[L. & M.
9,000-8-8-96.]

Local & Munl. (1895) Department.

MISCELLANEOUS.

G.O., No. 1519 M

DATED 19th September 1895

[Despatch Abstract.]

Cement Pipes.

Stating that further report regarding the testing of---- promised by the Sanitary Engineer will be awaited.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G O.	No.	Department.	Date.

FORMER CASES.

No. 38 dated 27-2-1896.

" " 189 .

" " 189 .

Receipt No. 11-I

Dated 16-5-1896.

LATER CASES

R No. 129 dated 20. 6. 1896

R " 430 " 15. 7. 1896

" " 189 .

Sent to Government with No. I of 189 .

Printed with G.O., No. , dated 189 .

REMINDERS RECEIVED.

No. 1, dated 189 .

" 2 " "

" 3 " "

" 4 " "

" 5 " "

KEEP-WITHS.

No. 111 G

E. I. For —23-9-95.

Receipt No. 11-I

From The Supg. Engr 1st Circle

No. 111 GL

Dated 11-5-1896.

(Reply to E.I.'s Cir Memo. No. 3. G., dated 27. 2 1896.)

Subject—Madras Cement pipes—Reports that do not compare favorably with the glazed pipes made by Messrs Burn & Co.

papers

BR 16-5-96

ENCLOSURES.

From to

" "

" Please see papers " in the linked

" file – "

16/5

Orders and Proceedings in File.

No.	Date.	No.	Date.
To	D.E.I		
BR 18-5-96			

18/5

G.

No. 1116L

From

W. C. De Morgan Esqr

~~Superintending~~ Engineer, in Ch.
Exec First Circle.

Enclosures.

Vide linked file -

To

The Chief Engineer
For Irrigation
Madras.

Waltair, 11. 5 1896.

Sir,

With reference to your Circular memorandum No. 3G of 27.2.9 I have the honour to inform tha I have made a trial of both kinds of pipes and find tha the Madras cement pipes d not compare favourably with the glazed pipes made by Burn and Co. Howrah, either in price or durability; they a also much heavier.

I have the honour to be,
Sir,
Your Most obedt Sr

W De Morgan
13/5
Ex Engineer Ch 1st Cir

E8 12/5

… pipes … ordinary pressure
is

W. C. DeMorgan Esq.
Ex. Engr. in charge I Circle

To
The Chief Engineer,
For Irrigation,
Madras.

Dated 11th
Despd. 13th } May 1896

CHIEF ENGINEER
FOR IRRIGATION.
16 MAY 96 No. 111 Gl.
No. 11-I

Subject

Madras Cement pipes —
Reports that — do not compare favorably with the glazed pipes made by Burn & Co.

J No. 3 G dated 27-2-1896.
R " 35 " 3-1- 1896.
J " 62 Gl. " 17-2-96
R " 43 Gl. " 22/3/ 1896.

Receipt No. 5-III

Dated 10-3-1896.

LATER CASES

R No. 8-II dated 9. 3. 1896.
R " 291 Gl. " 2. 5. 1896.
R " 11-I " 11. 5. 1896.
~~R. O. No. 129 - 20. 6. 96~~
R 430 Gl. - 15. 7. 96

Sent to Government with No. I of
189 .

Printed with G.O., No. , dated
189 .

REMINDERS RECEIVED.

No. 1, dated 189 .
" 2 " "
" 3 " "
" 4 " "
" 5 " "

KEEP-WITHS.

Receipt No. 5-III

From
The Supg. E
3rd Circ

No. 3792
Dated 9-3-1896.

(Reply to E.I.'s Memo. No. 3 G, dated 27
1896.)

Subject— Cement-Pipe
Informs that the
manufactured b
Messrs Arbuthnot & Co a
unsuited for use i
this Dept.

BTE
10.3.96

E.I. ENCLOSURES.

From

As the S.E. appears t
have ~~already given~~ ~~the pipes~~ formed an
opinion adverse to
their use ~~[illegible]~~

Orders and Proceedings in File.

No.	Date.	No.	Date.

~~not~~ unless he wishes
to confirm this opin
he need not give th
pipes any further tria

JJB
10/3

Await reports
from other S.E.

15/3

mk 10/3/96

3. As far as resorting ordinary p
is

No. 3792

Superintending Engineer's Office,
3RD CIRCLE.
Bellary 9th March 1896.

FROM
W. B. de. Winton, Esquire,
SUPERINTENDING ENGINEER,
IIIRD CIRCLE,

To

THE Chief Engineer,
for Irrigation,
Madras.

Sir,

Enclosures.

With reference to your circular Memo:- No. 3. G. of 27th February 1896, I have the honor to inform you that from the little, I have seen of the cement pipes manufactured by Messrs. Arbuthnot & Co, I have come to the conclusion that they are unsuited for use in this Department, because of their extreme brittleness.

2. I have broken one by merely letting it fall from an upright to a recumbent position, and, looking to the shaking they are likely to get in country carts, and the ill usage they will be exposed to, at the hands of ryots, they are, in my opinion, likely to prove more expensive in the long run than glazed earthen-ware pipes.

3. As far as resisting ordinary pressure is

concerned, they will, no doubt, fully answer our requirements, but they must stand rough handling also.

4. I shall be glad if you will inform me whether, under the above circumstances, you still wish a trial given to these pipes.

