

(1) Number of pages.....

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(3) Initials of the Referencer.....

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	541 -	Press
B.P. No.		Mis.
Dated 28-2-		1876.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
28th February 1876.*

Read the following papers:—

Nos. 512 & 513. Endorsement of the Secretary to Government, Military Department, dated Fort St. George, 12th February 1876, No. 744.

From Colonel W. E. WHITE, Commanding Malabar and Canara, to Brigadier-General A. HOWLETT, c.b., Quartermaster-General, Fort St. George, dated Cannanore, 8th February 1876, No. 32.

In forwarding the marginally entered correspondence connected with the drains of the European Infantry Barracks at this station, I have the honor to request you will be so good as to submit the same for the orders of His Excellency the Commander-in-Chief.

2. With reference to this subject, it will be in your recollection that owing to the out-break of Typhoid fever at this station in December 1872 and January 1873 amongst the men of the 48th Light Infantry, the Sanitary Commissioner, Dr. Cornish, jointly with Dr. Massy, Deputy Surgeon-General, British Medical Service, was directed to inquire into the sanitary condition of the barracks; the result of the investigation and the improvements recommended were embodied in the order of Government and letter quoted in the margin.

O.G., No. 1,072, dated 25th March 1873.
Letter No. 1,177, dated 20th June 1873, from Sanitary Commissioner to Quartermaster-General.

3. When alluding to the drainage, which was pronounced defective, Dr. Cornish was of opinion that it should be remedied by laying down glazed earthenware pipes to carry off the waste water of cook-rooms, lavatories, &c., and that the rainfall should be discharged entirely by open drains, and this double system of drainage, though not in accordance with the views of Captain Bailey, who was at that time the Assistant Engineer at this station, was sanctioned and ordered to be carried out (*vide* O.G., No. 1,697, dated 24th June 1874.)

4. In the letter now transmitted, the Officer Commanding the 48th Regiment advocates only one simple system of open V shaped drains constructed on an improved section, and the Assistant Engineer concurs in this view, excepting that he recommends the drains should be rounded at the bottom instead of meeting at an angle. In other respects also the Assistant Engineer (Lieutenant Dobson) is in favor of the open drains, if laid out on a simple plan and all in straight lines, and he is supported by Dr. Massy, the Deputy Surgeon-General, British Medical Service, who is opposed to the laying down of glazed earthenware pipes, owing—(1), to the small quantity of sewage they would be required to carry away; (2), owing to the liability of silt forming and of their becoming foul and out of order; and (3), to the cost of laying them down and the difficulty of keeping them in repair.

5. The enclosed section shows the present covered drain (running between the old and the new barracks) which Lieutenant Dobson proposes to convert into a drain

constructed according to the first part of paragraph 4, open inside the barrack enclosure, but covered over in that portion which would run from the barrack railings to the sea; the sketch shows various "falls" for the drain, but the one approved by Dr. Massy is that which having a depth of 6 inches at the head gives a slope of $\frac{1}{4}$ or 3 feet at the point marked B where the barrack railings are; from that point to the sea any fall could be given, and, though covered, the drain could be kept clean with facility by flushing and by the provision of suitable manholes. As regards the other covered drain which runs through the barrack square, it is found to be useless and can therefore be dispensed with, as it does not serve to carry off the rainfall, and the waste water from two bath-rooms, by which it is now fed without a sufficient fall, can be diverted into adjoining channels outside the barrack square.

6. Before directing the Assistant Engineer to prepare a complete project for carrying out the drainage on the system now recommended, I have considered it desirable to report the matter for the orders of His Excellency, as I am informed that funds will in all probability be allotted at an early date for improving the drains on the plan originally proposed by Dr. Cornish.

From Lieutenant-Colonel R. H. TRAVERS, Commanding 18th Regiment, to Brigadier-General A. HOWLETT, c.n., Quartermaster-General, Fort St. George, dated Cannanore, 18th December 1875, No. 508.

