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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 2273	Press ~~Mis.~~
184-183-	
Dated 7-8	1865.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
7th August 1865.*

No. 184. Read the following letter from Lieutenant-Colonel F. J. MOBERLY, R. E., Superintending Engineer, 8th Division, to Colonel C. A. ORR, R. E., Secretary to Government, Department Public Works, dated Palamcottah, 12th July 1865, No. 563:—

Sir,

1. I have the honor to enclose copy of a report from Lieutenant Coningham, Superintendent Operations at Paumbem, regarding a saving effected in the means of laying the blasting charges through the ingenuity of Jailer and Store-keeper at that station.

2. It appears that the use of vegetable cases in lieu of artificial leather bags has produced a saving to Government at the rate of Rupees 300 per annum. I trust that the Government will not object to rewarding these two men to encourage others to turn their attention to similar measures.

3. I would propose that the first year's saving be equally divided between them.

From Lieutenant W. CONINGHAM, R. E., Superintendent of Operations, Paumbem, to Lieutenant-Colonel F. J. MOBERLY, R. E., Superintending Engineer, 8th Division, dated Paumbem, 6th July 1865, No. 28

Sir,

1. I have the honor to submit the report called for in your Memorandum No. 399, 23rd June 1865, on the subject of inventions of the Jailer and Store-keeper for the improvement of the blasting operations in the Paumbem channel.

2. Blasting in the Paumbem channel was first commenced in earnest in the year 1833—(Vide Professional Papers, Madras Engineers, Volume 1). Previous to this a little blasting, for the purpose of removing obstructions, was carried on from the year 1829 to 1833.

3. The system of boring the holes was continued the same from the year 1829 to the present date. Two canoes are lashed together with cross pieces and planks, they are fixed by four ridge anchors. The holes are bored to a depth of 2½ feet, by means of a jumper from 1" to 1½" in diameter, having chisel shaped ends of about 6" across; each jumper is worked by four Convicts and one Diver, who is in the water, and scrapes out the debris from the hole by means of an iron spoon (vide paragraph 7), he also guides the jumper.

Boring holes.

There are two Divers and eight Convicts to each raft.

From the year 1829 to some time on or about the year 1845, "The charges of powder were from 5 to 10 lbs., inserted in tin cases with log tin tubes, this was found expensive and not to answer as well as those now used, which are composed of leather, with bamboo tubes; the leather is formed into a bag (conical shape) of the diameter of the hole, and sufficiently large to hold from 1 to 2 lbs. powder, which has been found to be the best size of charge (the LLR in feet cubed for the number of ounces of powder), they are made wet and then filled with sand; when dry the sand is poured out, and the charge filled, a long reed of the bamboo kind (called carikle) is then inserted, which is filled for the priming with coarse powder ground and mixed with conjeewater and rubbed into cotton thread (Bickford's Patent fuze is now used), after this it is carefully bound at the junction of the reed and leather with twine, and sewed over with country cloths and dammered, claying over with a composition of a resinous gum and oil. Each charge thus prepared costs, exclusive of powder, 6 Annas and 7 Pice thus:—

Skin	...	Rupees	0	1	6
Bamboo	...	"	0	2	9
Dammer and oil	...	"	0	1	4
Country cloth and chutties	...	"	0	1	0
		Rupees	0	8	7

Vide Professional Papers, Volume 2, page 108. Colonel Collyer's Report of July 1845.

*Proceedings of the Madras Government, Public Works Department,
7th August 1865.*

4. The above description accurately describes the mode of preparing the leather charges up to February 1865. For the cost of preparing a leather charge in 1865, *vide* accompanying Statement A.

5. In the year 1863 His Excellency Sir W. Denison visited Paumbem, and made suggestions for the improvement of the blasting. Captain Paye, who was in charge of the works up to February 1865, told the Jailer and Store-keeper about it. They were all busy at inventing, but nothing could be tried whilst Captain Payne was in charge* as the north-east monsoon was blowing too strong. During the blasting season from February to May 1865 both the Jailer's and Store-keeper's invention were tried and answered perfectly, in fact leather charges were not used at all, except in using up those which remained in store.

* Temporarily for six months.

