

4

- (1) பக்கங்களின் எண்ணிக்கை 30
(2) புதுக்கித் திருப்பிய நாள் 8/90
(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் 10/90

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

(18)

P. W. D. துறை

அரசாணை எண். மு. கோப்புத் தாள் எண்.	2800	அச்சகம் பலவகை
நாள் :	24-10-1891	198

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

15-Sheets
Ln. 24/10/91

2800
1

24TH OCTOBER 1891, No. 2800 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following papers :—

From J. W. MARTIN, Esq., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 4th September 1891, No. 873 T.C.

With reference to G.O., dated 16th July 1891, No. 1956 W., in the matter of the Central Jail, Trichinopoly, I have the honour to state that the complaints made are that (1) the cell roofs are cracked; (2) some of the muttay stones in the cells are displaced; and (3) the method provided for locking the iron doors of some of the cells is not secure, &c.

2. As regards the cracks in the roofs, it is correct that in many instances the roof is cracked. The crack in all cases runs longitudinally along the crown of the arch over the whole length. In all cases there are no cracks nor any sign of weakness in the side and cross walls of the cells, nor is there a crack at the springing line of the arch. In fact there is no crack nor sign of weakness either in the wall or arch except the crack along the crown of the arch from end to end, and in nearly all cases only one nearly straight crack is visible.

3. The cells of the blocks of cells * in the Palamcottah Jail are on exactly the same design as the cells in the Trichinopoly Jail. The jail at Palamcottah was built ten years ago when I was in charge

* The plan of the cells at Palamcottah Jail is enclosed for reference.

of the Tinnevely division. Lately I inspected the jail and I noticed that in several instances the cell roofs are more or less cracked in exactly the same manner as is the case with the cells in the Trichinopoly Jail, and there are no cracks, nor any signs of weakness in the walls or roof, except the single crack running from end to end through the crown of the arch. However, the Superintendent of the Palamcottah Jail and the Jailor (the latter has been at the jail for some years) both stated that the roofs do not leak and that no complaints had been made as regards leakage. Therefore the crack in each roof must be very slight as regards breadth, but the fact remains that several of the roofs are cracked as described.

4. As the roofs at Trichinopoly and Palamcottah Jails are cracked in exactly the same way as regards position and direction, I attribute the failure to the design not being suitable. The arch in each case is 9 inches thick, composed of two half brick rings, each ring being about $4\frac{1}{2}$ inches thick, a layer of concrete about 3 inches thick being over the extrados and continued down to the haunches where it becomes thicker. I think and believe the arches were not heavy enough to tighten themselves up when the centring was removed, as always takes place in the case of a heavy arch or even a light arch carrying a wall or weight of any kind. In consequence of the arches not tightening up after the removal of the centrings, the mortar between the

bricks composing each ring was not compressed and the water sufficiently pressed out, but as the mortar dried it shrunk and the bricks on each side fell back towards the springing. I should mention that in all cases the cracks, even in the Trichinopoly Jail, are very narrow, not even wide enough to admit of passing in a small penknife.

5. With regard to the question why do the cell arches in the Trichinopoly Jail leak while no complaint has been made about the cells at the Palamcottah Jail, I think the explanation is that common or country bricks (which are only about an inch and a half thick) were used for the former, while Government size bricks were used for the latter.

6. The thickness of the Government size brick is $2\frac{1}{4}$ inches, and consequently the number of joints between the bricks of the arches in the Trichinopoly Jail is considerably more than the number in the arches at Palamcottah Jail; so, therefore, there was more mortar used with the former than the latter, and consequently more shrinkage.

7. In regard to repairing the cell roofs, I have instructed the Executive Engineer to put a layer of concrete on the outside from end to end over the crack. This layer of concrete will be from $1\frac{1}{4}$ to $1\frac{1}{2}$ feet wide at bottom according to the straightness of the crack, 9 inches thick at the centre and 6 inches at the sides. I believe this arrangement will stop the leakage.

8. I think that in the case of any cells constructed hereafter, if a masonry roof is provided of the same style as provided in the Trichinopoly Jail, the thickness of the arch at the crown should be at least 2 feet.