I HAVE the honor to request that the drains in the barracks occupied by the regiment under my command, to carry off the surface and ablution-room water, may be constructed surface V shaped drains which can be kept clean, and the Regimental authorities remain responsible that they are clean and sweet, but the present under-ground drains having but little fall and the flushing power inadequate, the drain being 1 foot by 10 inches and finishing up only (3 inches in diameter) cannot be kept clean, there being at present an inch and a half of silt in them, holding a never-ceasing source of disease at the barrack doors.

2. Deputy Surgeon-General Massy, who inspected the barracks yesterday, expressed himself strongly that this alteration should be carried out without delay, and the Engineer in charge (Lieutenant Dobson, R.E.), stated, if he got the authority to commence the work at once, he would have it finished before April. Therefore, that the health of my regiment may be preserved in the efficient state in which it has arrived here, I most urgently solicit that the necessary authority may be given to the Engineer without delay.

From Lieutenant A. E. DOBSON, R.E., Assistant Engineer, Cannanore Range, Malabar, to the Brigadier-Major, Malabar and Canara, dated Cannanore, 24th January 1876, No. 479.

Your No. 2-39,* dated 10th January 1876, I have the honor to forward a section of the principal drain in the barracks. I have not had time to run sections and draw a general plan of all the drains; but as all the other drains (with the exception of the drain running through the barrack square, only part of which is closed) and the drain outside running from the married quarters are open, and this latter is not mentioned in the project for the drainage of the barracks, I forward this section showing the run of the ground and the fall of the drain.

2. With regard to the covered drain running through the barrack square, I think with a little alteration of the existing scheme it might be done away with entirely, for it takes none of the

drainage of the parade ground at all; this being carried off by other drains running round the square, and it takes only the waste water from one bath-room near the opening in the centre of the barracks on the east side, and the waste water from the bath-room near the opening of the barracks on the west face. The water from the bath on the east face could easily be made to flow into the drain running along that face.

3. I bring this to your notice, as I think it is useless running a large drain for so little water; it could eventually be filled in and done away with altogether in my opinion.

4. The drain, of which the section is enclosed, is closed throughout its entire length, except where there are small manholes; as it is along this line of the barracks that a glazed pipe drain is to be run, the section gives the rise and fall of the ground, and also the inclination of the drain where the fall changes.

5. It will be observed that there is a sudden drop of 6 inches nearly at the head of the drain, and that the drain varies considerably in fall from $\frac{1}{4}$ to $\frac{1}{8}$.

6. The deepest cutting is nearly 4 feet deep at the point marked A, but although it is shown thus in section, the ground falls from the old canteen to the drain somewhat like this (which is of course exaggerated) (drain)  (canteen), and I think that with a little easing down of the slope the cutting might be reduced.

7. I have shown in the sketch two lines in purple, which would, I think, do for an open drain.

8. Taking the head of the drain and making an open drain 6 inches deep at that point, and allowing a cutting 93 feet at B, which is close to the barrack railing at the seaface, a fall of $\frac{1}{4}$ can be obtained. This is sufficient to keep any drain of that section clean in the monsoon, and with proper flushing daily and sweeping, a drain with this fall should be perfectly clean; also this gives a greater general fall than the drain has now, which is closed and square (the very worst possible section.)

9. I have also drawn another line with a 2 feet cutting at B. This gives a fall of $\frac{1}{8}$. This would do if a 3 feet cutting is too deep, but I think it might be managed even with 3 feet by easing of the sides gently.

10. I have also shown a line to the sea, with a much greater fall $\frac{1}{4}$ and $\frac{1}{8}$. This is not of much importance, as any fall that is wanted can be given, and with a drain built of a proper section and good fall, even though covered with proper manholes so that it can be examined and also with flushing, the whole thing could be kept quite clean.

11. The section of the ground may be taken as giving the general fall of the ground from the east side of the barracks to the sea; and now that I have run the levels and drawn a section, I think it would be possible to arrange the drains so as to make them open V shape. I would not make them exactly V shape, but something like this U having no angle but a round bottom, both water and filth run much better and the drain can be kept cleaner.

