctivitis, caused by the irritation of the sand and dust of the glare of the sun.

...all proved of a mild type and in no single case did permanent injury ensue, but in order to prevent a recurrence of the disease in those most susceptible to it, the greater proportion, nearly 40 per cent, of those cases were inviolad for change of Climate.

This is a high mortality among the Enteric cases, both local and non-local, but this is to be accounted for by the exhaustion and exposure during the Campaign, to their contaminated surroundings.

This Disease always proves very fatal during and after Campaigns, the men having little stamina to resist it.

As mentioned before, probably some of the cases returned as simple Continued Fever or Overtired were mild cases of Enteric Fever, if this were so it would lower the percentage considerably.

This is rendered more probable from the fact...
the fact, that many of the cutaneous cases were complicated with Paratyphoid or with Dysentery, and this was provEd by the Postmortem Examination.

The Venereal Diseases consisted chiefly of Gonorrhoea and Primary Lymph, both the indicated from endemic varieties in about equal number.

Under treatment, as a rule, they speedily got better.

Station Hospital

Alexandria

On the 10th October 1882, the 2nd Field Hospital, was converted into a Station Hospital & I shall now proceed to give the Statistics of the latter hospital from the 9th October to the 31st December 1882.

During that period the total admissions amounted to 2802.

Of these, there were admitted locally 1509, & non locally or transferred from other hospitals or stations, principal]y from Cairo, 1293 cases.

The average number constantly sick during that period 206.48, & the number remaining in hospital at the end of the year was 218.

The average annual strength at this station was 2280, with 1509 admissions to hospital or 66.18 per thousand.
<table>
<thead>
<tr>
<th>No. of Diseases</th>
<th>Admissions</th>
<th>Deaths</th>
<th>Percentage of Deaths to Admissions for these Diseases</th>
<th>Invaliding</th>
<th>Percentage of Invaliding to Admissions</th>
<th>Percentage of Hospital Cases to Hospital Admissions</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entere fever</td>
<td>93</td>
<td>15</td>
<td>39</td>
<td>8</td>
<td>56.6%</td>
<td>31.5%</td>
<td>3.14</td>
</tr>
<tr>
<td>Scarlet Fever</td>
<td>101</td>
<td>16.4</td>
<td></td>
<td>85</td>
<td>97%</td>
<td>42.3%</td>
<td>13.02</td>
</tr>
<tr>
<td>Intermittent and</td>
<td>102</td>
<td>91</td>
<td>3</td>
<td>4</td>
<td>2.9%</td>
<td>44.1%</td>
<td>6.88</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>195</td>
<td>178</td>
<td></td>
<td>93</td>
<td>58%</td>
<td>33.4%</td>
<td>4.77</td>
</tr>
<tr>
<td>Ophthalmia</td>
<td>209</td>
<td>173</td>
<td></td>
<td>99</td>
<td>107%</td>
<td>47.36%</td>
<td>13.63</td>
</tr>
<tr>
<td>Genereal Disease</td>
<td>137</td>
<td>142</td>
<td></td>
<td>47</td>
<td>19%</td>
<td>34.3%</td>
<td>9.95</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>146</td>
<td>17</td>
<td>4</td>
<td>86.9</td>
<td>7%</td>
<td>36.95%</td>
<td>2.24</td>
</tr>
<tr>
<td>General Dediency</td>
<td>123</td>
<td>183</td>
<td></td>
<td>73</td>
<td>115%</td>
<td>39.34%</td>
<td>10.52</td>
</tr>
</tbody>
</table>
There were 73 deaths in hospital during that period or 4.9\% of the total admissions or 2.6\% of the total admissions, but in order to get the true death rate of the local admissions, we must eliminate from the total number of deaths, all the cases which occurred amongst the transfers from Cairo or other hospitals, as we have no information of the number of cases of the various diseases admitted into them.

There were 32 in number and after deducting them from the total number of deaths, we get 53 as the total number of deaths among the local admissions or 3.5\% per cent.

The percentage of non-local deaths to non-local admissions was 1.70.

No. 1. Return attached.

The attached return shows the admissions, deaths, invaliding to both local and non-local.

