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MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 2942	Press ~~Mis.~~
194-95	
Dated 7 9	1865.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Military Department,
30th August 1869.*

Read the following papers :—

No. 512. Military despatch from the Right Honorable the Secretary of State for India, to His Excellency the Right Honorable the Governor in Council, Fort Saint George ; dated India Office, London, 3rd June 1869, No. 55.

I transmit herewith, for the consideration of your Government, copy of a

*Proceedings of the Madras Government, Public Works Department,
7th September 1869.*

No. 194. Read the following Proceedings of the Madras Government in the Military Department :—

Communicating to the Department Public Works }
correspondence relative to the manufacture of } (Here enter 30th August 1869, No. 3,105)
Gun Powder, and the question of the perma- }
nent site for the Gun Powder Factory.

No. 195. ORDER THEREON, 7th September 1869, No. 2,942.

MILITARY WORKS, No. 9.

COMMUNICATED to the Superintending Engineer of the 4th Division, for such observations as he may have to offer with reference to paragraph 14 of the letter from the Acting Inspector-General of Ordnance and Magazines.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

5. The use of anthracite coals has been for the last few years discontinued at the Royal Mills, as being too fierce, and soon burning away the fire bars, and bulging boilers. The best Hartley ordinary coals are now used with smoke consumers to every furnace door, which promotes economy in fuel, and lowers the temperature of the boiler houses, and prevents sparks, the fear of which induced the use formerly of anthracite coals. I would suggest the same coals and smoke consumers for the India Factories.

6. To supply reliable standards necessary to ensure uniformity in size and proportion of grain, &c., sample barrels, specially marked as such of each description of powder (L. G. and F. G. Rifle) of the Royal Mills (Waltham Abbey) Manufacture (not merchants powders) should be sent to each Manufactory in India every three or four years.

7. Definite arrangements are urgently required to ensure the prompt notification to the Manufactories in India of any important changes in the manufacture at the Royal Mills, affecting the quality of the service powders, which alone can ensure continued uniformity at Home and abroad, unless the expensive alternative be adopted of calling Home periodically one of the Superintendents for this purpose.

*Proceedings of the Madras Government, Military Department,
30th August 1869.*

Read the following papers:—

No. 512. Military despatch from the Right Honorable the Secretary of State for India, to His Excellency the Right Honorable the Governor in Council, Fort Saint George; dated India Office, London, 3rd June 1869, No. 55.

I transmit herewith, for the consideration of your Government, copy of a

Dated 6th May 1869.

letter from Colonel Rowlandson, offering observations and suggestions regard-

ing the manufacture of Gun Powder, and I request to be informed as to the present state of the question of the permanent site of the Factory.

From Colonel G. ROWLANDSON, Royal Artillery, Superintendent Her Majesty's Gun Powder Factory, Madras, (on special duty) to the Military Secretary, India Office; dated 26, Lee Park Lewisham, 6th May 1869.

I have the honor, in view of the early expiration of the term allotted me for the prosecution of the duty on which I was ordered Home, and before returning to Madras, to submit such observations and suggestions in connection therewith, as appear necessary to promote the efficiency of the Madras, and other Government Gun Powder Manufactories in India, in conformity with the system in force at the Royal Mills at Waltham Abbey.

1. My observations at the Royal Mills (where I resided some months, and have also visited the Mills at Faversham) fully confirm the convictions with which my experience in India had before impressed me, that an exact conformity in all the processes of manufacture is unattainable, owing to the variations between some of the Machinery used at the Royal Mills, and those supplied to India; and also to the extreme variation in the temperature of the climates; but these do not prevent our obtaining similar and equal results in the quality of our powders, by necessary modifications in the system of manufacture suitable to the Machinery and climate.

2. The men who work in the incorporating Mills, at the Royal Mills, are supplied with a dress of a smock frock and trousers of black "lasting" which is found to protect them from the fierce flames in case of explosion better than any other material. I would suggest that the same but *in the piece*, not made up, be supplied to the Mill-men of Manufactories in India, each suit takes about 6½ yards, one suit per annum. The Manufactory at Madras, twelve Mills, would require eighteen suits per annum. The Royal Mills are supplied with the suits by contract, by Messrs. Silver and Co, 4 Bishopgate Street.