12. I would point out that from the specification I find that the fall of the glazed pipe allowed is for the 6 inches $\frac{1}{4}$ and 3 inches $\frac{1}{8}$, which is far too small to run off thick bath and cook-room water; the proper inclination to keep the drain of this description clean being according to Baldwin Latham $\frac{1}{8}$ and $\frac{1}{4}$, so that the V drain would have a greater fall than the closed drain now proposed.

13. In conclusion before the project for providing open drain is undertaken, it will be necessary to have the other project sanctioned in G.O., No. 1,627, of 24th June 1874, cancelled.

14. I think V drains might be run on a much more simple plan than at present and all in straight lines. If the project should be called for, I will endeavour to send it in with the least possible delay, so that the project may be sanctioned and carried out this year; but it will take some little time, as the whole of the barracks should be carefully levelled, so that the best possible line could be selected. I have at present no record of any levels of the drains.

*Proceedings of the Madras Government, Public Works Department,
23rd February 1876.*

From Lieutenant A. E. DOBSON, R.E., Assistant Engineer, Cannanore Range, Malabar, to the Brigade-Major, Malabar and Canara, dated Cannanore, 24th January 1876, No. 480.

Your No. 2-51 of 12th instant, I have the honor to forward a section of the main drain of the barracks, *i.e.*, the one running between the old and new barracks.

2. In my letter No. 448 of 4th instant, I gave the general fall of the ground as *etc.* to the end of the new barracks, and I stated that this would not be sufficient fall for a drain running along the surface of the ground, and also that the fall was not sufficient to keep the square section drain clean.

3. From Colonel Travers' letter, herewith returned, it appears that he has no objection to having a cutting made in the barracks to get a proper fall, and if such is the case there will of course be no difficulty in making a V drain to carry off the water. I have drawn two lines showing the amount of cutting that could be given to 2 feet or 3 feet fall, and either would do and give sufficient fall, if flushing and sweeping the drain daily is resorted to, as Colonel Travers told me personally he intended doing if the drains are made V shape open. I would do away altogether with the covered drain in the barrack square as it takes off no rain water, and only the waste water from two small bath-rooms, and this water with little difficulty be turned into other drains.

4. The system of drains could be simplified and should run in straight lines.

5. Now that I have got a proper section of the drain and ground and really see what the general run is, and as Colonel Travers does not object to open cuttings, it would of course be not difficult to run V drains. I think therefore the barracks could be drained in the manner suggested.

6. As these deep cuttings are not considered objectionable inside, outside the barracks the drains could be covered and made of proper section and have a good fall into the sea.

7. I have the honor also to draw your attention to my letter No. 479 of this date called for by Dr. Massy in which the drainage is more fully explained.

From Doctor H. H. MASSY, Deputy Surgeon-General, British Medical Service, Mysore Circle, to the Brigade-Major, Malabar and Canara, Cannanore, dated Bangalore, 2nd February 1876, No. 191.

In reply to your letter No. 2-124 of 28th ultimo, I have the honor to state that I am in favor of the drainage and sewage of the Infantry Barracks at Cannanore being removed to the boundary of the barracks enclosure in open V or similarly shaped surface drains.

2. The sewage is of very small amount, only from two cook-houses. One of which cooks for the Band, and the other for two Companies, together with the water from ablution-houses.

3. If the refuse of these two cook-houses, a mere trifle, were daily removed by hand or carted away, the ablution water could be removed in the open drains.

4. The two large cook-houses are at the south-west boundary of barracks, where all drainage and sewage must run under-ground across the small maidan outside barracks to the outfall at the cliff.

5. Open surface drains are never out of repair, are easily kept clean under the management and observation of the Regimental authorities, and the flushing power at Cannanore if sufficient to cleanse them. Glazed pipe sewers running through the barracks are in this case unnecessary from the small amount they would have to carry. Silt is liable to form; they are often foul and out of order. Delay frequently occurs in repair, and they are costly to lay and keep in repair.

6. I agree with the Assistant Engineer that the partially covered drain running through the barrack square may be dispensed with.

*Proceedings of the Madras Government, Public Works Department,
28th February 1876.*

7. I believe his plan of fall of $\frac{1}{16}$ will be the best, and by easing off the sides or possibly a passage across of a few flags at the deepest part, as has been done in the barracks at Bangalore, will suffice.