There are 4 deaths which occurred during this period not shown in the return as they are not included under any of the various headings, these being transfers from Cairo viz: (1) amputation of the thigh caused by the explosion of some shells subsequently requiring secondary amputation; (2) pyoderma following an injury; (3) peritonitis; 4 four being local cases viz: (1) concussion of brain from an injury; (2) 2 cases of abscess of liver mostly rupture of viscus; caused by the patient falling from a height, & heightening both
his liver & spleen.

During the same period, there were seven men who died out of hospital.

Two men met their death on the railway, both having fallen out of the train. When drunk, one being run over & getting an arm & leg taken off, the other receiving an injury to his head. Another was drowned while bathing; another died from alcoholic poisoning; another from Pneumonia; another from Typhus; and the last from Fracture of the Skull, by result of a fall from a great height.

There were two men of the Royal Marines who died in hospital during this period, but they are not included in this return for the purposes of Statistics as they do not belong to the Army.

I have attached a Return to show more clearly, the average age & service of the men who died in hospital, and of those two Marines mentioned above.

No. III Return gives the Strength, Admissions & Deaths of the men, &c. according to Age in quinquennial periods from 1st October to 31st December.

No. IV Return gives the Details of Arms of Service, whose sick have been treated in hospital during the period.

No. V Return shows the Strength & Admissions to Hospital & Deaths by Period of Service, during the period. (1st October to 31st December 1982)
## Table: Age and Service of the Men, who died.

<table>
<thead>
<tr>
<th>Deaths</th>
<th>Number of Cases</th>
<th>Average Age at Death</th>
<th>Maximum Age at Death</th>
<th>Minimum Age at Death</th>
<th>Average Years of Service</th>
<th>Maximum Service</th>
<th>Minimum Service</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Hospital</td>
<td>45</td>
<td>25:4</td>
<td>38</td>
<td>20</td>
<td>5:24</td>
<td>20</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>out of Hospital</td>
<td>7</td>
<td>25:12</td>
<td>33</td>
<td>20</td>
<td>6:41</td>
<td>18</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A. marines</td>
<td>2</td>
<td>19:5</td>
<td>39</td>
<td>20</td>
<td>8:5</td>
<td>15</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Note
- The number of deaths amongst the marines is too small to form a correct idea of the average age & service of the men, but as a rule the men of that corps are older than the men in the army.
- In the other two classes of this Return, the average age at death is practically the same, the other averages also closely approximate.

A. S. R.
Return showing the Strength, Admissions and Deaths of the Men according to age in quinquennial periods, from 10th October to 31st December 1882.

<table>
<thead>
<tr>
<th>Return No. III.</th>
<th>Under 20 years</th>
<th>20 to 24</th>
<th>25 to 29</th>
<th>30 to 34</th>
<th>35 to 39</th>
<th>40 and upwards</th>
<th>Total</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength on 10th Oct. 1882</td>
<td>142</td>
<td>750</td>
<td>448</td>
<td>196</td>
<td>24</td>
<td>4</td>
<td>1589</td>
<td></td>
</tr>
<tr>
<td>Strength on 31 Dec. 1882</td>
<td>278</td>
<td>1053</td>
<td>668</td>
<td>266</td>
<td>110</td>
<td>17</td>
<td>2394</td>
<td></td>
</tr>
<tr>
<td>Admissions into Hospital</td>
<td>194</td>
<td>665</td>
<td>490</td>
<td>128</td>
<td>28</td>
<td>4</td>
<td>1509</td>
<td></td>
</tr>
<tr>
<td>Deaths from 10th Oct. to 31st Dec. 1882</td>
<td>7</td>
<td>19</td>
<td>26</td>
<td>10</td>
<td>3</td>
<td></td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>In Hospital</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Return showing the Strength, Admissions into Hospital & Deaths by Period of Service