I have the honor to be,
Sir,
Your most obedient Servant,
W B de Winton
Superintg Engineer,
3rd Circle.
6-3-96

From W. B. De Winton Esqre
~~The~~ Superintending Engineer,
IIIrd Circle,
Bellary.

To
The Chief Engineer
for Irrigation
Madras

CHIEF ENGINEER
FOR IRRIGATION
10 MAR. 96
No. 5-III

Dated 9th March 1896.
Received

Enclosures.

No. 3792

Subject.

Cement Pipes.

Informing that the — manufactured by Messrs Arbuthnot & Co., are unsuited for use in this Department.

FORMER CASES.

No. 39 dated 27-2-1896.
papers put up with No. 5-III/95 " 1895.
& sent to E.I " 189 .
13/3/96

Receipt No. 8-II
Dated 11-3-1896.

LATER CASES

~~R~~ No. 291. Eng dated 2.5. 1896.
R " 11-I " 11.5. 1896
R " on 179 - 20.6. 1896
~~R 430 No. 15.7.96~~

Sent to Government with No. I of
189 .
Printed with G.O., No. , dated
189 .

REMINDERS RECEIVED.

No. 1, dated 189 .
" 2 " "
" 3 " "
" 4 " "
" 5 " "

KEEP-WITHS.

E. I. Form No. 5—2,000—23-9-95.

Receipt No. 8-II

From

The Supg. Engr.
2nd Circle

No. 5-918 L
Dated 9-3-1896.

(Reply to E.I.'s Memo. No. 39, dated 27 Feb 1896.)

Subject— Cement-pipes of Messrs. Arbuthnot & Co.
Informs that — have been used in the Circle & found to answer very well-

B R
11-3-96

File returned to the Office
[illegible] 19/3

ENCLOSURES.

From to
" To lie over until "
" the file sent to E.I is "
" returned "

B R
16-3-96

Resubmit
14/4

Orders and Proceedings in File.

To await replies from other S. Engrs.

No.	Date.	No.	Date.

B R
19-3-96

Previous papers sent to E.I on 13/3/96 and not yet returned
MA 19/3

Superintending Engineer's Office,

No. 591 GI
A

II CIRCLE,

Dated 9th March 1896.

From,

Major W. L. C. Baddeley, Esquire, R.E.
Superintending Engineer,
II Circle.

To,

The Chief Engineer,
For Irrigation,
Madras.

Sir

With reference to Circular Memo No. 3 G of 27th Febry 1896, I have the honour to report that the pipes have been used in this Circle and have been found to answer very well for sluices of distributaries.

I have the honour to be,
Sir
Your most obt Servant,

W L C Baddeley
Major R.E.
Supg Engr: II Circle.

M.

CHIEF ENGINEER
FOR IRRIGATION.
11 MAR. 96
No. 8-II

From

The Supdg. Engr
II Circle

To

The Chief Engr:
For Irrign:
Madras.

No 591 E6
9. 3. 96

Dated 9th March 1896

Cement-pipes of Messrs: Arbuthnot & Co. Informs ~~that~~ ~~[illegible]~~ have been used in the Circle & found ~~to~~ answer very well.

From,

The Superintending Engineer,
II Circle.

To,

The

Dated
Received } 18

Enclosures.

NO.

SUBJECT.

Appendix I

Statement shewing number of cement pipes tested and the re

Number of test	Number of pipes tested	Pressure applied in lbs	Head in feet	Pipes burst or cracked	Result of test
		lbs	Feet		
I	4	12	28	cracked	Last pipe from socket end cracked at the end. Fracture nearly even and almost as if it had been
II	3	14	32	do	do Fracture was zig zag
III	2	21	49	"	Disc blown out
IV	2	18	42	"	Fracture same as Test No I
V	2	31	71	"	Joint gave way bringing a piece of socket of the pipe
VI	1	25	58	"	Fracture jagged
VII	1	53	122½	Broke	
VIII	1	25	58	do	Fracture zig zag
IX	1	55	127	cracked	Zig zag. The best result.
Total		254 lbs	587'		
Average		28 lbs	65'		

True Copy

Sd. H. A. Minchin C. E.
Asst. Sany. Engineer

Exec: Engr:

Enclosure No 2 to letter No. 3587 of 1895

From

The Asst Sany Engr

Southern Circle

Subject

Statement Shewing the number of cement pipes tested and the result

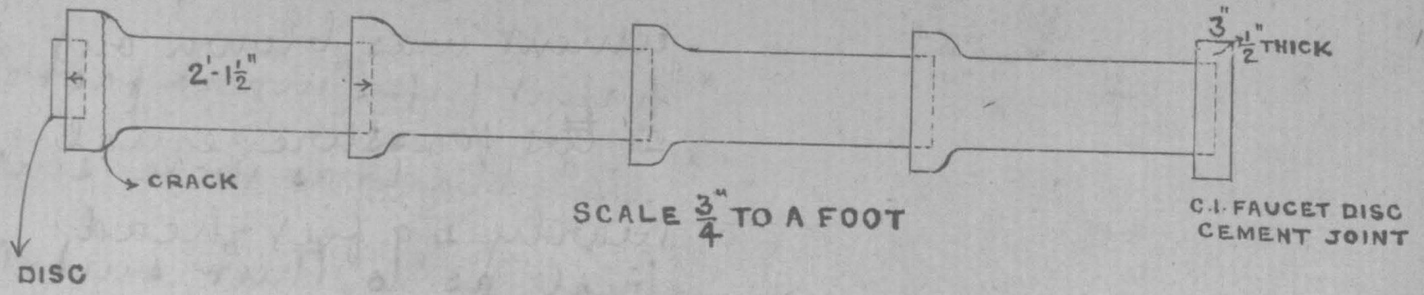
2/3689 m of 95

Report on Cement Pipes tested

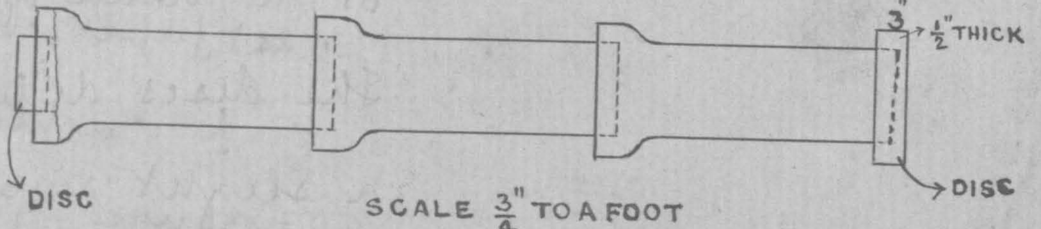
A dozen of Casebournes patent pipes manufactured in Madras were sent for trial, as to their suitability or otherwise for adoptation to water supply and other sanitary schemes.

The pipes were tested with hydraulic pressure till they either burst or the joint gave out. The following were the results of the experiments.

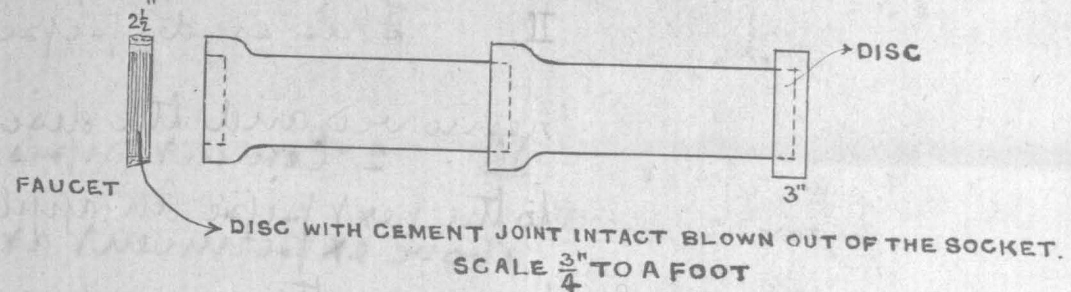
I. 4 cement pipes jointed together (cement joints) with two cast iron discs, a cap and faucet, blacking the ends. The joints were given 3 weeks to set on pressure being applied, the last pipe from the socket end cracked at the socket. Pressure 12 lbs equal to nearly 28 ft head. Fracture nearly even and almost as if it had been cut.



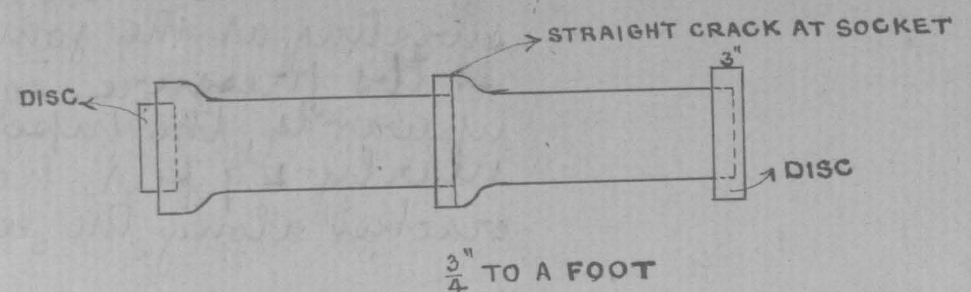
II. This end pipe was removed and the disc attached to the next pipe. On applying pressure the same pipe i.e last one from the socket end cracked at a pressure of 14 lbs or a little over 32 feet head. The fracture was slightly zig zag in form but almost equidistant from the outer edge of the socket and just where the cement joint ended



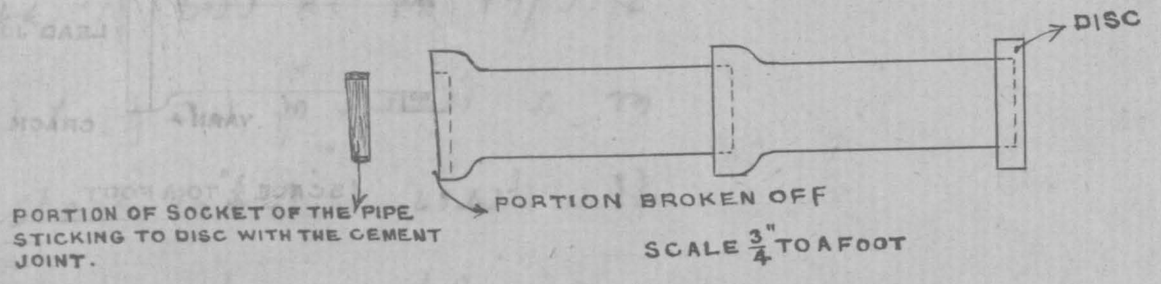
III. Two cement pipes with discs on outside (cement joints) On pressure being applied the end spigot disc with cement was blown out at 21 lbs pressure equal to nearly 49 feet head.