No. 1,046.

FORWARDED for communication to Government in the Public Works Department with the recommendation of His Excellency the Commander-in-Chief that, with reference to O.G., No. 1,697, of 24th June 1874, plans and estimates for the revised scheme of drainage for the Infantry Barracks at Cannanore may be called for without delay. It is a work of the greatest importance in connection with the health of the troops, and the scheme now proposed in substitution is advocated both by the Deputy Surgeon-General of the Circle and the local Engineer Officer.

(By order,)

FORT ST. GEORGE,
11th February 1876.

(Signed) A. HOWLETT, Brigr.-Genl.,
Quartermaster-General.

To the Secretary to Government, Military Department.

TRANSFERRED to the Public Works Department.

(Signed) A. C. SILVER, Colonel,
Secy. to Govt., Milly D.

From Doctor H. H. MASSY, Deputy Surgeon-General, British Medical Service, Mysore Circle, to Surgeon-General C. A. GORDON, Surgeon-General, British Medical Service, Madras, dated Bangalore, 9th February 1876, No. 229.

I HAVE the honor to request that you will inform Major-General Walker, R.E., Secretary to Government in the Public Works Department, that, in accordance with his wish expressed to me, I carefully went into the subject of the drainage of the Infantry Barracks at Cannanore when there in December last.

2. Since my return to Bangalore my opinion on this subject has been asked by the Officer Commanding Malabar and Canara, in consequence of a representation made by the Officer Commanding the 48th Regiment. And plans of drainage were submitted to me prepared by the Assistant Engineer for providing open surface drains exclusively, instead of a system of glazed pipe for sewage and open drains for storm water, as intended in the scheme sanctioned in Proceedings of Madras Government, Public Works Department, dated 24th June 1874.

3. In my reply I approved of the arrangement of open surface drainage proposed by the Assistant Engineer for the Infantry Barracks at Cannanore, and trust the entire subject will be considered by General Walker, as I understand it is to be submitted through the Quartermaster-General.

Proceedings of the Madras Government, Public Works Department,
28th February 1876.

No. 296-76.

MEMORANDUM.

FORWARDED for information.

(Signed) C. A. GORDON,
Surgeon-General, B.M.S.

FORT ST. GEORGE,
10th February 1876.

To the Secretary to Government, Public Works Department

No. 514. ORDER THEREON, 28th February 1876, No. 541.

MILITARY WORKS, No. 11.

Communicated to the District Engineer, Malabar, who will expedite the submission of revised plans, surveys and

estimates for the work of draining the European Infantry Barracks at Cannanore.

2. It is observed that he has already been informed by the Chief Engineer that it was necessary to revise the estimates sanctioned in G.O., No. 1,627, of 24th June 1874, so far at least as related to the pipe drains. A sum of Rupees 4,000 has been included in the Budget of 1876-77, but, pending sanction of revised papers, it cannot be availed of.

(True Extract.)

Major-General, R.E.,
Secretary to Government.

To the District Engineer, Malabar.
„ Examiner of Public Works Accounts
„ Military Department.

Exd. E. C. Shunker.

Spare Copies

Through Malabar & Cannanore District
No. 548? Cannanore
18th Dec 1875
From Officer Commanding
48th Regiment
To The Quarter Master General
Fort Saint George.

Sir
I have the honor to request that the drains in the Barracks occupied by the Regiment under my command, to carry off the surface and ablation room water, may be constructed surface V shaped drains which can be kept clean and the Regimental authorities remain responsible that they are clean and sweet; but the present underground drains having but little fall and the flushing power inadequate, the drain being 1 foot by 10 inches ^(3 inches in diameter) and flushing top only cannot be kept clear, there being at present an inch and a half of silt in them, holding a never ceasing source of disease at the Barrack doors.

Deputy Surgeon General Messaey
who

who inspected the Barracks yesterday
expressed himself strongly that this
alteration should be carried out
without delay, and the Engineer
in Charge. (Lt. Dobson R.E.) stated
if he got the authority to commence
the work at once he would have it
finished before April. Therefore, that
the health of my Regiment may
be preserved in the efficient state in
which it has arrived here, I most
urgently solicit that the necessary
authority may be given to the Engi-
neer without delay.

