Archives I—10,006—16-8 77.

(1) Number of pages 30

(2) Date of repair April 87.

(3) Initials of the Referencer Lord

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W.D DEPARTMENT

G.O. No. / B.P. No.	227. W.	Press. / Mis.
Dated	26.1.1882	~~197~~ .

Not to be folded or roughly handled

227/1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

26th January 1882, No. 227 W.

Buildings and Roads.
Civil Works.

Read the following papers :—

No. 121. From W. PARKES, Esq., M. Inst. C.E., Engineer-in-Chief, Madras Harbour Works, to the Secretary to Government, Public Works Department, dated Madras, 3rd January 1882, No. 1 W.

I have the honor to inform you that I arrived in Madras on the 30th ultimo, in pursuance of the instructions of the Secretary of State, and that I at once commenced my investigations into the present state of the works with the view of submitting at as early a date as possible a report upon them embodying my recommendations for their restoration and completion.

2. Mr. Thorowgood and Mr. Beardmore have already made considerable progress with the necessary surveys, but much yet remains to be done before sufficient materials shall have been obtained for fully matured conclusions. No time, however, will be lost in pursuing the investigation.

3. In the meantime I think it desirable not to delay furnishing what I think will be deemed a satisfactory explanation of one fact which occasioned general surprise, viz., the parting of the six new buoys from their mooring chains during the storm of the 12th November.

4. The explanation is this. The buoys are attached to the chains by shackles which are made in strict accordance with the Admiralty specification and were all subjected to a proof strain of $40\frac{1}{2}$ tons for the small buoys and 112 tons for the large ones, strains of which the force necessary to draw the buoys under water would be but a small fraction.

5. Each of these shackles has a bolt passing through it, which takes all the strain, and this bolt is prevented from shaking out by a tapered steel pin passing through it and the eyes of the shackle. This again was intended to be kept in its place by a small pellet of lead driven into a properly shaped receptacle, *but this last precaution was omitted.*

6. The consequence was that when the bolts of the shackle had little strain upon them, but much vibration owing to the tossing of the buoys by the waves, the steel pins were first shaken out and then the bolt, and the buoys floated away.

7. If there had been the continuous strain of a ship upon them, the bolts would probably have kept their places, and this is confirmed by the fact that the buoy to which the steam hopper barges were secured did not give way till after the hawser by which they were attached parted, but subsequently when there was no strain upon it it drifted away.

8. As this mode of securing the shackle bolts is not new but has been in universal use for all Admiralty moorings for many years, it did not occur to me to issue any special instructions to Mr. Thorowgood regarding the provision and use of the leaden pellets. It appears, however, that neither he nor Mr. Boteler, the Mooring Foreman, nor the officers of the Marine Department were aware that this was an essential part of the design.

9. I would express a hope that the Government would take measures to make public this simple explanation of what certainly appeared at first sight a serious failure.

No. 92.

REFERRED to the Superintendent of the Madras Harbour Works for any remarks he may desire to offer.

(Signed) ROSS THOMPSON, Lieut.-Col., R.E.,
11th January 1882. Ag. Under Secy. to Govt., P.W.D.

No. 121-A. From F. N. THOROWGOOD, Esq., M. INST. C.E., Superintendent, Madras Harbour Works, to the Secretary to Government, Public Works Department, dated Madras, 12th January 1882, No. 82 W.

I HAVE the honor to return herewith Mr. Parkes' letter to Government, No. 1 W., dated 3rd January, bearing your endorsement No. 92, dated 11th January 1882, which is referred to me for remark.

2. I have no doubt that the coming ashore of the buoys was entirely due to the absence of the leaden plug which should have been driven in over the end of the locking pin of the shackle bolt. It is greatly to be regretted that this omission occurred, as it has in a measure brought the moorings into disrepute.

3. As the work of putting down the moorings and attaching the buoys was in my hands, I feel it necessary to state that, although I was in possession of several tracings of the buoys, chains, and shackles, there was not shown on any of them any indication of a leaden plug to retain the locking pin in its place. In Mr. Parkes' weekly letters to me, in which the mooring gear was described in detail, no reference was ever made to these leaden plugs, and when the shackles were sent out from England no leaden plugs were forwarded for insertion into the shackle. Mr. Boteler who was under me as Special Foreman for the moorings and who came out from England presumably with all necessary information as to details, had received no instructions as to the leaden pellets nor did he know that they were required. I myself never heard of their being used before, and was in perfect ignorance of their necessity in this case. It appears, however, that the Admiralty have insisted on their use in their specifications for certainly eight years.

4. I trust that this statement will show that the failure of the buoys was not the fault of the executive staff here.

No. 121-B. From J. H. TAYLOR, Esq., Lieutenant, R.N.R., Master Attendant, Administrative Department, to the Secretary to Government, Public Works Department, dated Madras, 9th January 1882, No. 130.