<table>
<thead>
<tr>
<th></th>
<th>Years of Service</th>
<th>(10th October to 31st December)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>on 10th October</td>
<td>38</td>
<td>223</td>
</tr>
<tr>
<td>on 1st December</td>
<td>351</td>
<td>403</td>
</tr>
<tr>
<td>Admitted into Hospital</td>
<td>8</td>
<td>223</td>
</tr>
<tr>
<td>Died in, and out of Hospital</td>
<td>1.2</td>
<td>10</td>
</tr>
<tr>
<td>Percentage of deaths to strength at various periods of service</td>
<td>4.8</td>
<td>2.38</td>
</tr>
</tbody>
</table>
It was during this period, that the large amount of sickness & mortality began to appear, & it was only what might have been expected for the men had not yet been able to throw off the effects of the recent campaign & were surrounded on all sides by insanitary conditions & were consequently more liable to be attacked by every kind of disease.

Having been for a time on a restricted diet, while in the desert, when they arrived in a large city like Cairo, they went to the opposite extreme & indulged freely in food of all sorts, in fruit, which was often unripe & in any quantity of pernicious liquor.

Good liquor in this country can only be indulged in sparingly & cautiously, but the vile abomination that is sold in the low proshiteh about the town is exceedingly pernicious & in fact is simple poison. 

One glass of this liquor being known to render a man insensible for a long time.

Consequently many a man who had been in the habit of taking a glass or two of beer at home without doing himself any harm, thought he might indulge himself to the same extent here, but generally found that one glass was enough to get him into trouble, for it did not make him dead drunk, it made him vicious & noisy, & thus brought him into
into trouble, whereas it might not really be his fault, but the fault of the liquor he had put.

Many cases of such a nature did occur, besides injuring the man in the way mentioned above, it very materially affected his health and doubt contributed considerably to the amount of sickness that occurred.

Enteric Fever was very prevalent at the time every fall.

It was frequently accompanied by remittent or intermittent fevers or by dysentery. At the post-mortem examination of the cases that died from that disease, it was not uncommon thing to find traces of two diseases which must have operated at the same time.

Further on I shall give a short analysis of the post-mortem examination of some of those cases. So I need not enter further on the matter here.

Enteric Fever gave 44 deaths out of a total of 45 or 98.9 per cent.

The percentage of deaths to admissions for this disease, the amount of invaliding was also very high.

Dysentery gave 9.74 per cent. of the total admissions.

Conjunctivitis gave 13.63 per cent. of the total admissions.

Diphtheria 14.02 of the total cases.

Veneral Diseases prevailed rather less.
Station Hospital

(Continued)

... lively being almost equally divided between gonorrhoea and primary syphilis; this in the one form or the other.

The hard to indicated cases are, I think, more prevalent here than abortion at home, but I have been unable to get sufficient statistics, so that I cannot be absolutely sure.

Four deaths from Pneumonia occurred, but diseases of the Respiratory System are not very common here, giving only 2.24 per cent. of the total admissions.

There were a large number of diseases of the Digestive System admitted, diarrhoea alone giving 11.02 per cent. of the total admissions.

Jaundice was very prevalent among the men at one time, there were few of them who were not affected with it at one time or other.

It did not seem to have much effect, as those who suffered from it, rarely came into the hospital for treatment, I know of with their duties as usual, but the fact was, that at that time there was a large amount of work to do, that men did not come sick, if they could possibly avoid it, because if they did, it would cause so much more work to be thrown on others, who were already hard enough worked.

Men often came into hospital, simply to die, as they had remained out too long.
long & when seen were beyond all help.

I have seen men die, within 24 hours or less, of their admission to hospital, from perforation of the bowels in cases of Enteric fever, or rupture of liver abscesses, who had been doing their duty up to the last, although they must have been ill for weeks beforehand, & where the post mortem examination revealed the true state of affairs.

Besides the various kinds of disease mentioned above, there were a number of minor cases admitted for treatment, such as abscesses, contusions, ulcers, sprains, &c., which made up the total of the admissions.

During the period from 1st January 1883 to 9th April 1883, when the Station Hospital was closed, there were 3,928 admissions, 2,376 being admitted locally & 1,552 non-locally.

During this period, there was a very marked improvement in the health of the troops.

The admissions did not amount to one-fourth of what they were in the last quarter.