9. With reference to the muttay stones only fifteen in one block consisting of forty-two cells have shifted at all. The explanation is that the stones were fixed after the concrete flooring was completed on the special requisition of the Jail Department, the original estimate did not provide for stones. For the cells of the other two for the original estimate was provided at the time of making the floors and those stones are standing all right. I must however observe that it is not easy to fix muttay stones, without providing very large heavy stones and incurring considerable expense, in such a manner that they will not move, for they are used for pounding coir on and this must in time loosen the stones, but there is no special difficulty about refixing them.

10. Lastly, with regard to the iron doors, as regards the locking arrangements, the complaint refers to only seventeen doors. At present the bolt for fastening of each of these doors runs through two eyes, one on each side of the lock, and then into a hole, protected with an iron plate, in the wooden frame. Each eye has only one shank a quarter of an inch diameter by means of which it is riveted to the door (really gate) as shown on sketch. What occurred is that the prisoner put his hand through the bars of door (gate) and hit the eye from above as indicated by the arrow P, and broke the shank at the connection with the plate A.B. A man could not break the shank without using a stone or a hammer, but with a stone or hammer it is very easy to break it. All the doors except the seventeen just referred to are provided with a "dee" on each side of the lock through which the bolt runs, each "dee" being provided with two shanks for riveting to the bar A.B. already mentioned, each shank being $\frac{3}{8}$ inch diameter. These "dees" appear strong enough and the Superintendent has informed me that he is satisfied with them.

11. Regarding the bending up of the door referred to in G.O., dated 19th June 1891, No. 1206, Judicial, embodied with the Government Order under reference, only one door has given way. Each door is attached to the wooden frame by means of three hooks as per sketch supposed to be properly secured at the back. What occurred is this. The hook at D was not properly made, so it broke in the frame, and when the door was pulled out at the bottom, the hook came out, which allowed the door to be bent up. The hook should, of course, have been properly secured behind, but when a large number of doors are being made and fixed, it is difficult to prevent workmen not making mistakes or omissions.

12. Iron plates, as shown on the accompanying plan, are now being attached to each door to prevent the prisoners having free access to the locking arrangements,

under the estimate sanctioned in the Government Order under reference, and the fastening on the seventeen doors already referred to will be made the same as in the case of all the other doors, and then I do not think there will be any ground for complaint.

From the Superintending Engineer, VI Circle, dated 10th August 1891, No. 1040 T.C.

Note by the Chief Engineer, Public Works Department.

I have inspected the Trichinopoly Jail in company with the Superintending and Executive Engineers.

2. The cracks in the roofs of the cells are of no importance as regards the stability of the building and are doubtless due to the cause suggested by the Superintending Engineer.

3. The arrangement of the arch in two independent half brick rings is not a good one, and if brick was used at all, it should have been in the form of a single ring with specially moulded bricks; but for such thin arches concrete would have been a much better material than brick, provided the stone was broken very small and care taken in the mixing.

4. The arrangements made for covering the cracks appear to have been successful, as no leakage has occurred during the heavy rain that has fallen during the last few days, but it would have been better if the works had been grouted with pure cement before the concrete covering was put on.

5. The suggestion that future arches should be made 2 feet thick is, in my opinion, quite unnecessary.

6. The explanation regarding the shifting of the "muttay" stones is not satisfactory. As the stones had to be fixed after the floor was laid, the latter should have been removed to a distance of 6 inches all round the outside of each stone, and a solid block of concrete provided for the stone to rest in. The fault lies in the attempt to do the work too cheaply.

7. The design of the fastenings for the iron doors is not a good one, as the single shank to the staples does not give a sufficient hold on the plate, and the diameter of a quarter of an inch, which would be barely sufficient if the workmanship were perfect, allows no margin of strength for a defective weld which occurred in the particular staple which was broken. That the staple when properly made is strong enough is shown by the fact that Colonel Thompson and myself were unable to break the second staple of this same door though we had the leverage due to the whole length of the bolt to help us.

8. The alteration in design described in the last part of para. 10 of the Superintending Engineer's letter will make the doors perfectly safe and is being applied to the seventeen which are on the old design.

9. It is right to say that doors on precisely the same design have been in use in other jails for years without any complaint being made.