I HAVE the honor to acknowledge the receipt of Proceedings of Government and the order thereon, No. 3169 W., dated 21st December 1881, and to state that I have received Mr. Thorowgood's explanation of the case of accident to the harbour buoys, copy of which I append; but while admitting that it accounts for much of the mischief caused to the smaller buoys, where the pins of the shackle appear to have worked out, it does not clear up the mystery connected with the large buoy, which was too lightly moored to admit of any shaking, such as might affect the smaller ones. A more reasonable explanation is in my opinion afforded by the position of the shackle, which directly connects the buoy to the moorings, the jaws of which were turned up, and in this situation enabled the long spindle of the buoy to exercise a powerful leverage sufficient as is now shown to extend the jaws of the shackle and cause the separation from the buoy. All doubts about the moorings must be set at rest before I can recommend Government to take the responsibility of hanging ships to them. The

subject of moorings belongs appropriately to the Marine Department, and this department should be invited to co-operate with the Harbour Works in laying them, if not entirely to control the operation. I would respectfully suggest that on the return of the Chief Engineer he should be asked to come to the beach and make a careful inquiry into the whole subject, the importance of which cannot be overestimated. The duration of the moorings under water is also another subject upon which some light can be thrown by an inspection of the large buoy belonging to this department, which has been three years afloat, but is now lying on the beach.

From F. N. THOROWGOOD, Esq., M. INST. C.E., Superintendent, Madras Harbour Works, to the Master Attendant, Administrative Department, dated Madras, 3rd January 1882, No. 315 M.

I HAVE the honor to forward herewith a tracing of a large buoy and fastenings, similar to that which broke away on 12th November.

2. The cause of the failure of the fastening has been instantly explained by Mr. Parkes. The small pin for keeping the bolt of the shackle in place ought to have been secured by means of a pellet of lead hammered down over its end. But as no advice or instructions had been sent to me about the necessity for these leaden pellets, and as no such pellets were sent with the moorings, neither I nor any of my staff were aware of their being an essential part of the design by the Admiralty for the last seven years.

No. 122. ORDER THEREON, 26th January 1882, No. 227 W.

THIS correspondence will be referred to the Harbour Committee, who will be requested to collect the facts of the case in regard to the failure of the moorings to admit of a reference being made to the Secretary of State for such further inquiry as may be necessary from the authorities in England best acquainted with the system.

(True Extract.)

Lieut.-Col., R.E.,
Ag. Under Secy. to Govt., P.W.D.

To the Harbour Committee.
" Superintendent, Madras Harbour Works.
" Engineer-in-Chief, Madras Harbour Works.
" Marine Department.

Exd. E. C. Shunker.
Spare Copies

BUILDINGS AND ROADS:
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.

To

THE HARBOUR COMMITTEE,

&c., &c., &c.

Dated January, 26th.

Issued

Recd. *Encl.*

G.O., 26th January 1882, No. 227 W.

JANUARY.

Nos. 121-122.

Failure of the Harbour Moorings.—Referring to the Harbour Committee for report papers relating to the —.

To the W Govt
PD 3 287 W

For orders

Mr. Parkes in letter of the 3d inst. explains that the breaking away of the buoys in the storm of the 12 Nov was entirely due to the omission of a small portion of a bolt, which should have been used to secure the shackle pin acting as a key — and requests that his explanation be made public

As the explanation involved practically a blame to Mr Thompson I called on the latter for any remarks he might desire to offer on the observations contained in Mr Parkes letter of the 12 instant

For 28-1-82

12 Nov-25th

it must be obvious
I think that Mr Parkes
should have left blind
Mr Lumsford with a
sufficient guiding Speci-
fication, and that if blame
rests anywhere it will
be with Mr Parkes him-
self

Over and above how
this question of responsibility
stands it will be seen by
Capt Taylor's letter No 130
of the 9th inst: annexed which
I pass as I can see can
hardly be dispensed with
Local Experts whether
Engineers or nautical
men — It would clearly
be hazardous to proceed
with the attachment of the
buoys in the face of such
disconnance of opinion and if
Govt: approve the question
might be referred by the
S of S to the Admiralty
after first obtaining all
the facts from the
Harbour Committee

20/1/82

Respectfully.

Sir Capt. T. Taylor the
Marine Supt. will take
& co. operate with the Harbour
Works in any way from the Morning
Light the Workbook was
sent to the Marine Sd. Lands.
& the Harbour Engr. has asked
for help. See how this was.

[illegible]

Public Works Department.

20/1/82

From the Engineer in Chief Mr. H. Wells Dec 1/87.
8th January 1882

FOR ORDERS.

Circulated for
information —

R. B. Lumsden
Colonel RE
Secretary P.W.D.

Before publication if such
be decided on would it
not be necessary to call
on Mr Lumsford for
his explanation?