6. I proceed to describe the Jailer's idea first, as he takes precedence from priority of invention.

This invention consists in making baskets of conical shape, from the stem of the leaf of the wild date tree, of various sizes, capable of holding from 1 to 5 lbs. powder; this basket is smeared over with cow-dung, and the dammer and all the rest of the preparation is exactly the same as for leather charges, *vide* paragraph 3.

The Store-keeper's invention consists in making cylindrical boxes of the stem of the wild aloe, the pith is removed with ease and a good cylindrical box remains. The two ends of the cylinder are closed by round pieces of fir, in one of which a hole is made for the bamboo to pass through, slips of bamboo are fixed round the box and bamboo to keep the latter steady. They can be obtained of any size and shape. The mode of preparation is similar to the two preceding, excepting that when the box is sound it is not necessary to smear the box over with dammer.

7. It is exceedingly difficult to judge of the effect of a charge under water, especially where it is only one case occasions that the bottom of the sea† can be seen from the surface. But if the loudness of a report is a good criterion, the Store-keeper's invention is the best; it is also more handy and can be had of any size and shape, and is very suitable for the 5-foot holes we now frequently bore with an auger; I had some difficulty in making the Divers work at first with the auger, but after a little trouble I succeeded, and the result is very satisfactory.

8. Statement A. was prepared from experiments made on four charges of each description, but without the long bamboo attached, this being always the same for all, the dammer necessary for it is not included in the calculation.

9. The cost of 1 leather charge is ... Rupee 0 8 6½
Do. 1 date leaf do. ... „ 0 4 2½
Do. 1 wild aloe do. ... „ 0 4 6½

The date leaf charge is here entered as being cheaper than the wild aloe one, but it is simply on account of the date leaf baskets being prepared by Convicts, if they were made by Coolies, the cost would be about the same as the wild aloe one.

10. Both description of charges are very creditable to the inventors as both answer well, although I prefer the wild aloe boxes, and have estimated for them in the estimate for deepening the channel to 14 feet

11. Taking an average of the cost of the wild aloe boxes and date baskets the saving on each charge over the cost of a leather one is Rupee 0-4-2½, or during the last working season from February to May 1865, Rupees 211-8-11, and probably Rupees 300 per annum. It is impossible to say what the saving would have been if they were used from the commencement of the work.

(True Copy.)

(Signed) F. J. MOBERLY, Lieut.-Colonel, R. E.,
Superintending Engineer, 8th Division.

*Proceedings of the Madras Government, Public Works Department,
7th August 1865.*

STATEMENT A, showing cost for preparing 16 charges respectively of leather of the wild aloe and of the wild date tree.

16 Leather charges.	16 Thalay charges.	16 Date baskets charges.
RS. A. P.	RS. A. P.	RS. A. P.
8 Skins ... 3 0 0	½ Cooly ... 0 1 7	16 charges ... 0 5 4
4 Chucklers ... 1 8 0	1 Carpenter ... 0 7 6	6 lbs. 13 oz. dammer. ... 0 11 11
6 lbs. 13 oz. dammer ... 0 11 11	6 lbs. 13 oz. dammer. ... 0 11 11	3 lbs. 3 oz. oil ... 0 10 1½
3 lbs. 3 oz. oil ... 0 10 1½	3 lbs. 3 oz. oil ... 0 10 1½	4 Coolies ... 1 0 0
4 Coolies ... 1 0 0	4 Coolies ... 1 0 0	Bamboo ... 1 3 0
Bamboo ... 1 3 0	Bamboo ... 1 3 0	* Sundries ... 0 4 6½
Thread and wax. 0 3 4	Fir ... 0 2 0	
* Sundries ... 0 4 6½	* Sundries ... 0 4 6½	
Total... 8 8 11	Total... 4 8 8	4 2 11
Cost per charge ... 0 8 6½	Cost per charge... 0 4 6½	Cost per charge... 0 4 2½

* Cloth and rope ... 0 2 0
Firewood ... 0 2 0
Chutties ... 0 0 6½
0 4 6½

REMARKS.—The dammer required for the long bamboo is not included in the estimate.

(Signed) W. CONINGHAM, Lieut., R. E.,
Superintendent of Operations, Paumbem.
PAUMBEM,
6th July 1865.