10. A large plate has been fastened to the inside of each door at the back of the bolt which will prevent a prisoner from getting at the padlock or bolt by passing his hand between the bars.

11. In the case referred to in para. 11 of the Superintending Engineer's letter, it was not the fastening which gave way, but the hook itself broke owing to a flaw in the material; this is an isolated case of bad forging which would hardly have been detected by any inspection after the manufacture was complete, and has nothing to do with the fixing. It could only have been prevented by incessant inspection during manufacture, a precaution which is of course practically impossible.

TRICHINOPOLY,
1st October 1891.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

ORDER—dated 24th October 1891, No. 2800 W., Public Works.

Recorded.

(True Extract.)

Major, R.E.,
Under-Secy. to Govt., P.W.D.

To the Superintending Engineer, VI Circle, with nine enclosures.
„ Judicial Department.

Exd. A. Aubert.
Spare Copies

2800
3

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1891} Madras.
PUBLIC WORKS.

Dated October, 24th.

Recd.

Encl.

G.O., 24th Oct. 1891, No. 2800 W.

OCTOBER.

Central Jail at Trichinopoly

Note by the Chief Engineer, Public Works Department, regarding repairs and improvements carried out in the —, recorded.

No. 873.T.C

80

From.

J. W. Martin Esquire
Superintending Engineer
II Circle

To.

The Chief Engineer
P. W. D.

Encls. 5.

One of cellular
jail showing the
cracks of cracks
of cells at
Palamcottah
jail of cellular
jail, from door
showing the
cracks for locking

original amount
amounting to
Rs 85244-11-11
mentioned in
O No 3275 W.
1287
encl.

original amount
of cells.
Rs 85244-11-11
doors in

Sir,
With reference to G. O. dated
16th July 1891 No: 1956. W. in the matter
of the Central Jail Trichinopoly I have
the honor to state that the complaints
made are that, (1) the cell roofs are
cracked; (2) Some of the masonry stones
in the cells are displaced; and (3)
the method provided for locking the
iron doors of some of the cells is not
secure. Yea.

2. As regards the cracks in the
roofs, it is correct that in many
instances the roof is cracked. The crack
in all cases runs longitudinally along
the crown of the arch over the whole
length. In all cases there are no
cracks

cracks nor any sign of weakness in the side and cross walls of the cells, nor is there a crack at the springing line of the arch. In fact there is no crack nor sign of weakness either in the wall or arch except the crack along the crown of the arch from end to end, and in nearly all cases only one nearly straight crack is visible.

3. The cells of the blocks of cells & the plan in the Palamcottah Jail are in exactly the same design as the cells in the Trichinopoly Jail. The Jail at Palamcottah was built ten years ago for reference when I was in charge of the Sinnerly Division. Lately I inspected the Jail and I noticed that in several instances the cell roofs are more or less cracked in exactly the same manner as is the case with the cells in the Trichinopoly Jail, and there are no cracks, nor any signs of weakness in the walls or roof, except the single crack running from end to end through the crown of the arch. However the Superintendent of the Palamcottah Jail and the Jailor (the latter has been at the Jail for some years) both stated that the roofs do not leak

leak and that no complaints had been made as regards leakage. Therefore the crack in each roof must be very slight as regards breadth, but the fact remains that several of the roofs are cracked as described.

4. As the roofs at Trichinopoly and Palamcottah Jails are cracked in exactly the same way as regards position and direction, I attribute the failure to the design not being suitable. The arch in each case is nine inches thick composed of two half brick rings, each ring being about $4\frac{1}{2}$ inches thick in layer of concrete about three inches thick being over the intrados and continued down to the haunches where it becomes thicker. I think and believe the arches were not heavy enough to tighten themselves up when the centering was removed, as always takes place in the case of a heavy arch or even a light arch carrying a wall or weight of any kind in consequence of the arches not tightening up after the removal of the centering the mortar between the bricks comes loose.

Composing each ring was not compressed and the water sufficiently pressed out, but as the mortar dried it shrunk and the bricks on each side fell back towards the springing. I should mention that in all cases the cracks, even in the Trichinopoly Jail, are very narrow, not even wide enough to admit of passing in a small penknife.