[illegible]

[illegible]
Dec 1st Feb 1882
[illegible]
[illegible]

FOR ORDERS.

Rec: 5.1.82.

01

No. 1W

2D/5

From The Engineer in Chief,
Madras Harbour Works.

To The Secretary to Government,
Public Works Department,
Fort Saint George.

Madras, 3rd January 1882.

Sir,

I have the honor to inform you that I arrived in Madras on the 30th ultimo in pursuance of the instructions of the Secretary of State and that I at once commenced my investigations into the present state of the works with the view of submitting at as early a date as possible a report upon them embodying my recommendations for their restoration and completion.—

Mr

2. Mr. Thorowgood and Mr. Beardmore have already made considerable progress with the necessary purvey, but much yet remains to be done before sufficient materials shall have been obtained for fully matured conclusions. No time however will be lost in pursuing the investigation.—

3. In the mean time I think it desirable not to delay furnishing what I think will be deemed a satisfactory explanation of one fact which occasioned general surprise, viz. the parting of the six new buoys from their mooring chains during the storm of the 12th November.—

4. The explanation is this— The buoys are attached to the chains by shackles which are made in strict accordance with the Admiralty specification and were all subjected to a proof strain of 140½ tons for the small buoys, and 112 tons for the large ones, strains of which the force necessary to draw the buoys under water would be but a small fraction.—

5. Each of these shackles has a bolt passing through it, which takes all the strain and this bolt is prevented from shaking out by a tapered steel pin passing through it and the eyes of the shackle. This again was intended to be kept in its place by a small pellet of lead driven into a properly shaped receptacle but this last precaution was omitted.—

6. The consequence was that when the bolts of the shackle had little strain upon them, but much vibration owing to the tossing of the buoys by the waves, the steel pins were first shaken

shaken out and then the bolts and the buoys floated away.—

7. If there had been the continuous strain of a ship upon them the bolts would probably have kept their places and this is confirmed by the fact that the buoy to which the steam hopper barges were secured did not give way till after the hawser by which they were attached parted, but subsequently when there was no strain upon it it drifted away.—

8. As this mode of securing the shackle bolts is not new but has been in universal use for all Admiralty moorings for many years, it did not occur to me to issue any special instructions to Mr. Thorowgood regarding

regarding the provision and use of the leaden pellets.— It appears however that neither he nor Mr. Boteler, the mooring foreman, nor the Officers of the Marine Department were aware that this was an essential part of the design.—

9. I would express a hope that the Government would take measures to make public this simple explanation of what certainly appeared at first sight a serious failure.—

I have the honor to be
Sir,
Your most obedt Servt.
W Parkes—
Major R.E.
Engineer in Chief
Madras Harbour Works

GO 2952 Way 25.11.81.
" 2953 W 25.11.81.
" 3169 W 21.12.81.

No 92 d/ 11th Jany/82.

Referred to the Supt Madras Harbour works for any remarks he may desire to offer.

(By order)

W. Thompson Lt-Col RE.
Offg. Under Secy to Govt P.W.D.

Circ 5.1.82
L 7.1.82

Buildings & Roads.

From
The Engineer in Chief
Madras Harbour Works

No 1
Dated 3d January 1882

No Enclosures

Mr Parker

Reports his arrival - and having entered into an investigation of the damages to the works by the Storm of 12th November
Referred

Administrative Department

No 130.

Madras Marine Office
04 January 1882

From

J. H. Taylor, Esqr Lieut R. N. R.
Master Attendant
Administrative Department
Madras

To

The Secretary to Government
Public Works Department

Sir,

I have the honor to acknowledge the receipt of Proceedings of Government and the order thereon No 3169 W, dated 21st December 1881, and to state that I have received Mr Thorowgood's explanation of the case of accident to the Harbour buoys, copy of which I append, but while admitting that it accounts for much of the mischief caused to the smaller buoys where the pins of the shackle appear to have worked out, it does not clear up the mystery connected with the large buoy, which was too lightly moored to admit of any shaking, such as might affect the smaller ones. A more reasonable explanation is in my opinion afforded by the position of the shackle, which directly connects the buoy to the moorings, the jaws of which were turned up, and in this situation enabled the long spindle of the buoy to exercise a powerful leverage sufficient as is now shewn to extend the jaws of

the

the shackle and cause the separation from the buoy.
All doubts about the moorings must be set at rest
before I can recommend Government to take
the responsibility of hanging ships to them. The subject
of moorings belongs appropriately to the Marine Depart=
=ment, and this Department should be invited to
co-operate with the Harbour Works in laying them, if
not entirely to control the operation. I would respectfully
suggest that on the return of the Chief Engineer, he
should be asked to come to the beach, and make
a careful enquiry into the whole subject, the
importance of which cannot be overestimated. —
The duration of the moorings under water is also
another subject upon which some light can be
thrown by an inspection of the large buoy —
belonging to this Department, which has been three
years afloat, but is now lying on the beach.