IV The joint was remade, and after allowing time to set, pressure was applied. The pipe cracked at the spigot at 18 lbs pressure or a head of 42 feet nearly. The discs did not leak, only a slight sweating. The nature of the fracture almost the same as that obtained in experiment I

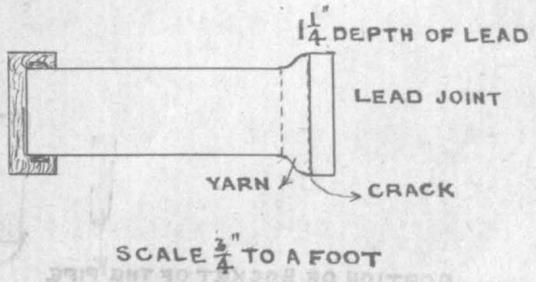


$\underline{\text{V}}$ 2 Cement pipes as in the above experiment at 15 lbs (35 fee head; the joint at ends sweated an 21 lbs (49 ft head) cement joint cracked - 31 lbs (71 feet head). Th joint gave way altogether & bringing away a piece of the sock of the pipe about $4\frac{1}{2}$" long and thick at deepest part.


DISC
PORTION BROKEN OFF
PORTION OF SOCKET OF THE PIPE STICKING TO DISC WITH THE CEMENT JOINT.
SCALE $\frac{3}{4}$" TO A FOOT

$\underline{\text{VI}}$. One pipe with discs lea jointed also wrought iron clamping bars to prevent the discs blowing off. Pressure being applied there was a slight sweating at the joint from 10 lbs upwards, the pipe suddenly cracked along the lead joint at the socket end at 25 lbs pressure equal to head of 58 feet nearly.

Fracture slightly zagged but almost exactly in line with the end of the lead joint. It is possible the cold water may have hastene the fracture; the lead joint was fresh made. The portion where the tarred yarn was packed was not cracked.

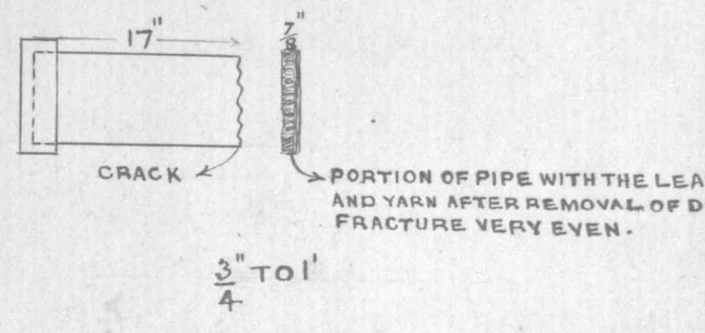


As in nearly every experiment I had hitherto made with these pipes, the failure was at the socket, I thought I would try and see the result of cutting off the socket and having two iron socket Discs fixed. Messrs Arbuthnot & Co. kindly supplied me with these and the following were the results of the further experiments.

VII One cement pipe with iron socket discs both ends lead joints, the faucet portion of pipe sawn off. Nothing happened till 35 lbs (81 feet head) was reached when joints sweated slightly at 53 lbs (122 $\frac{1}{2}$ ft head) the pipe broke off short round the joint where the lead ended fracture clean. The

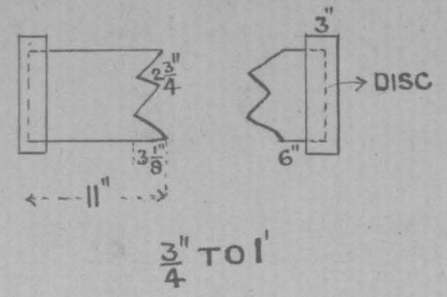
other

other end held tight except for slight sweating. This is the best result obtained so far Mr Jones was present this day.


17"
7"
CRACK
PORTION OF PIPE WITH THE LEAD AND YARN AFTER REMOVAL OF DISC. FRACTURE VERY EVEN.

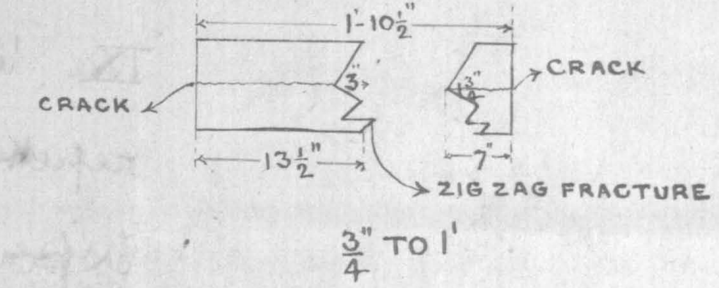
$\frac{3}{4}$" TO 1'

VIII The pipe was prepared in the same way as the former experiment, lead joints to discs. The pipe broke at a pressure of 25 lbs or 58 feet head. The fracture was a pronounced zig zag 3 $\frac{1}{8}$" from furthest point to nearest to disc; and 3 sharp points in the circumference, the pipe broke with a slight thread.