5. With regard to the question why do the cell arches in the Trichinopoly Jail leak while no complaint has been made about the cells at the Palamcottah Jail, I think the explanation is, that common or country bricks, (which are only about an inch ^{and a half} thick) were used for the former, while Government size bricks were used for the latter.

6. The thickness of the Government size brick is $2\frac{1}{4}$ inches, and, consequently the number of joints between the bricks of the arches in the Trichinopoly Jail is considerably more than the number in the arches at Palamcottah Jail, so, therefore, there was more mortar used with the former than the latter, and, consequently

more

more shrinkage. $\frac{300}{100}$ 30

7. In regard to repairing the cell roofs I have instructed the Executive Engineer to put a layer of concrete on the outside from end to end over the crack. This layer of concrete will be from $1\frac{1}{4}$ to $1\frac{1}{2}$ feet wide at bottom according to the straightness of the crack, nine inches thick at the centre and six inches at the sides. I believe this arrangement will stop the leakage.

8. I think that in the case of any cells constructed hereafter, if a masonry roof is provided of the same style as provided in the Trichinopoly Jail, the thickness of the arch at the crown should be at least two feet.

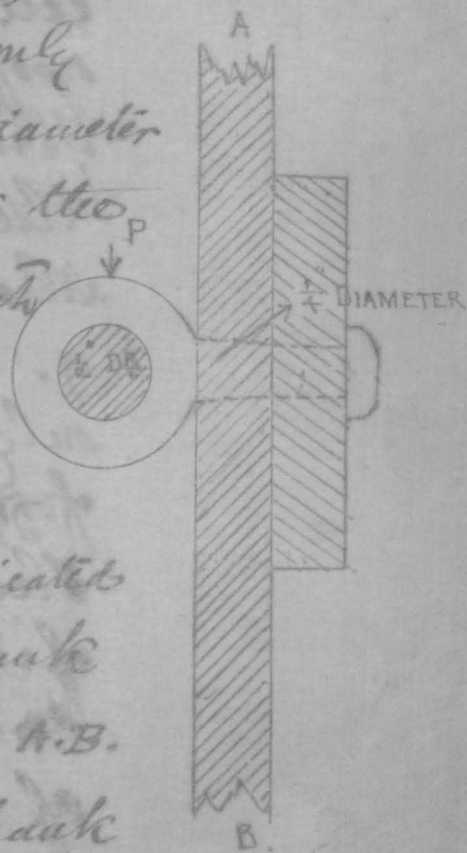
9. With reference to the muttay stones only fifteen in one block consisting of forty two cells have shifted at all. The explanation is that the stones were fixed after the concrete flooring was completed on the special requisition of the Jail Department for the original estimate did not provide for stones for the cells of the other two blocks in the Jail, stones were provided at the time of making the floors and those stones are standing all right. I must however observe, that it is not easy to fix muttay stones without providing

very

very large heavy stones and incurring considerable expense, in such a manner that they will not move, for they are used for pounding coir on and this must in time loosen the stones, but there is no special difficulty about refixing them.

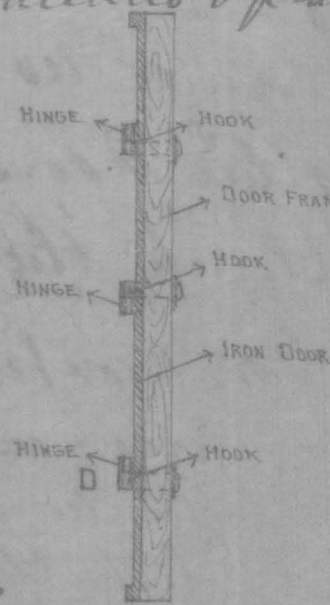
10. Lastly with regards to the iron doors, as regards the locking arrangements, the complaint refers to only seventeen doors. At present the bolt for fastening each of these doors runs through two eyes one on each side of the lock, and then into a hole, protected with an iron plate, in the wooden frame. Each eye has only one shank a quarter of an inch diameter by means of which it is rivetted to the door (really gate) ~~as shown by sketch~~.