There were only 4 deaths of men who were admitted after the 1st January, & 5 of men who had been admitted some time previously, so that the death rate...
<table>
<thead>
<tr>
<th>Return No.</th>
<th>Diseases</th>
<th>Admissions</th>
<th>Deaths</th>
<th>Percentage of Deaths to Admissions</th>
<th>Invalidating</th>
<th>Percentage of Invalidating to Total Admissions</th>
<th>Percentage of Invalidating to Total Places to Be Admitted</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eneryte Fever</td>
<td>20</td>
<td>1</td>
<td>0.423</td>
<td>0</td>
<td>0.08</td>
<td>3.84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jaundice</td>
<td>42</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>0.08</td>
<td>7.09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Simple cont. Fever</td>
<td>90</td>
<td>10</td>
<td>0.11</td>
<td>0</td>
<td>0.08</td>
<td>10.84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermitted Fever</td>
<td>42</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>0.08</td>
<td>7.09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dysentery</td>
<td>23</td>
<td>3</td>
<td>0.13</td>
<td>1</td>
<td>0.08</td>
<td>4.39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diarrhea</td>
<td>41</td>
<td>2</td>
<td>0.05</td>
<td>0</td>
<td>0.08</td>
<td>9.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conjunctivitis</td>
<td>9</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.08</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Disease</td>
<td>98</td>
<td>2</td>
<td>0.02</td>
<td>0</td>
<td>0.08</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Respiratory System</td>
<td>58</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>0.08</td>
<td>2.53</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Debility</td>
<td>15</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.08</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

Before the 16th of April 1883, this hospital was called the 2nd City Hospital, Alexandria.
The fever still prevailed to a large extent but the cases did not assume the epidemic character that they formerly did; the proportion of deaths to admissions was far less than during the last period, being only 19·23 per cent of the admissions as compared to 33·42 per cent before.

There were only 9 cases of conjunctivitis altogether which shows a decided improvement on the former returns.

Malarial fevers prevailed to a considerable extent but there were no fatal cases.

Simple Contagious Fever still gave a large amount of the admissions, but they were as a rule milder in type and more readily recovered from.

Children Diseases gave almost the same number of admissions as of the same types as in the former periods.

Diseases of the Respiratory System show about the same number of admissions but in proportion, much more numerous than in the last return, the fatal cases equally so.

The prevailing disease was pneumonitis which was caused by the great variation in the weather, one day being very warm with a hot wind blowing off the desert, the next being bitterly cold, with the wind off the sea, being frequently accompanied by showers of rain or hail.
All the deaths under this heading 1st Jan. to 9th April took place from Pneumonia.

Besides the deaths shown in the Return, there were 5 that occurred in men who had been admitted into the hospital before the 1st January, one from Pneumonia & four from Dysentery, but they are not shown in the Return, and would influence the average of the overall.

They are however shown in the General Return for the 9 months from 9th July 1882 till 9th April 1883.

The men had by this time recovered in a great degree from the effects of the campaign & were better able to withstand disease; their work was not so arduous; they were not so exposed; they were better fed & more comfortably billeted.

Many of the diseases that occurred were such as would occur in any Garrison, where there are a large number of troops, either at home or abroad.

I shall now give a table showing the Admissions, Diseases, Deaths &c for the whole period from 9th July till 9th April (1882-1883). During that period there were 885 admissions to hospital & 111 deaths or 1.29 p.cent.

There were also 4 men, noted before who died out of Hospital & who
<table>
<thead>
<tr>
<th>District</th>
<th>Illiterates</th>
<th>Drunkeness</th>
<th>Deserters</th>
<th>Absconders</th>
<th>Pensions</th>
<th>Other</th>
<th>Remarks</th>
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<tr>
<td></td>
<td>110</td>
<td>28</td>
<td>78</td>
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<td>1.1.5</td>
<td>1.1.5</td>
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<td>3.2.6</td>
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<td>2.3.4</td>
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<td>2.3.4</td>
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<td>3.2.6</td>
<td>3.2.6</td>
<td>19.6</td>
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</table>
are not included among the 111 deaths. Although the mortality from enteric fever was high, owing to the peculiar circumstances of the case, yet taking into consideration the total amount of mortality amongst the total number of cases as printed, it cannot be looked upon as excessive, but rather the reverse. In this respect, it will compare very favourably with any previous campaigns.