3. The ploughs of the incorporating Mills at the Royal Mills are, where necessary to ensure a clean track, shod with a thick woollen cloth called "Fear nought" which is a great advantage; and a few yards, say about eighteen of this material to each manufactory, should also be supplied to India. It is supplied to Waltham Abbey by *is in original*

4. The quality of the hides for plough leathers is of great importance; thick, hard, well tanned, but not curried hides are requisite. Those supplied to Madras have been much complained of as soft and pliable, and unsuitable to the purpose.

5. The use of anthracite coals has been for the last few years discontinued at the Royal Mills, as being too fierce, and soon burning away the fire bars, and bulging boilers. The best Hartley ordinary coals are now used with smoke consumers to every furnace door, which promotes economy in fuel, and lowers the temperature of the boiler houses, and prevents sparks, the fear of which induced the use formerly of anthracite coals. I would suggest the same coals and smoke consumers for the India Factories.

6. To supply reliable standards necessary to ensure uniformity in size and proportion of grain, &c., sample barrels, specially marked as such of each description of powder (L. G. and F. G. Rifle) of the Royal Mills (Waltham Abbey) Manufacture (*not merchants powders*) should be sent to each Manufactory in India every three or four years.

7. Definite arrangements are urgently required to ensure the prompt notification to the Manufactories in India of any important changes in the manufacture at the Royal Mills, affecting the quality of the service powders, which alone can ensure continued uniformity at Home and abroad, unless the expensive alternative be adopted of calling Home periodically one of the Superintendents for this purpose.

8. A new description, called Pellet Powder, has been established by order and introduced by the War Office for special use with large ordnance firing charges of 50 lbs. and upwards. The quality of this powder is the same as the others, but consisting of large cylindrical grains 50 or 60 to the pound only, to make which, a distinct Hydraulic press and apparatus is required, and is now being set up at the Royal Mills. Having in view the increasing introduction into the service of very heavy ordnance by sea and land, involving a greatly increased consumption of powder with such large charges, the demands of the service will necessitate the manufacture of this new powder in India also: and it will be very desirable to supply the Indian Factories with the needful Presses, &c., of the exact same pattern used at Waltham Abbey, to ensure complete uniformity of system and result.

9. In conclusion, I trust I shall be excused if I avail myself of the opportunity to again point attention, to the very great difficulties and disadvantages which the Superintendent of the Madras Gunpowder Factory labours under, and the very serious public risk and injury accruing from the still (practically) unsettled question of the future site of that Factory. Its removal has been, after full consideration, recommended, approved, and ordered to be carried out by the Secretary of State for India in Council more than once since the mutiny of 1857-58. Plans and estimates have been made, and a site selected; but there the matter still rests; meanwhile, costly and valuable machinery has been in course of supply from Home, to put the Manufactory on the footing of Factories at Home, a portion of which only has been erected and brought gradually into work, on the present over-crowded site, and as far as possible adapting the old buildings, in order to the immediate manufacture of the required powders; the Madras Manufactory being the only one which has been able to supply powder to all India for several years past; but the urgent necessity of incurring the least possible expenditure on buildings for, perhaps, only a temporary use, and the want of space at the present Factory, has deterred me from pressing for more than was absolutely necessary; and there lies still a mass of costly machinery and materials, not only idle and useless, in such store as could be provided, but liable to inevitable damage and decay in its uselessness; and keeping the Manufactory meanwhile helplessly dependent on its present insufficient means and appliances; a failure in any portion of which, from explosion or other cause, necessarily suspends the manufacture of powder until it can be repaired; the duplicates, which every Factory at Home possesses ready to carry on work in such emergencies, being, as above explained, uselessly stored away.

