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MADRAS RECORD OFFICE.**Government of Madras.***Public works* **DEPARTMENT.**

G.O. No. 2670

Press
Mis.

127-28

Dated 8 - 11

1870 .

Not to be folded or roughly handled

Read the following:—

No. 127. *Memorandum on the Manufacture of Bricks in the year 1870-71, in the Government Brickfields at Thamine, Rangoon Town Division.*

The bricks manufactured during the season were of three classes, viz.:—

1st. Pressed bricks or bricks moulded by hand machine.

2nd. Table moulded bricks.

3rd. Ground moulded bricks of the Burmese pattern.

The manufacture of the first class of bricks embraced the following operations:—

The clay was dug and turned over or deposited on the bank, or ground beside the pit in June of 1869.

In December of the same year the drying grounds were cleaned and levelled, and in January the moulding commenced.

The manufacturing plant consisted of a large pug mill (usually worked by 2 pair of oxen). A 6-H. P. Engine driving the pug mill with a band. A rough table next the pug mill.

Three "John Whiteheads" hand pressing machines and a few light barrows for conveying bricks to the drying ground.

It took six men to get the clay and carry it to the pug. One Engineer (native) to drive the engine. Two men to carry clay to the rough moulding table. Four men at the table to mould or gauge the clay for the presses. Three men to remove the gauged clay and to carry it to the presses. Six men at the presses (two at each press). Three men or boys to carry the bricks when pressed to the drying ground.

The three presses turned out between 4 and 5,000 bricks in the day.

The bricks were burnt in a clamp of 1,00,000.

The fuel used was wood, bows measuring about 6 feet in length. The fire holes were at the bottom and were fed by six men.

The firewood burnt for each clamp was 26 to 30 fathoms.

About $\frac{1}{4}$ th in bulk of paddy husk was mixed with the clay and the loss in unburnt or badly burnt bricks was from 3 to 7 per cent.

The engine and pug mill were capable of supplying clay for six presses. Three only were used, because the manufacture was considered only as an experiment. Three new presses have since been purchased and will be in work for the next season.

The operations for the manufacture of the second class of bricks were—

To turn the clay over to clean the ground and to carry the clay to the pug mill, as for the pressed bricks. In January the moulding commenced.

The manufacturing plant consisted of—

A pug mill to be worked by two oxen, two moulding tables each for three moulders, two navy's wheel barrows, some light barrows for conveying bricks to drying ground.

*Proceedings of the Madras Government, Public Works Department,
8th November 1870.*

The labour employed consisted of from 8 to 10 men according to distance of clay from pug. Getting and carrying clay to the pug. Two men wheeling clay from the pug to tables. Six men moulding and six boys carrying moulded bricks to drying ground and stacking them. The six moulders turned out from 7,000 to 8,000 bricks a day. Some men moulded 1,000 when others moulded but 500 per day.

The bricks were generally burnt in clamps of 1,00,000 in the same way as the pressed bricks, the same quantity of fuel being used with the same per centage of unburnt bricks. Some bricks were burnt in pukka square sided, double, flare kilns holding 60,000 bricks, on a side, and burning about 17 fathoms of wood to the 60,000 bricks, thus the consumption of fuel was nearly the same as for the clamps, but the unburnt bricks were few, it may be said, nil in the kilns.

The operations for the manufacture of the 3rd class or Burmese pattern bricks were very simple.

The clay was turned over only a few days before it was moulded. The turning over consists of first breaking down the sides of the pit or hole with a kind of spud or very narrow spade, then turning over the clay with the hands mixing with it the paddy husk (nearly $\frac{1}{3}$ th in bulk), and picking out all lumps or stones.

The clay in this process was made very wet.

The moulding was done upon the ground, it being previously levelled and covered thinly with fine dry earth or sand. The bricks when sufficiently dry were lifted and from the side that had been on the ground the roughness or inequalities were chopped with a hatchet or large knife. The bricks were then stacked for completing the drying, and afterwards taken to the clamps when they were burnt in the same way as the table moulded bricks. The fuel used in burning was from 10 to 15 per cent. more than for the table moulded bricks.

No plant (the moulds excepted) was required for the manufacture of this class of bricks.

The labour employed for the seasons out-turn was almost entirely engaged by the "piece." The pressed bricks only being made by day work.

The rates were nearly as follows:—

	1st Class.	2nd Class.	3rd Class.
Turning over clay at per cent.	0-12	0-12	
Carrying clay to pug pugging, moulding, and stacking on drying ground at per 1,000 bricks moulded.	5-8	4-12	...
Turning over clay, moulding and stacking @ per cent. bricks...	...	...	...
Burning including stacking and unstacking kilns @ per cent. bricks	...	...	3-8
Paddy, husk per 100 baskets...	2-4	2-4	2-4
Firewood per fathom...	3-2	3-2	3-2
	10-8	10-8	10-8

*Proceedings of the Madras Government, Public Works Department,
8th November 1870.*

The skilled and unskilled labour employed in addition to the above was—
One Smith and Striker, two Chinese Carpenters and four Durwans.

The out-turn for the season was nearly 33,00,000, the bricks actually moulded being 40,00,000, the difference or 7,00,000, was destroyed by very heavy rains in January and February.

On the completion of the season the values of the several classes of bricks per 1,000 were nearly—

17-8 for 1st class or pressed bricks.
16 „ 2nd „ or table moulded bricks.
12-12 „ 3rd „ or Burmese do.

The comparative number of bricks of each class required to make 100 cubic feet of brick work is—

1,120 for 1st class.
1,200 „ 2nd class.
900 „ 3rd class.

The sizes of the bricks when burnt being—

$9\frac{1}{4} \times 4\frac{5}{8} \times 3$ per 1st class.
 $9\frac{1}{4} \times 4\frac{5}{8} \times 2\frac{3}{4}$ „ 2nd „
 $11\frac{1}{8} \times 5\frac{1}{2} \times 2\frac{3}{8}$ „ 3rd „

H. M. MATHEWS,
*Executive Engineer,
Rangoon Town Division.*

RANGOON,
19th October 1870.

No. 128.

ORDER THEREON, 8th November 1870, No. 2,670.

CIVIL WORKS, No. 10.

This Memorandum will be communicated to the Superintending Engineers for information, and spare copies will be furnished for circulation.

(True Extract.)

Colonel, R.E.,

Secretary to Government.

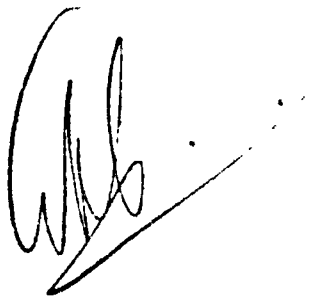
To the Superintending Engineers.
„ Major Kennedy.

No 2670

This Memo: will
be communicated
to the Superintendent:
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formation and spare
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To
The S. Engs.
Major Kennedy

Dec/29/11/70



CP
Govt. of 1870 Madras

PUBLIC WORKS.

To The Superintending Eng^r

80-4

Dated

Recd.

R.S.

G. O. 8th Nov^r 1870. No. 2670.

Nos. 124 & 128

Bricks, Memo. on the same -
Receipt of bricks in the year
1870/71 in the prob. Brickfield
at Thammie, Rangas. Town
Division, Comd. to the Superintending
for information.