I have the honor to be

Yours Obedt. Servant

Wm. Thomas Lt Col
Commanding 8th Reg^{mt}

1st 1896
From

Commander 24th January 1896
The Assistant Engineer
Cannanore Range, Malabar

To
The Brigade Major
Malabar & Cannanore
Cannanore

Sir,
Your P. 29 of 10th January 1896.

I have the honor to forward a section
of the principal drain in the Barracks. I
have not had time to run section and
draw a general plan of all the drains,
but as all the other drains (with the
exception of the drain running through
the Barrack square (only part of which
is closed) and the drain outside running
from the married quarters), are open and
this latter is not mentioned in the project
for the drainage of the Barracks I for-
ward this section showing the run of the
ground and the fall of the drain.

With regard to the covered drain
running through the Barrack square
I think with a little alteration of the

Malabar & Cannanore
Barracks

1896

From Mr. G. M. G. M.

To Mr. G. M. G. M.

1896

Commander 24th January 1896

Requesting certain

reformation be

made in the drain

age of the Barracks

occupied by the

48 Regt

1896

1896 Feb 10 B. 512

an existing scheme it might be done away with
entirely. for, it takes none of the drainage of
the parade ground at all. This being carried
in off by other drains running round the square
and it takes only the waste water from one
the Bath Room, near the opening in the centre of
the Barracks on the East side, and the waste
water from the Bath Room near the opening of
the Barracks on the West face. The water from
the bath on the East face could easily be made
to flow into the drain running along that face.

Bring this to your notice, as I think it
is useless running a large drain for so little
water, it could eventually be filled in and
done away with altogether in my opinion.

The drain, of which the section is enclosed
is closed throughout its entire length, except
where there are small manholes, as it is along
this line of the Barracks that a glazed pipe
drain is to be run. The section gives the rise of
the ground, and also the inclination of the
drain, where the fall changes.

It will be observed that there is a
sudden drop of 6" nearly at the head of the
drain & that the drain varies considerably
in fall from $\frac{1}{300}$ to $\frac{1}{31}$.

The deepest cutting is nearly 4' deep at
the point marked A, but although it is shown
thus in section, the ground falls from the old
canton to the drain somewhat like this (which
is of course exaggerated) (drain) (canton)
and I think that with a little easing down
of the slope the cutting might be reduced.

I have shown in the sketch two lines in
purple, which would I think do for an open
drain.

Taking the head of the drain and making
an open drain 6" deep at that point, and
allowing a cutting ^{of 3'} at B ~~of 2'~~ which is close to
the Barrack pointing at the sea face, a fall
of $\frac{1}{336}$ can be obtained. This is sufficient to
keep any drain of that section clean in the
monsoon and with proper flushing, daily, and
sweeping, a drain with this fall should be
perfectly clean. also this gives a greater
general fall than the drain has now which
is closed and square (the very worst possible
section).

I have also drawn another line with a
2 feet cutting at B. This gives a fall of $\frac{1}{359}$.
This would do if a 3 feet cutting is too deep
but I think it might be managed even with
3 feet by easing of the sides gently.

I have also shown a line to the sea with a much greater fall $\frac{1}{4}$ " $\frac{1}{8}$ ". There is not of much importance, as any fall that is wanted can be given, and with a drain built of a proper section and good fall run through covered with proper manholes so that it can be examined & also with flushing, the whole thing could be kept quite clean.

11/11/76
The section of the ground may be taken as giving the general fall of the ground from the East side of the Barracks to the sea and now that I have run the level and drawn a section, I think it would be possible to arrange the drains so as to make them open V shape. I would not make them exactly V shape, but something like the  having no angle but a round bottom. Both water and filth run much better and the drain can be kept cleaner.