IX This was another repetition of the former experiment viz- Socket discs and lead joints- The joints began slight sweating at 30 lbs; which was caulked commenced sweating again at 38 lbs recaulked. I was very careful not to allow the caulking to be done too hard as the pipe might have been cracked. The pipe finally burst at 55 lbs pressure or 127 feet he

The pipe had cracked across near the centre of the pipe zig zag fracture with two longitudinal cracks in line with the internal rib or core mark these cracks extended the whole length of the pipe.



These completed the actual testing experiments as regards the bursting of the pipes.

An epitome of the experiments is given in Appendix I. From which the following results appear to have been arrived at.

1. That the weakest part

of the pipe is the socket.

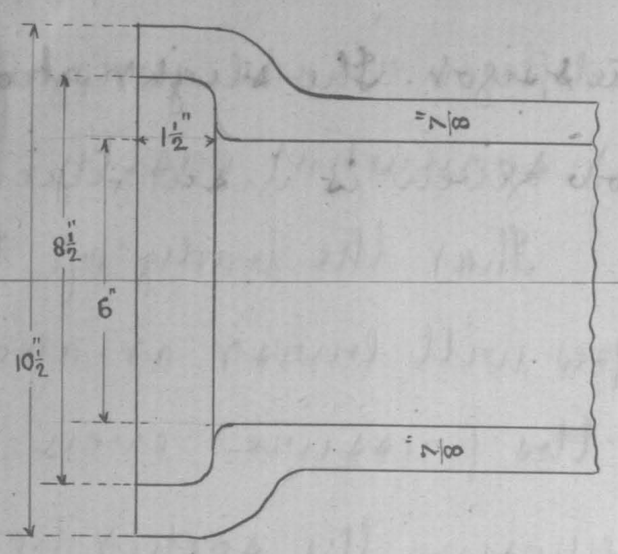
2. That sometimes the material of which the joint had been made was blown out somewhat easily.

3. That the body of the pipes will burst at about 50 lbs pressure even supposing the socket holds.

The above would lead me to suggest some modification in the pattern of pipe would be advisable.

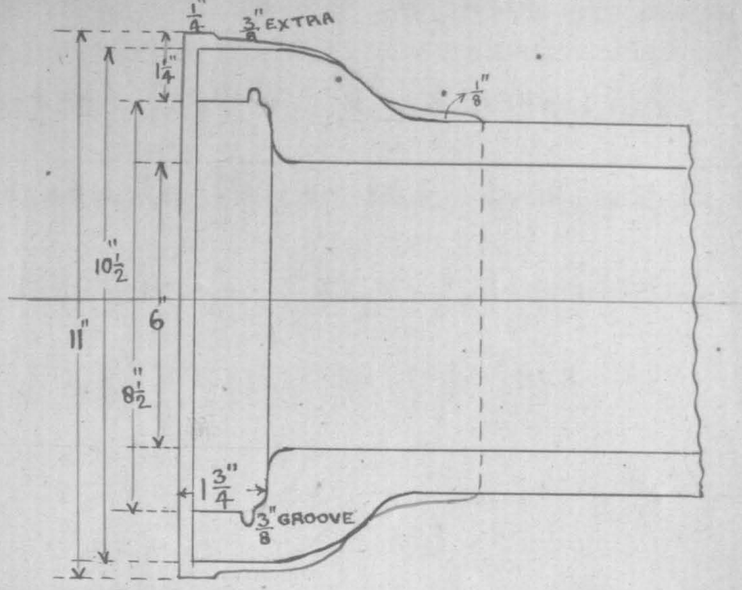
1. That the neck of the socket be made thicker and carried further into the body of the pipe (more like the standard plan of cast iron pipes in use in the Sanitary Engineer's Department)

PRESENT SOCKET AND NECK.



PROPOSED.

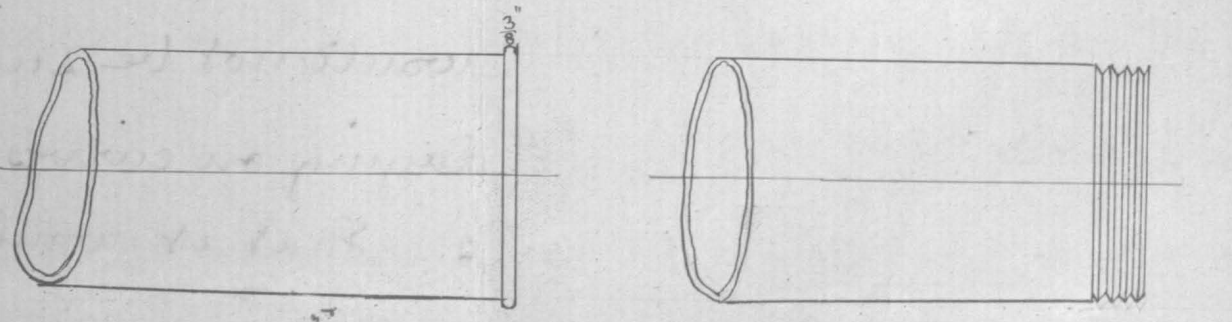
BLACK LINE PRESENT SHAPE.
RED PROPOSED.