What occurred is, that the prisoner put his hand through the bars of door (gate) and hit the eye from above as indicated by the arrow P, and broke the shank at the connection with the plate A.B. A man could not break the shank without using a stone or a hammer, but with a stone or hammer it is very easy to break it. All the doors except the seventeen just referred to, are provided with a "dec" on each side of the lock through which the bolt runs each "dec" being provided



48
provided with two shanks for rivetting to the bar A.B. already mentioned. each shank being 3/8 inch diameter. These "decs" appear strong enough and the superintendent has informed me that he is satisfied with them.

11. Regarding the bending up of the door referred to in G. O. dated 19th Aug. No: 1206. Judicial embodied with the G. O. under reference only one door has given way. Each door is attached to the wooden frame by means of three hooks as per sketch supposed to be properly secured at the back. what occurred is this.



The hook at D was not properly made so it was not properly hooked in the frame and when the door was pulled out at the bottom the hook came out which allowed the door to be bent up. The hook should, of course, have been properly secured behind but when a large number of doors are being made and fixed it is difficult to

to prevent workmen not making mis-
takes or omissions.

12. Iron plates as shown in the ac-
companying plan are now being
attached to each door to prevent the
prisoners having free access to the
locking arrangements, under the
estimate sanctioned in the G. O.
under reference, and the fastening
on the seventeen doors already re-
ferred to will be made the
same as in the case of all the
other doors, and then I do not
think there will be any ground
for complaint.

I have the honor to be
Sir
Your most obed^t servant

J. W. M. W.
Superintending Engineer
VI Circle

5P

2800
8

ad

P. W. D. 6th CIRCLE.

From

The Superintending Engineer,

6th Circle.

To

The Chief Engineer
P.W.D.

No. 873.T.C.

Dated

4th September 1891

Received

Enclosures 5

Central Jail at
Trichinopoly — Reports
on the complaints made
as to the bad workman-
ship in repair and
improvements to the —

Ex. B No 303 W 3 5.2.84
- A - 21 34 W 3 29.8.84
- - - 70 4 W 3 17.3.84
Munis No 26 99 C 3 6.8.86
Ex. B No 2257 W 3 7.86
Munis No 570 D 3 9.8.86
- - - 605 D 3 2.7.86
- - - 3246 C 3 23.9.86
- - - 3256 C 3 24.9.86
Ex. B No 2088 W 3 3.11.86
- A - 3275 W 3 1-12-87 ✓
- - - 1124 W 3 10.4.90 ✓
- - - 1956 W 3 13.7.91 ✓
- R - 2468 W 3 14.7.91 ✓

Copy of letter from the Executive Engineer,
Trichinopoly Division, to the Superintending
Engineer, VI Circle, No 443.E.E. dated
4th October 1891.

With reference to your indorse-
ment No: 939.T.C. (hereunto return-
ed) and Munis: No. 940.T.C. dated
18th September 1891, I have the honor
to inform you that as already reported
the iron doors of the new District
Jail were made in 1885, when
Col. Fraser was the Executive
Engineer and Mr. Fonseca the super-
visor in charge of the work.

No 1040-T.C.

Copy submitted to the Chief Engineer,
P.W.D., with reference to G.O. No. 2468
dated 15th September 1891, and in conse-
quence of this office No. 873.T.C. dated
4th September 1891.

2. The padlock with staple, re-
ceived with the G.O. above
quoted, has been forwarded to
the

23.10.91
H. S. - 21.

the Superintendent, Central Rail.

Camp Kochitubam Wm Martin

9th October 1891 Superintendent Engineer

570/-

VI Circle

the Superintendent, Central Rail.

Camp Kochitubam Wm Martin

9th October 1891 Superintendent Engineer

570/-

2800/10

the Superintendent, Central Rail.

Camp Kochitubam Wm Martin

9th October 1891 Superintendent Engineer

570/-

the Superintendent, Central Rail.

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9th October 1891 Superintendent Engineer

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the Superintendent, Central Rail.

Camp Kochitubam Wm Martin

9th October 1891 Superintendent Engineer

570/-

the Superintendent, Central Rail.

Camp Kochitubam Wm Martin

9th October 1891 Superintendent Engineer

570/-

10778

Form.

The Supt^r Engineer
W. C. C.

To

The Chief Engineer
P. W. C.