I would point out that from the specification I find that the fall of the glazed pipe allowed is for the 6" $\frac{1}{4}$ " and 3" $\frac{1}{8}$ " which is far too small to run off thick bath and cook room water. The proper inclination to keep the drains of this description clean being according to Ballou's Rathum $\frac{1}{32}$ " $\frac{1}{10}$ " so that the

the V drain would have a greater fall than the closed drain now proposed.

In conclusion before the project for providing open drains is undertaken it will be necessary to have the other project sanctioned on G.O. 101697 of 24 June 1876, cancelled.

I think V drains might be run on a much more simple plan than at present & all in straight lines. If the project should be ^{called} for I will endeavour to send it in with the least possible delay so that the project may be sanctioned & carried out this year. But it will take some little time as the whole of the Barracks should be carefully levelled so that the best possible line could be selected.

I have at present no record of any levels of the drains.

I have the honor to be
Sir,

Yours most obedt servt

A. Dobson Esq
Asst. Engineer. Calcutta

1st Cannanore 26th January 1876

Sir

The Assistant Engineer
Cannanore Range Mals.

To

The Brigade Major
Malabar & Canara
Cannanore

Sir

Your P^r 2 of 12th Instant.

I have the honor to forward a section
of the main drain of the Barracks, i.e. the
one running between the old & new Barracks.

In my letter of 11th Instant I
gave the general fall of the ground as 165 to
the end of the new Barracks & I stated that
this would not be sufficient fall for a drain
running along the surface of the ground & also
that the fall was not sufficient to keep the
grave section drain clean.

From Colonel Fenners' letter, herewith
returned, it appears that he has no objection
to having a cutting made in the Barracks
to get a proper fall, and if such is the case,
there will be ^{no} difficulty in waiting a
& drain to carry off the water. I have drawn
two lines showing the amount of cutting that

25-1-76 by 18250/96

M. 1177/5

No. 28 Feb 76 B. 1. 512

18250/96

could be given to 2 feet or 3 feet fall. It then
would do, and give sufficient fall, if the thing
uncovering the drain daily is resorted to. Col.
Havers told me personally he intended doing up
the drains, and made V shape open. I would do
among, altogether with the covered drains in the
Barrack square, as it takes off no rain water,
& also only the waste water from 2 small bath
rooms, and the water with little difficulty be
turned into other drains.

92/7-111
The system of drains could be simplified
and should ~~be~~ run in straight lines.

Now that I have got a proper section of
the drain, and ground, and really see what the
general run is, and as Col. Havers does not
object to open cuttings, it would of course be
not difficult to run V drains. I think there-
fore the barracks could be drained in the
manner suggested.

As these deep cuttings are not considered
objectionable ^{inside} outside the Barrack, the drain
could be covered & made of proper section
& have a good fall into the sea.

I have the honor also to draw your
attention to my letter of 24th of this date
called for by Dr. Massey, in which the

drainage is more fully explained.

I have the honor to be

Sir.

Your most obt. servant

R. D. Brown Esq.

North. Engineer & Architect.

19/1
Adjutant General's Office
13. M. S. College Road
Bangalore 23rd Feb 1876.

From

The Deputy Surgeon General
13. M. S. College Road

To

The Brigade Major
Malahalli & Cannanore
Cannanore

Sir,

1. In reply to your letter of 24th of 28th ultimo, I have the honor to state that I am in favor of the drainage and sewage of the Infantry Barracks at Cannanore being removed to the boundary of the Barracks enclosure in open or similarly shaped surface drains.

2. The sewage is of very small amount, only from two Cook houses. One of which cooks for the Band and the other for two Companies, together with the water from Ablution houses.

3. If the refuse of these two Cook houses, as more trifling, were daily removed by hand or carted away, the Ablution water could be removed in the open drains.

4. The two large Cook houses are at the South-West boundary of Barracks where all drainage and sewage must run underground across the small Maidan outside Barracks to the outfall at the Cliff.

23-1-76 13. M. S. College Road

M 11771
2/16

Rec 28 Feb 16 B. A. 512

5. Open Surface drains are more out of repair,
are easily kept clean under the management and the
- Servation of the regimental authorities and the
power at Cannanore is sufficient to ensure them.
Glazed pipe Leases running through the Barracks
are in this case unnecessary from the small amount
they would have to carry. Silt is liable to form.
They are often foul and out of order. Delay frequently
occurs in repair and they are costly to lay and keep
in repair.