I beg to guard myself from any supposition that I am now advocating or recommending the removal of the Factory to another site; in regard to which question, I have never been consulted, and have offered no opinion. All I would plead for, is the definite and early practical determination of the question, by the necessary steps being ordered to apply the valuable machinery, now lying useless, to the purposes for which it has been supplied; and so render the Manufactory efficient for the important objects contemplated in its establishment, either on its present site, or on any better one as may be decided.

Referred to the Inspector General of Ordnance and Magazines for report.
24th July 1869.

No. 513. From the Acting Inspector General of Ordnance and Magazines, to the Officiating Secretary to Government, Military Department; dated Fort Saint George, 9th August 1869, No. 133.

1. With reference to your docket, dated 24th July 1869, forwarding for report Military letter No. 55, dated 3rd June 1869, from His Grace the Secretary of State for India, covering a letter from Colonel Rowlandson, Superintendent Gun Powder Manufactory, addressed to Major General Pears, Military Secretary, India Office, I have the honor to state that I presume it is intended I should report on the different points touched on, in Colonel Rowlandson's letter, and not only on that portion, referring to the settlement of the question of the permanent site of the Gun Powder Manufactory.

2. I quite concur with what Colonel Rowlandson states in paragraph numbered 1 of his letter; viz., "that an exact conformity in all the processes of manufacture" of powder with those carried out at the Royal Mills at Waltham Abbey, "is unattainable," from the extreme variations of temperature in this country, &c.; but that, by necessary modifications in the system of manufacture, equal results in the quality of the powder are attainable.

3. Colonel Rowlandson, in paragraph 2 of his letter, advocates procuring from England, for wear by the Mill-men at Madras, a moderate supply of a species of black "*Lasting*," which has been found in powder Mills at Home to be the best protection against the fierce flames from powder, on occasions of explosion. I consider that in the dangerous vocation of powder making, every protection that can be afforded from the risks attending it, should be given to the men employed; and I will enter in my next annual indent on England, a demand for a piece of this lasting, sufficient to make up eighteen suits.

4. In paragraph 3 of his letter, Colonel Rowlandson represents that a material called "*Fear-nought*" is used with advantage on the ploughs of the Royal Mills, and I will also include a small supply of this article in my next Home indent.

5. I beg to recommend the introduction of "the best Hartley ordinary coals" instead of "anthracite," which is now in use in the Powder Manufactory here, as Colonel Rowlandson states in the 5th paragraph of his letter, that the use of anthracite has been given up at the Royal Mills, from its destructive effect on fire bars, boilers, &c. Hartley coal is not so expensive as anthracite, and a saving will thereby be effected.

6. The adoption of smoke consumers when Hartley coal is brought into use, will be advisable, as recommended by Colonel Rowlandson, and if allowed to be introduced, I will include in the next annual indent on England, a set of smoke consumers in duplicate, to be attached to the different furnaces throughout the Powder Factory.

7. Colonel Rowlandson recommends, in paragraph 6 of his letter, that sample barrels of the different powders made up at the Waltham Abbey Mills be sent out, from time to time. Specimens of powder would be very useful for comparison with what is made here, and I recommend sample barrels being sent out bi-ennially.

8. The matter noted by Colonel Rowlandson in the 7th paragraph of his letter is one of great importance, and I urgently request that the Secretary of State may be solicited to direct such means to be adopted, as will ensure early notification of all changes made in any of the processes of manufacturing powder at the Waltham Abbey Mills, being communicated to the Superintendent of the Madras Powder Factory.

9. I strongly recommend that Presses for making the new description of Pellet powder, as noted in paragraph 8 of Colonel Rowlandson's letter, be procured from Home as early as possible; as this description of powder will be required for use in India, at no very distant period. From different sources, I understand that a considerable number of nine inch "Fraser" Guns are now being made for India. The Commissary of Ordnance at Rangoon has intimated that some of these guns are expected to be supplied for the defence of that place, and a portion will doubt-

less be sent for the sea-face works of the Fort at Madras; and as Pellet Powder is only used now, when charges of 50 lbs. and upwards are fired from 9 inch guns, provision for manufacturing it should be made without delay.