No 1040 TC

Dated 9th 3 October 1891.

Dep^t 10 3
R. 13. 10. 91

21 Nov. 24-10-91

Central Jail, Trichinopoly
submits further re-
port, stating that the iron
doors of the New — were
made in 1885, when
Col. Froude was the Exec.
Agent & Mr. Froude the
Supt^r in charge of the work.

John V. ...
C. 21. 9. 1891

80/3
14/10/91

80/3
14/10/91

80/3
14/10/91

P. W. C. 6P

Read the folly:—

Letter from the Supt^r Engineer W. C. C.
No 873 J. C. dated 4. 11. 91.

Letter from the Supt^r Engineer W. C. C.
No 873 J. C. dated 4. 11. 91.

Note by the Chief
Engineer P. W. C. —

Lead
Luv
boat

I have inspected
the Trichinopoly Jail
in company with the
Superintending and
Executive Engineers.

2. The cracks in the
roofs of the cells are
of no importance as
regards the stability
of the building and
are doubtless due to
the cause ^{suggested} reported by
the Supt^r Engineer.

3. The arrangement
of the arch in two
independent half
brick piers is not a
good one, and if
brick was used at
all, it should have
been in the form of
a single pier with

especially moulded bricks,
but for such thin
arches concrete would
have been a much
better material than
brick, provided the
stone ^{was} broken very
small and care taken
in the mixing —

4. The arrangements
made for covering the
cracks appear to have
been successful, as
no leakage has occurred
during the heavy rain
that has fallen during
the last few days,
but it would have
been better if the
works had been grouted
with pure cement before
the concrete covering
was put on.

5. The suggestion
that future arches
should be made
two feet thick is
in my opinion quite
unnecessary.

6. The explanation

2800
12

78P
regarding the shifting
of the "muttay" stones
is not satisfactory. As
the stones had to be
fixed after the floor
was laid the latter
should have been pinned
to a distance of six
inches all round the
outside of each stone,
and a solid block
of concrete provided
for the stone to rest
in. The fault lies in
the attempt to do the
work too cheaply.

7. The design of the
fastenings for the iron
doors is not a good
one, as the single shank
to the staples does not
give a sufficient hold
on the plate, and the
diameter of a quarter
of an inch, which would
be barely sufficient
if the workmanship ^{were}
perfect allows no
margin of strength for
a defective weld.

which occurred in the particular staple which was broken. That the staple when properly made is strong enough is shown by the fact that Colonel Thompson and myself were unable to break the second staple of this same door though we had the leverage due to the whole length of the bolt to help us.

8. The alteration in design described in the last part of para 10 of the Supt. Engineers' letter will make the doors perfectly safe and is being applied to the seventeen which are on the old design.

9. It is right to say that doors on precisely the same design have been in use in other

8.P.
jails for years without any complaint being made.

2800
13

10 A large plate has been fastened to the inside of each door at the back of the bolt which will prevent a prisoner from getting at the padlock or bolt by passing his hand between the bars.

11 In the case referred to in para 11, ^{of the Supt. Engrs. letter} it was not the fastening which gave way but the hook itself broke owing to a flaw in the material; this is an isolated case of bad forging which would hardly have been detected by any inspection after the manufacture was complete, and has nothing to do with the fixing. It could only have been

presented by incessant
inspection during
manufacture, a
precaution which is
of course practically
impossible.

John B. [unclear]
Chief Engineer P.W.D.

Camp, Specimens of
October 1. 1891

For Orders

S
W
1.10

2800
14

His

For Orders

APR 2800 Wdy 24th Oct. /91

Recorded.
Recorded.

8000
6/10/91

S. 1741

2. Sept 10. IX
M. C. X. 91

Am 5-2-91 R7 - 91

S. E. VI circle with 7 pencils.
W. Circle with 9 pencils.
Judicial Dept.
Archives Dept.

W. 1741

7502
Sect. of 18. Madras.

PUBLIC WORKS.

24 Oct 71 28000

Central Jail at
Trichinopoly

Note by the Chief Engineer
P.W.D. regarding repairs
& improvements carried
out in the —, recorded

(18)

$\frac{50}{8}$ $\frac{30}{6}$