6. I agree with the Chief Engineer that the
partially covered drains running through the Barracks
Squads may be dispensed with.

7. I believe his plan of fall of 1836 will be
the best and by raising off the sides as possibly a
passage across of a few flags at the deepest part
as has been done in the Barracks at Bangalore will
suffice.

I have the honor to be
Sir,

Your most Obedient Servant.

R. D. M. A. P.
By Surgeon General B. W. S.
Chy. S. S. S.

No. 229

Deputy Surgeon General's Office
13. M. S. Chy & Co. Ltd.
Bangalore 9. 10. 1896.

From

The Deputy Surgeon General
13. M. S. Chy & Co. Ltd.

To,

The Surgeon General
13. M. S. Chy & Co. Ltd.

24. 10. 1896. Deputy Surgeon General 13. M. S.

Sir,

I have the honor to request that you will inform Major General Walker R.E. Secretary to Government in the D. S. that in accordance with his wish expressed to me I carefully went into the subject of the drainage of the Infantry Barracks at Cannanore when there in December last.

2. Since my return to Bangalore my opinion on this subject has been asked by the Officer Commanding Chikalur & Cannanore in consequence of a representation made by the Officer Commanding the 43rd Regiment. And plans of drainage were submitted to me for perusal by the Assistant Engineer for providing open surface drains exclusively, instead of a system of glazed pipes for sewage and open drains.

4. 2. 1896 by 2. 10. 1896

2. 10. 1896

The Deputy Surgeon General
13. M. S. Chy & Co. Ltd.

2. 10. 1896

The Deputy Surgeon General

Chikalur & Cannanore
Barracks

2. 10. 1896

The Deputy Surgeon General
13. M. S. Chy & Co. Ltd.

Subject

The drainage of barracks at Cannanore.

13. 11. 1896

No 28 Feb 96 B 1° 512

drains for storm water, as intended in the plan
sanctioned in Proceedings of the Board of Engineers
P. W. D. of 24th June 1874.

3. In my reply I approved of the arrangement
of open surface drains proposed by the Board
Engineers for the Infantry Barracks at Cammer
and trust the entire subject will be considered by
General Walker as I understand it is to be sub-
mitted through the Quarter Master General.

I have the honor to be,

Sir,

Yours most Obedient Servant

A. A. M. a. f. y.
Deputy Engineer General
P. W. D. City of London

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 28th February '96

Read the following:—

Improvement of the Military

Department

from the Surgeon General
British Medical Service

(P.O. Encl. to 1/11/96 dated
12th February 1896.
No. 296 of 10/2/96)

Communicated to the
District Engineer Malabar,
who will expedite the submission
of revised Plans, Surveys
and estimates for the work
of drawing the European
Infantry Barracks at
Ponnore.

It is observed that
he has already been informed
by the Chief Engineer that
it was necessary to revise the
estimates sanctioned in
P.O. No. 1697 of 24th
June

P.O. No. 1876 of 28/2/96

Ch 296
76

Chemist

Forwarded for information
to the returned.

Approved

Surgeon General
P.O. No.

To the Secretary
to Government
A. J. M.

28/2/96

10/10/96

Forwarding the drawing of
Infantry Barracks at Ponnore

10/10/96

10/10/96

10/10/96

10/10/96

10/10/96

10/10/96

1874
I have not so far at least a
reference to the pipe drains.
A sum of Rs 4,000 has
been included in the
Budget of 1876-77, but
pending sanction of rev.
papers it cannot be
availed of.

Q. 11.

512 @ 514.

D. E. Malebar
C. S. S. M. A.
Mildy Sept. 10/1876

1874
June 1874 far at least a

17/10
Col. of U.S. Army
PUBLIC WORKS

The Engineer
Malabar

20 July 1874

512 14

Drawings of the Engineer
Malabar, 1874
Malabar, 1874

The Engr. is directed to
expedite the submission of the
plans, drawings & materials
connected with the —