SCALE 3" TO 1 FOOT

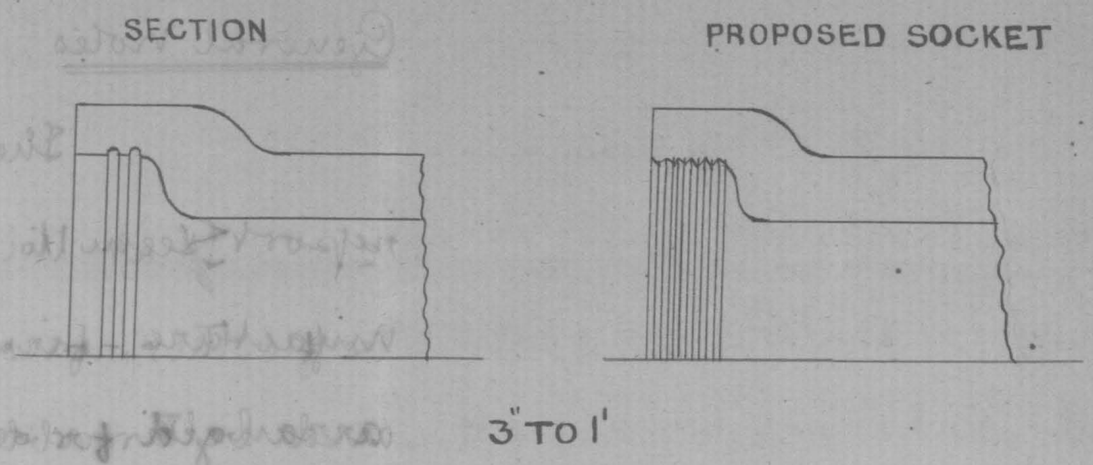
2. That the spigot end be further roughened or a rib arranged for or else a thread cut as in some earthenware pipes to give the cement some "bite" when set to hold. The present pipes have only a very slight rough groove barely 1/16" deep, evidently scratched after manufacture.

PROPOSED



SCALE 2" TO A FOOT

The faucet end should also have some grooving or thread cut to correspond with the spigot. The slight groove now given is insufficient.



If it is proposed to use a thread on the pipes, the manufacture would have to be very carefully watched as otherwise it would be a source of leakage owing to the threads not fitting, these pipes would not be suitable for laying on curves.

2. That it would not be safe

safe to use the pipes as they are now made at a greater pressure than 10 lbs or say 24 feet head. This would preclude their use for anything but low pressure gravitation supplies

General Notes

The pipes under report seem to be of better manufacture, firmer in substance and better able to resist internal water pressure than the first set reported on.

With regard to the pipes taking up water I left a pipe 36 hours full of water (no pressure) and when broken had penetrated $\frac{1}{8}$". When under pressure the water generally had wetted the internal coat about $\frac{1}{8}$ to $\frac{1}{4}$ inch according to time.

If the body of the pipe sweated at all during a pressure test it was generally a few seconds before a crack appeared on the surface. The pipes I think would be improved by either an internal coating of impervious solution or being salt glazed. This would tend to lessen the chances of leakage as well as friction of the flow of water in the pipes.

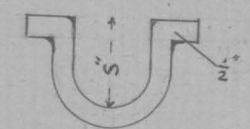
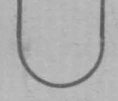
The value of the pipes for town drainage & from a chemical point of view should be investigated, as to whether acids have an eroding effect on the concrete pipes. This might be both practically tested in using these pipes on some small drainage scheme and

theoretically

theoretically in a laboratory. The pipes otherwise appear suitable for Low Pressure drainage works, if carefully jointed.

The pipes would no doubt be very suitable for irrigation purposes such as tank, pot sluices and distribution sluices from branch channels where the head of water would be low. The pipes should be very useful for small culverts and under sluices to roads and embankments also & for drainage of "wet" cuttings, swamps &c. The advantage of being able to manufacture the pipes in situ, saves in breakage and cost of transit, should give the manufacturers a great field for increasing their use

I may incidently mention 2 of the jointed pipes were accidently buried. about $1\frac{1}{2}$ feet under ground over which a 12 HP Portable engine was moved. The pipes were in tact which may be taken as another point in their favor as regards strength.

The concrete of which the pipes are made of would, if moulded in the  shape tile, do very well for the drainage tiles of filterbeds or as  shaped storm water drains round buildings and in the smaller lanes of houses and villages. If made of sufficiently large diameter, the pipes might also do as pot wells so frequently sunk by natives natives of India for drinking water wells.

I was not able to test the concrete itself as to tensile and crushing strains as I have no testing machine available.

/Sd/ H. A. Minchin C.E.
Asst Sanitary Engineer

'True Copy'

Sany: Engr: to Govt

Enclosure to letter No. 3587 of 1895

From

The Asst. Sanitary Engr.
Southern Circle

Subject

Report on Cement Pipes tested.

1/3589 M of 95

S. E./6 6-9-95—1,000.

No. 3587

GOVERNMENT OF MADRAS.
OFFICE OF SANITARY ENGINEER,
Fort St. George, 2nd Decem 1895.

Local & Municipal Dept.
CURRENT No. 3689 M

From

J. A. JONES, Esq., MEM. INST. C.E., F.R.S.E.,
SANITARY ENGINEER TO GOVERNMENT,

To

The Chief Secretary to Government
Local and Municipal Departmen

SIR,

In continuation of my No. 2527/5.9.95 I have the honor to forward a copy of M Minchin's report on the result of further experiments on the strength of cement pipes. 1519 Mil / 19-9-95

2. I regret that these are disappoin ing in so far that while the highest pressur stood without bursting was 127 feet of water the average is only 65 feet and one pipe burs at 28 feet.