(True Copy.)
(Signed) F. J. MOBERLY, Lieut.-Colonel, R. E.,
Superintending Engineer, 8th Division.

No. 185.

ORDER THEREON, 7th August 1865, No. 2,273.

CIVIL WORKS, No. 22.

Much credit is due to the Jailer and Store-keeper at Paumbem for their respective inventions, and the Governor in Council directs, on the assumption that Lieutenant Coningham's calculation is a correct and safe one, that each of them be presented with a sum of Rupees 100, the amount being charged to the estimate for the Paumbem works.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 8th Division.
.. Controller of Public Works Accounts.

Exd. S. T. Augustin.

No 28

Number 6 July 1865

From,

Sir W. Cunningham R.O.
Supt. of Opers. Pambour.

To,

Sir Robert F. Roberts R.O.
Superintending Engineer S.D.

Sir,

I have the honor to submit the
report called for in your Memo. No 399
subject of inventions of the jailer and stores
keeper for the improvement of the blasting
operations in the Pambour channel.

1. Blasting in the Pambour channel
was first commenced in earnest in the year
1838 (vide prof. Paper Madras Eng. No 2).
Previous to this a little blasting for the
purpose of removing obstructions was carried
on from the year 1829 to 1838.

Boring holes.

2. The system of the boring the holes was
continued the same from the year 1839 to the
present date. Two compasses are lashed
together with cross piece and planks they
are fixed by 4 sledge anchors. The holes are
bored to a depth of 2 1/2 feet by means of a pump
from 1 to 1 1/2 in diameter, having chisel
shaped ends of about 6" across each pump is
worked by 4 convicts and 1 Driver who is in
the water and scrapes out the debris from
the

the hole by means of an iron spoon (reides para 7) he also guides the pump.

There are 2 Divers & 8 Lammers to each Daff.

From the year 1829 to some time on or about the year 1846. The charges of powder

were from 5 to 10 lbs inserted in ten cases with long tin tubes, this was found expensive

and not to answer, as was the case with

"which is composed of leather, with bamboo tubes the leather is formed into a bag" (conical shape)

of the diameter of the hole, and sufficiently large

to hold from 1 to 2 lbs powder which has been

found to be the best size of charge (the L.L. in

fact called for the number of ounces of powder)

they are made wet and then filled with sand,

when dry the sand is poured out, and the

charge filled, a long reed of the bamboo kind

called (caribbe) is then inserted which is

filled for the priming with coarse powder

ground and mixed with sugar water, and

rubbed into cotton thread (Dickfords patent

fuze is now used), after this it is carefully

bound at the junction of the reed and leather

cloth, and Dammed (laying over with

a composition of a resin, gum, and oil)

each charge this prepared casts exclusive of

powder 6 annas and 7 pice thus.

skin

Bamboo

Dammed & oil

Cotton cloth & chutis

1-6
2-9
1-4
1-0
6-7

Charges.

See Prof Papers Vol 2 page 168.

7F

Coll. Collyer Report of July 1845.

4 The above description accurately describes the mode of preparing the leather charges up to February 1865. For the cost of preparing a leather charge in 1865 vide accompanying statement A

5 In the year 1865 this excellent crys. H. Demson visited Pannu here, and made suggestions for the improvement of the blasting. Captain Payne who was in charge of the works up to February 1865 told the jailors and store keepers about it, they were all busy at inventing but nothing could be tried whilst Captain

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Payne was in charge as the N. O. Thomson was belowing to be strong. During the black season from February to May 1865 both the jailors and store keepers inventions were tried and answered perfectly, in fact leather charges were not used at all, except in using up those which remained in store.

6 I proceed to describe the jailors idea first, as he takes precedence from priority of invention.

This invention consists in making baskets of conical shape from the stem of the leaf of the wild date tree; of various sizes capable of holding from 1 to 5 lbs powder this basket is smeared over with cowdung and the Dammed, and all the rest of the preparation is exactly the same as for leather charges

vide

side para. 2.