10. Colonel Rowlandson, in the last paragraph of his letter, adverts to the present unsatisfactory state of the matter of the transfer of the Gun Powder Manufactory from its present situation, which transfer was finally decided on by the Right Honorable the Secretary of State for India, in his despatch No. 159, dated 30th November 1863.* Colonel Rowlandson further brings to notice the fact of a quantity of duplicate machinery lying stored in the buildings of the present Factory, which it is difficult thus to keep in order, and the necessity of having duplicate machinery available in position and in working order in every Powder Factory to allow of the operations being carried on, with as little interruption as possible, in the event of an explosion in any portion of the Factory, or if any part of the machinery gets seriously out of order, from breakage or otherwise.

11 I quite concur with Colonel Rowlandson in his views on this matter, and consider that it is very desirable that the erection of the new Factory should be carried out here, on a scale similar to that at Ishapore and Kirkee, on a convenient site, free from the serious objections to, and disadvantages of, the present one; and I beg to call attention to my Predecessor's letter, No. 149, dated 6th September 1867, in which he advocated certain arrangements then suggested by Colonel Rowlandson,† for continuing the work of the Manufactory whilst the new buildings were in course of erection, but only provided he was "assured that arrangements will speedily be made for the erection of buildings on the new site in accordance with approved plans." The new Factories in the other Presidencies have taken several years to construct, and the expenses therefore attending the erection of a new Powder Factory at Madras could be distributed over several years.

12. His Grace the Secretary of State for India, in Military despatch No. 55, dated 3rd June 1869, calls for information as to the state of the question of the site chosen for the Powder Factory. In Order of Madras Government, No. 1326, dated 20th April 1864, a resumé is given of the correspondence which had taken place up to that time relative to the transfer of the Ordnance Establishments from Madras to the vicinity of the Mount, and the selection of their sites; and in paragraph 5 it notes that a site for the Powder Factory (together with those for other buildings) had been selected by Sir Patrick Grant, along with other Officers; but in paragraph 12 of this Order, the Governor in Council considered it desirable "that the selection and appropriation of sites should be considered anew;" and in paragraph 13 he requested the Inspector General of Ordnance, in communication with the Commander-in-Chief and Superintending Engineer, 4th Division, again to select sites for various Ordnance buildings including the Powder Manufactory. From correspondence given in different Proceedings of Madras Government, it would appear that these Officers selected a site for the Powder Manufactory; but

when a "sketch plan of the Mount" (with other plans) was sent by the Superintending Engineer, 4th Division, to the Inspector General of Ordnance, Colonel Simpson stated* "with regard to the site for this Factory marked in the 'sketch plan of the Mount,' I may observe that "it is not the site selected either by the Committee convened under orders of Sir Patrick Grant, or of the Committee which assembled subsequently at the Mount "by order of Sir Hope Grant, of both of which Committees I was Member. I "have no knowledge of the circumstances under which the selection of the new "site took place."

13. In letter as per margin,† the Superintending Engineer, 4th Division, questions Colonel Simpson's objection as to the site marked "A" in the sketch not having been "that originally selected by the Committee appointed to fix the sites for the new Ordnance buildings;"—and His Excellency the Commander-in-Chief, Lieutenant General McCleverty, supports the opinion of the Superintending Engineer, 4th Division, in letter‡ from the Quarter Master General quoted in the margin. The Superintending Engineer also states in paragraph 2 of his letter, that on a later occasion (apparently to that of the assembling of the Committee of which Sir Hope Grant and Colonel Simpson were Members,) the Inspector General of Ordnance and Magazines, the Quarter Master General, and himself, sat under the orders of Government, in Committee, to remodel the sites, and that then he first learned the objections of the Inspector General of Ordnance to the site marked "A," from its propinquity to the heavy Gun Practice Battery; and in paragraph 3 he informs Government, that "it was determined to place the "Factory in the plain, somewhere near the Mahratta Ditch."