3. Stoneware pipes stand from 200 to 460 feet of water

4. The cement pipes as now manufactured can be used in works where there is little pressure ~~and~~ but cannot be recommended for ordinary work; though no doubt they

could

used when the pressure can be limited to a safe factor of the lowest bursting pressure of 28 feet say not more than 20 feet.

5. I believe however that with the accompanying results before them Messrs Arbuthnot & Co. may be able to make such alteration as will much increase their strength - their weakest point is near the socket as pointed out by Mr. Minchin.

I have the honor to be
Sir
Your most obedt. Servt.

Sany Engr to Govt.

REQUESTED for reference the undermentioned papers:—

Sanitary Engineer's and Mr. Minchin's report about stoneware pipes returned to L. & M. Dept. with Chief Engineer's No. of 24th March 1896

G.O. 1519 L / 19.9.95 & 138 L / 27.1.96

Asst. Chief Engineer

OFFICE OF THE CHIEF ENGINEER
FOR IRRIGATION,
Chepák, 2 April 1896.

To
The Under Secy to Govt.
Local & Municipal

17?-95.

S.R.
4. 25-5-94—500.

Local & Municipal Dept.
CURRENT No. 3689/M

PR

CHIEF SECRETARY
1895.
-2 DEC. 1895
GOVERNMENT OF MADRAS

From

The Sanitary Engineer
to Government,

To

The Chief Secretary
to Government
Local ~~& municipal Dept.~~

No. 3587

Dated 2
Despd. 2 December 1895.
Recd.

Enc. 2

Subject.

Forwarding with remarks copy of Mr. Minchin's report on the result of further experiments on the strength of cement pipes.

(For orders)

---

19 Leh 19-9-95 ✓
2 Leh 26-6-95 ✓
06 Leh 8-8-95 ✗
5 Leh 2-2-95 ✗
710 Leh 7-6-94 ✓

H.M.

For orders

1A
12/12

The testing of these pipes shows that they are not nearly as good as English stoneware pipes at any rate as regards resisting the pressure of a head of water. The S.E. however says that he thinks they are capable of improvement. The result of Mr. Minchin's experiments, with his remarks, may be communicated to Messrs. Arbuthnot & Co with a view to their making an improvement in the manufacture, as suggested, especially with regard to the sockets.

WWP
12.xii.95

31/12/95.

Yes. [The C.E.W. should also see the papers. The want of cheap & strong stoneware pipes is a most serious impediment to sanitary improvements. Could not the Govt. Architect arrange for to make some stoneware pipes at the Govt. brickfields as an experiment;] or perhaps the San: Engg. Co. persuade Messrs. A & Co. to do so— Stating the Madras clays are good and the salt required for the glaze could be issued duty free. There are rules for this.]

7/1/96

Office Please put up these rules
WWP.
10-1-96.

Please see page 6 of the 1890 circular orders No 1 of 1893 put up
1/1

7/1/96 O/ 9/1/95

Replied in G.O. No 998 L/96

Office Note dated 30-1-96

To

The Under Secretary
P.W.D. (works)

The undersigned has the honor to forward to the P.W.D the accompanying file together with a copy of G.O. No 138 Misc dated 27.1.96 with the request that the opinion of the Chief Engineer may be obtained, as requested in Hon. Mr. Bliss' note dated 7.1.96

WWP
23.1.96

Office
The G.O. to Messrs. Arbuthnot can issue. Insert the number of it in this office note & fair copy for signature.

P.S.B.

Copy despatch with a copy of G.O.

To

The P.W.D.

note A. Sec's note
S.B.
24.1.96

Desp. 80/Local

Cur 3689 M/95
154 M 2-2-95
806 M 8-5-95
1022 M 26-6-95
1519 M 19-9-95
710 M 7-6-94

LOCAL AND MUNICIPAL DEPARTMENT.

Papers to be read in Proceedings :—

Again G.O., dated 7th June 1894, No. 710 M.
— — — — 2nd February 1895 — 154 M.
— — — — 8th May — " — 806 M.
— — — — 26th June — " — 1022 M.
— — — — 19th September " — 1519 M.
Current No. 3689 M of 1895, dated 2nd December '95 from the Sanitary Engineer.

Order. No. 138 Muni. d 27-1-96

The report submitted with the letter read abo
will be communicated to Messrs. Ar
buthnot & Co.

2. The results of the experiment
held by Mr Minchin go to show tha
the cement pipes at present manu
factured are unable, especially at
socket to withstand any great press

3. The want of cheap and stro
Stoneware pipes is a serious impe
ment to carrying out sanitary im
provements in this country, and
would be desirable if the Sanita
Engineer put himself in commu
cation with Messrs. Arbuthnot
Company with the view, in the ev
of their not being able to make
ment pipes of sufficient resist
power, of inducing them to tu
their attention to the producti

Stonew

stoneware pipes fit for use in sanitary works.

(From orders)

Ind
22/1/96.

3689 M.

(From orders)

To

The Sanitary Engineer
Messrs Arbuthnot & Co. L.; Engt & O

Please despatch [illegible]

HC
24/1/96

Despd 30/1/96

D
[illegible].1.96

READ AGAIN ORDER OF GOVERNMENT, DATED
189 , No , MISCELLANEOUS.

ENCLOSURES.

CURRENT No

STATEMENT WITH DITTO.

ORDER OF GOVERNMENT

STATEMENT WITH DITTO.