The storekeeper's invention consists in making cylindrical boxes of the stern of the wild aloe, the pith is removed with ease and a good cylindrical box remains. The two ends of the cylinder are closed by round pieces of pith in one of which a hole is made for the bamboo to pass through, strips of bamboo are fixed round the box and bamboo to keep the latter steady. They can be obtained of any size and shape. The mode of preparation is similar to the two preceding excepting that when the box is round it is not necessary to smear the box over with Dammur.

7. It is exceedingly difficult to judge of the effect of a charge under water, especially where it is only on rare occasions that the bottom of the sea can be seen from the surface. But if the loudness of a report is a good criterion, the storekeeper's invention is the best, it is also more handy, and can be had of any size and shape, and is very suitable for the 5 feet holes we now frequently bore with our auger. I had some difficulty in making the Dammur work at first with the auger, but after a little trouble I succeeded, and the result is very satisfactory.

8. Statement A was prepared from experiments made in 4 charges of each description but without the long bamboo attached this being always the same for all the Dammur necessary for it is not included in the calculations.

When the channel is deep.

9. The cost of 1 leather charge is Rs-8-6 $\frac{1}{10}$
Date leaf " " " 0-4-2 $\frac{1}{10}$
Wits, aloe " " " 0-4-6 $\frac{1}{2}$

The date leaf charge is here entered as being cheaper than the wild aloe one, but it is simply on account of the date leaf baskets being prepared by convicts, if they were made by coolies, the cost would be about the same as the wild aloe ones.

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11. Taking an average of the cost of the wild aloe boxes and date baskets the saving on each charge over the cost of a leather one is Rupees 0-4-2 $\frac{1}{2}$ or during the last working season from February to May 1865 Rs. 211 - 8 - 11 and probably Rs 300 per annum. It is impossible to say what the saving would have been if they were used from the commencement of the work.

Three years
Signed, W. Cunningham Smith R.E.
Supt. Operations
Price Copy
J. Hudsony Smith R.E.
Superintending Engineer

Enclosure following letter

from the Hon. J. P. Langman
8. D. Washington, D. C. July
1865 - No 566

Copy of a report from
the Joint J. P. Commission
at Cambridge Mass
involving a reward
to the father and
other persons

97772656/115

Deuwartho,

16 Leather charge

16 Shalby charges

16 Feb. 1880

Deutsche

[illegible][illegible]

Samuel
6th July 1868

[illegible]

N^o 566. *Sup^r Engineer's Office 8th D^o*
Palaunchab 12 July 1865
From, *Lieut Colonel J. F. Moberly R. C.*
Superintending Engineer 8th D^o
To, *Colonel C. A. Orr. R. C.*
Secretary to Government.
D. P. W.

Sir, I have the honor to enclose copy of a report from Lieut Canningham superintending operations at Palaunch regarding a saving effected in the means of laying the blasting charges through the ingenuity of the jailor and storekeeper at that station.

It appears that the use of vegetable cases in lieu of artificial leather bags has produced a saving to Government at the rate of Rs 300 per annum. I trust that the Government will not object to providing these in order to encourage others to turn their attention to similar measures.

I would propose that the first year's saving be equally divided between them.

I have your
A. Canningham *Lieut Col R. C.*
Superintending Engineer 8th D^o

Enclosure for Mr. Orr
from the Sup^r Engineer
8th D^o dated 13th July 1865
J. F. Moberly
Col. C. A. Orr
Secretary to Government
D. P. W.
Statement of the saving
made for preparing the
charges for the supply of
saltpetre for the use of the
and of the wild state
the

1000 July 1865

a sum of Rupees 100,
the amount being charged
to the Estimate for the
Punjab works.

W.B.

The above sum of
Rupees 100 is
to be paid to the
Punjab Works
Department
for the purpose of
carrying out the
works of the
Department
in the Punjab
Province.

To
The Supy. Genl. Secy
" Controller of P.W.
Accts. ✓

Recd. 8th August
Resd. 17th

Recd. 8th
Resd. 17th

90 1865 Depu
Pro of Govt for Dept

N 2270

Pro of the Alcott
D/7 Aug 5/65

The Jailer & Store-
keeper at Birmingham presen-
ted with a sum of Rs 100
each for their respective
inventions in the blasting
operations at that station

N 184. 1865