I think that there can be no doubt, but that many of the cases entered as cases of simple, continued fever or paroxysmal fevers (remittent and intermittent fevers) were cases of slight enteric fever, complicated by the dolo or complicated matches by some of the fevers just mentioned.

If this were the case, the percentage of mortality would be much decreased.

As to the cause of the fever, I don't think there can be much doubt.

In the case of the Hospital at Alexandria it was distinctly traced to water contaminated with sewage from a cesspit at some distance.

Enteric fever is endemic both at Cairo and Alexandria, so there are no drains within those towns; but all the houses having cesspits, the sewage, a fruitful cause of disease especially which only needs a suitable occasion to break forth.

In many of the houses, as previously described, there was another communication.
tion between the house & the cesspool, so that the cesspool was actually ventilated into the house, so that a more effectual way for propagating the disease could hardly have been devised.

The porous nature of the soil afforded great facilities for the contents of these cesspits seeping through & reaching wells, even at some distance.

(c) Air both the air & the water contained. Air & water treated it was no wonder that the disease prevailed to a large extent.

(d) The age of the troops was likewise favorable for the production of disease. As most of the men were below 30 years of age, the average age of the men who lost from Enteric Fever was between 24 & 25 years, about which time is one of the most periods for that disease.

(e) The season of the year was likewise favorable for the appearance of the disease as it is generally more prevalent in the autumns & towards the end of the year, than at other times.

These were the principal factors & predisposing causes in the out break of this disease, & I think sufficient to account for the amount of sickness & mortality.

In regard to treatment, no very definite treatment system could be carried out, as each case had to be treated on its own merits. Some requiring one method, some another.
Some cases did well with anti-malarial treatment, sulphuric acid (dilut), chalk &
Catechu, or bismuth.

Serpentine given internally in 15 to 30
Minim doses, three or four times daily, in
the form of an emulsion, gave good results
in a number of cases.

It seemed to check the diarrhea & inter-
ste and distention of the bowels.

Opium enemata proved useful in many
cases.

To reduce the pyrexia, in many cases
cold douches, & hacking in a well sheet
were resorted to, with good effect in all.

Quinine also occasionally proved
of service in the same class of cases, es-
pecially if there were any malarial taint.

Headache, palpitations, were relieved by
ice & chloral respectively.

In cases of hemorrhage from the bow-
elves, ergot & Sol. Ferri Perdinitata proved
extremely useful.

In some cases where there was weak
action of the heart, with a feeble radial
pulse, digitalis was of great benefit.

Stimulants were required in almost
every case & generally had to be given
in the course of the disease, owing to
the weakened condition of the patient.

The diet was the same as given in
ordinary cases of the disease at home,
being modified as circumstances required.
In the acute cases, what was found to answer best, was to give large doses of Quincaemia, preceded by a dose of Tinct. Opii (20-30 minims). About a quarter of an hour before the other dose, this was rarely followed by vomiting, especially after mustard plasters were placed over the stomach. The patient kept quiet and abstained from drinking fluids.

Twenty five to thirty grains of Cal. S. Quincaemia were given twice daily, until the patient were sick, the dose was repeated in a short time.

This proved very effective in the acute cases, cured them in a very short time.

In chronic cases, Quincaemia did not prove as valuable, & astringents often did more good, such as.-Tinct. Per. Prunari, Sulphate of Copper & Nitrate of Silver.

Weak nitrate of Silver injections into the based were also useful.

In acute cases of Conjunctivitis & Ophthalmitis, if there was much swelling Conjunctivitis of the eyelids & a profuse discharge of Ophthalmitis matter (pus), then a mixture of equal parts of starch & finely powdered iodin, when applied into the eye produced very good results, the inflammation subsiding & the discharge ceasing in a very short time.