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FURTHER PAPER, No. Mis 820 Dy of 1896

Mis 998 Dy/96 (Mis

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Examined by

[7]

INDEXED.

Miscellaneous.

Local and Municipal Dept.

G.O., dated 27-1-96
No. 138/M

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[Despatch Abstract.]

Cement pipes

Communicating with remarks to Messrs Arbuthnot & Co copy of Mr Minchin's report on the result of further experiments on the Strength of —

Government of Madras.

Office of Asst. Sany. Engr.
Southern Circle,
Trichinopoly, 31st August 1895

From
H. A. Minchin Esq. C.E.,
Asst. Sanitary Engineer
Southern Circle

To
The Manager, Cement Works
Madras

Dear Sir,

In reply to your letter dated 27.8.95 I have already made 4 tests with the pipes.

(1) Four pipes jointed together with the Wrought Iron discs on ends the socket of the last pipe cracked a 12 lbs pressure.

II. This pipe was removed & disc fitted to the third pipe; result - pi cracked round the socket at 14 lbs

III. Two pipes - the end disc w blown out at 21 lbs.

IV. Two pipes - cracked at join

roun

round the spigot at 18 ttes.

I have now 3 pipes with discs on, which I can test when you can find it convenient to come. I am obliged to be away most of next week.

Having only one pair of discs, I can only make one test at a time & have to allow a week or 10 days for the joint to set.

If you can send me up a small quantity of your cement (to make the joints) I will try it and see if the result is different from English Cement. Hitherto I used "Burham Cement".

A reply as to date you are oming, if you can find it convenient, will oblige.

Yours faithfully
s/H. A. Minchin C.E
Asst. Sany. Engr.

(True Copy)
/H. A. Minchin C.E
sst. Sany. Engr.

(True Copy)

Sany. Engr. to Govt.

Governm OF MADRAS.

Office of c
Southern Circle,

No. 1681
Enc. 1

1st September 15.
Despatched 2d September 1895.

From
H. A. Minchin Esqr., C.E.,
Asst. Sanitary Engineer
Southern Circle

To
The Sanitary Engineer to Govt.
Madras

Sir,

Re - Testing of cement pipes.

In reply to your No. $\frac{2463}{29.8.95}$ (reminder) regarding report on Testing of cement pipe I have the honor to inform you I have completed 4 tests. I have not met with any definite or satisfactory results. The Manager of the Cement Works ha written to me asking to arrange a trial when he could be present. I enclose copy of my reply - So if Mr. Spoor can come up next week my report can g in by that time. If you wish a repo

fo

round the spigots now made, I shall be rqd to send the same per return.

There are several days wasted between each trial as having only one set of testing discs – there is a week or ten days' time lost in the time taken for the joints to set.

I have the honor to be
Sir,
Your most obdt. Servt.
sd/ H. A. Minchin C.E.,
Asst. Sany. Engineer

(True copy)

Sany. Engr. to Govt.

MADRAS.

Enclosure to letter No. 2527 of 1895

1895

From

The Assistant Sanitary Engr.,
Southern Circle,
Trichinopoly.

To

The Sanitary Engineer
to Government

No. 1681
Dated 1st September 1895

Subject

Report on Testing of cement pipes.

1/2784 M of 95

S.E./6 19-3-95—1,000.

GOVERNMENT OF MADRAS.

No. 2527

OFFICE OF SANITARY ENGINEER,
Fort St. George, 5 Sept 1895.

From

J. A. JONES, Esq., MEM. INST. C.E., F.R.S.E.,
SANITARY ENGINEER TO GOVERNMENT,

To

The Chief Secretary to Government
Local and Municipal Department

Sir,

I have the honor with reference to G.O. No. 806 M of 8th May 1895 to forward certain correspondence in regard to the testing of cemen pipes for the information of Government. The p tests have not been concluded though some pipe have stood pressure of 12 lbs = 29 feet to 21 lbs = 50 feet; a further report will be made on the matter when additional tests have been made.

I have the honor to be
Sir
Your most obedient serva

Sanitary Engineer to G

Local & Municipal Dept.
PR CURRENT No. [illegible]

[illegible] 8-5-95
1022 [illegible] 26-6-95

1895

From

The Sanitary Engineer
to Government,

To

The Chief Secretary
to Government
Local & Municipal Dept.

No. 2527

Dated 5
Despd 6 } September 1895
Received

-6 SEP 95 Enc. 1

Subject

Forwarding certain
correspondence in regard to
the testing of cement pipes
and stating that a further
report will be made when
additional tests have
been made.

(with an order)

N
Misc

Order 19-9-95 No. 1519 misc

The further report promised by the Sanitary Engineer will be awaited.

V.R.
13/9/95

To

The Sanitary Engineer Ato

Despd. 26/9/95

a/13/9/95

READ AGAIN ORDER OF GOVERNMENT, DATED
189 , No , MISCELLANEOUS.

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Miscellaneous.

LOCAL AND MUNICIPAL DEPT.

G.O., DATED 19—9—95

No. 1519 M. 1519 M.

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[Despatch Abstract.]

Cement pipes

Stating that further report regarding the testing of — promised by the Sanitary Engineer, will be awaited.

Dated 19-9-95

G.O. 1519 M.

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signed }

G.O., No. DATED
189 ,

No.

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ORDER OF GOVERNMENT	A	A	A	A	A	A	A

TTER OF GOVERNMENT.

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