14. From the above quoted correspondence, and after careful inspection of the plan, it appears to me that the site "A" in the Engineer's plan, (viz., a piece of ground immediately to the north of the Mount, on the east side of the Adyar river, running up close to the Practice Batteries and not far from the buildings at the north-east of the Mount Cantonment,) was the one chosen for the Powder Manufactory:—but whatever reasons determined the selection of that site, both Colonel Rowlandson and myself, who visited the ground a few days ago, are strongly of opinion that it has been vitiated as a site; and that it is now altogether unsuited for the location of a Powder Factory, in consequence of a very large Magazine having been built in close proximity thereto, and explosion in which would level to the ground every building belonging to the Factory.

15. As regards the selection of a site "near the Mahratta Ditch," nothing has been done, nor does this seem necessary, for it would be impossible there to obtain a full supply of water, a "sine qua non," in the selection of a site for the Powder Factory; and further, I was informed by the Executive Engineer at Saint Thomas' Mount, that the whole of the ground in that neighbourhood was required for the sites of the other Ordnance Establishments.

16. So far as regards the steps which have already been taken in this matter, no practical result has, I consider, been arrived at; but if the project of the construction of the Adyar tank near Saint Thomas' Mount, referred to in Order of Government, No. 358, dated 30th January 1866, is carried out, and a full supply of water is thereby ensured, or if it is made available by any other means, it appeared to Colonel Rowlandson and myself that the west bank of the Adyar river offers a favorable position for selecting a site, sufficiently removed from the Grand Magazine and the Artillery Practice Ground, and otherwise presenting the requisite capabilities for locating a Powder Factory.

17. It appears to me that even if the scheme of the Adyar tank, is *not* carried out, the provision of a suitable supply of water from the river to a Factory adjacent to the banks, would not be attended with much difficulty, or expense; if this, however, cannot be effected, the selection of a site for the Powder Factory must be sought altogether away from Saint Thomas' Mount, as there is no other source in my opinion, except from water stored in the Adyar channel, from which a sufficient supply of water for the Factory could be procured, immediately adjacent to the Mount.

No. 514.

ORDER THEREON, 30th August 1869, No. 3105.

Resolved that the foregoing correspondence be forwarded to the Public Works Department for information, as to present state, as regards that Department, of the question of the permanent site of the Factory and the progress made with the preparation of plans, &c., for the necessary buildings; also for any remarks that may appear necessary with reference to paragraph 14 of the letter from the Acting Inspector General of Ordnance and Magazines.

Public Works Pro No. 110, dated 14th January 1869.

Public Works Pro No. 2901, dated 18th September 1867

(True Extract.)

A. M. M. Colonel,

Offg. Secretary to Government.

To the Public Works Department. *With 20 copies*
" Inspector General of Ordnance.

Received for September
Court at 1869 Madras.
No 3400
MILITARY.

To

THE PUBLIC WORKS DEPARTMENT.

Ac, Ac, Ac.

Dated August, 30th.

Recd. *Sept 1st*

Encl.

G. O., 30th August 1869, No. 3105.

S

AUGUST.

Nos. 512-514.

Communicating to the Department Public Works correspondence relative to the manufacture of Gun-powder, and the question of the permanent site for the Gun-powder Factory.

No 2942-7: Sept 7/69

P. H. Dept.
No 2942
Proceedings of the Madras Government
under date the 7: Sept 7/69.
Read the following:-

Pro: The Madras Govt.
Military Dept *P. H. No 3105 of 30 August 1869*

Communicated
to the Superintending
Engineer of the 4th Div.
for such observations
as he may have to
offer with reference to
para 14 of the letter
from the Acting Inspector
General of Ordnance
and Magazines.

P. H. Encl 4th Div *Sept 28/69*

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Gort. of {1869} Madras.

PUBLIC WORKS.

To The Superintending Engr.
4th Division

Dated

Recd.

G. O. 7th Sept 1869, No. 2942

Nos. 194-195

From Order Factory, 1st Div. huf. Eng.
Communicating correspondence
relative to the manufacture of
Gun Powder, and the ques-
tion of the permanent aid
for the Gun Powder Factory.
And also off concerned in
instructions.