I have the honor to be
Sir
Your most Obedient Servant

J W Taylor

Master Attendant
Administrative Department.

From
The Master Attendant
Administrative Department,
Madras.

To
The Secretary to Government
Public Works Department
Madras.

Dated 9 January 1882.
Read

0·2954 W 25/11/81
- 2955 W. 25/11/81
- 31696 · 29/12/81

Enc 1
Acct 10 Plan not received.

No. 130.

Reporting on the accident to the Harbour Buoys and submitting a plan and copy of letter from Mr. Horsfall.

20/1/82

No 315 M.

From
The Superintendent,
Madras Harbour Works

To
The Master Attendant
Administrative Department
Madras

Madras 3rd January 1882

Sir,

I have the honor to forward herewith a tracing of a large buoy and fastenings, similar to that which broke away on November 12th.

2. The cause of the failure of the fastening has been instantly explained by Mr. Parkes. The small pin for keeping the bolt of the shackle in place ought to have been secured by means of a pellet of lead hammered down over it's end. But as no advice or instructions had been sent to me about the necessity for these leaden pellets, and as no such pellets were sent with the moorings, neither I nor any of my staff were aware of their being an essential part of the design.

3. It seems that this system of securing the bolt of the shackle has been exclusively adopted

adopted by the Admiralty for the last 7 years.

I have &c.

(Signed) F. K. Thorowgood

Superintendent

M. H. Works.

(True Copy)

W. H. Burkitt

1st Asst: Master Attendant

Administrative Department

89.

No. 821 W

227/12

From

The SUPERINTENDENT,
MADRAS HARBOUR WORKS,

To

Colonel R. H. Sankey, C. B. R. E.
Secretary to Government P. W. D.

Madras, January 12 1882

Sir,

I have the honor to return herewith Mr Parkes's letter to Government No. 1 W, dated January 2nd, bearing your endorsement No. 92, dated January 11th 1882, which is referred to me for remark.

1 Encl.

2 I have no doubt that the coming ashore of the buoys was entirely due to the absence of the leaden plug which should have been driven in over the end of the locking pin of the shackle bolt. It is greatly to be regretted that this omission occurred as it has in a measure brought the moorings into disrepute.

3 As the work of putting down the moorings and attaching the buoys was in my hands, I feel it necessary to state that although I was in possession of several tracings of the buoys, chains, and shackles, there was not shewn on any of them any indication of a leaden plug to retain the locking pin in its place. In Mr Parkes's weekly letters to me, in which the mooring gear was described in detail no reference

was

was ever made to these leaden plugs, and when the shackles were sent out from England no leaden plugs were forwarded for insertion into the shackles.- Mr. Bobler, who was under me as Special Foreman for the moorings and who came out from England presumably with all necessary information as to details, had received no instructions as to the leadn pellets nor did he know that they were required. I myself never heard of their being used before, and was in perfect ignorance of their necessity in this case.- It appears however that the Admiralty have insisted on their use in their specifications for certainly 8 years.

4 I trust that this statement will show that the failure of the buoys was not the fault of the Executive Staff here.-

I have the honor to be,
Sir,
Your most Obedient Servant,

F. Narrowgood.
Superintendent
M. Harbour Works

Encl

Buildings & Roads

From

The Superintendent

M. Harbor Works

C.R. No 92 of 11.1.82

№ 8218

dated 12. Jany 1882

№ of Enclo: one.

Moorings

Reports that no instructions were received regarding the leaden plugs for the shackles.

Enc 26/1/82

Finances

11 B&R Works

№ 227 W.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER dated the 26th January 1882

Read the following:—

From

The Engineer in Chief
Madras Harbour Works } (No 8218 of 12th Jany 1882)

The Master Attendant
Administrative Dept } (" No: 130 of 9th — " —)

The Superintendant.
Madras Harbour Works } (" 82 W of 12th — " —)

This correspondence will be referred to the Harbour Committee who will be requested to collect the facts of the case in regard to the failure of the moorings to admit of a reference being made to the Secretary of State for such further enquiry

do may be necessary
from the authorities in
England best acquainted
with the system.

R.S.

26.1.82

The Harbour Committee
" Supt. Mr D works
" Engr-in-Chief Mr D works
" Marine Supt
Dept
4/2/82

139, 141, 23.

Govt. of {1882} Madras.

PUBLIC WORKS.

To

Dated

Issued

Rcvd. Encl.

G. O. 26th January 1882, No. 227/6.

Nos. 121 to 172

Failure of the Harbour
Workings

Reporting to the Harbour
Committee papers
relating to the —

Entd. in Receipt Regr.