The acute cases got better sooner than slight chronic ones, in which latter,

Sulphate of /
## Result of Post Mortem Examinations of Enteric Fever, &c., 1843

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Total No. of Deaths</th>
<th>Cases complicated with Dysentery</th>
<th>Percentage of Cases complicated with Dysentery to Total Deaths</th>
<th>Cases in which Perforation occurred</th>
<th>Percentage of Perforation to Total Deaths</th>
<th>Cases in which Enteric Fever recurred</th>
<th>Percentage of Permaneant Morbidity to Total Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteric Fever</td>
<td>63</td>
<td>13. 20.63</td>
<td>6. 9.52</td>
<td>11. 17.45</td>
<td>11. 17.45</td>
<td>11. 17.45</td>
<td>23.80</td>
</tr>
<tr>
<td>Dysentery</td>
<td>21</td>
<td></td>
<td></td>
<td>5.</td>
<td>23.80</td>
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</tr>
</tbody>
</table>

**Note:**

- One of the cases of Enteric Fever which was complicated with Haemorrhage, had also very bad Necrosis of the face and head, which was probably the immediate cause of death.

- In two cases that had perforation, two had three perforations, one had two, the others one.

- Three of the cases of Enteric Fever with Dysentery had also perforations, caused by the Enteric Ulcers; they are included under the heading of 'Perforations' in the Enteric cases.

A. S. R.
Sulphate of Jute in solution (2 g to 3 g) or some other
(continued) chemical agent seemed to do better than the in-
formal treatment.

The other diseases were treated in the
usual manner, the various complications be-
ing met as they arose.

As far as I can ascertain there were
no cases of disease arising from the Bil-
harzia haematoobia. In fact, diseases caus-
ed by parasites have been rare.

A few cases of Taenia solium and Echinococ-
us renalis were admitted but not many,
yet all, than at home stations.

If the Egyptian Ophthalmia occurred
at all, it must have been in a slight
form and not distinguishable from an ordi-
ary bad case of Ophthalmal Ophthalmia.

Post Mortem Examination

I shall now give a short summary
of the results obtained in some of the Post-
Mortem Examinations of the Ectopic Cases.

Out of a total of 63 deaths from that dis-
ease, 13 or 20.63 per cent. were complicated
with dysentery.

Six cases had haemorrhage from the
bowels or 9.52 per cent.

There were 11 cases of perforation or 17.43
per cent.

Murculison in his work on the Ectopic
Fever of Great Britain (2nd edition, page 566)
gives 18.46 per cent. as the average number of
cases it occurred in a period of observations.
The average of English cases as given by him is 19.41 p. cent.

Pneumonia was a complication arising in 11 cases or also 17.25 p. cent.

Murchison states that he noted it in 13 cases out of 100.

One case about the 33rd week of the farmer was seized with very bad encysted of the face & head, which in all probability caused the fatal result.

The cause of the encysted could not be traced, as that was the only case that occurred at the Station.

All the post-mortem examinations went to prove that the disease had been of a very virulent type.

The ulceration in the bowels was always well marked & sometimes most extensive & destructive.

In several cases every Peyer's Patch Villiery was not in the bowel seemed to be ulcerated.

In two cases I found ulceration extending into the jejunum & in one case there were two ulcers on the duodenum.

The type of the disease in the fatal pertaining cases was likewise very virulent & in several cases it assumed the gangrenous form.

There were 3 cases in which perforation occurred out of a total of 21 deaths or 23.8 p. cent.

I believe that the large amount of perforations was due to the vascular structure.
I have thus endeavoured to give as clearly and concisely as possible an accurate account of the medical aspect of the Egyptian Expedition of 1882-83, showing the difficulties under which we laboured in the treatment of the sick, the cause of the sickness and mortality amongst the troops.

I trust that the tables and returns I have compiled, will prove of use in showing more clearly the points I have tried to bring out.

In conclusion, I have only to express the hope that, now that the troops have recovered from the fatigue of the campaign and are more comfortably circumstanced, able to acclimatise, there may not be such an epidemic of sickness and disease, as the one we had to pass through during the last 9 months.

Alexander Simpson Rose
M.B. C.M.
Surgeon

Station Hospital
Alexandria
Egypt

17/4/83