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(3) Initials of the Reference_____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 820 Press ~~Mis.~~

257-258

Dated 12- 3- 1866.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 12th March 1866.

No. 257. Read the following Proceedings of the Madras Government in the Military Department :—

Communicating letter from the Quarter Master General regarding the Dumbleton Cooking Ranges, plan of which has been received from the Government of India, and sanctioning the trial of one at Bangalore, as an experiment. } (Here enter 6th March 1866, No. 858.)

No 258. ORDER THEREON, 12th March 1866, No. 820.

MILITARY WORKS, No. 10.

Communicated to the Superintending Engineer of the 5th Division, who will adopt measures for the construction of a cooking stove at Bangalore on the plan proposed by Major Dumbleton, submitting, in due course, an estimate for the sanction of Government, and for the provision of the necessary funds.

(True Extract.)

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

To the Superintending Engineer, 5th Divjsion, with 3 Plans.
,, Controller of Public Works Accounts.
,, Accountant General.
,, Military Department.

Exd. S. T. Augustin.

MILITARY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following papers:—

From the Secy to Govt Public Works Dept Here enter 25th January 1866
,, *Quarter Master General* ... ,, 17th February 1866, No. 1971

From the Inspector General of Military Works, Public Works Department, Fort William, 21d January 1866, No 3M; to the Secretary to the Government of Madras, in the Public Works Department.

I am directed to forward copies of documents noted on the margin, relative to experiments with cooking stoves constructed by Lieutenant-Colonel Dumbleton, Executive Engineer, Upper Sirhind Division, and to request that, if the Governor of Madras in Council thinks it worth while, a trial of the double range with an intermediate oven may be made at some convenient station, and the result reported to the Government of India.

Public Works Department Proceedings, September* 1865, *Part A, Nos.* 1—4, *one Plan*

Extract paragraphs 1, 2, 3, 4 *and* 7 *from a Report by Lieutenant-Colonel Dumbleton, No* 2275, *dated* 31*st October* 1865, *and a plan*

* To be returned when no longer required

2. There is nothing particularly novel in the design of the stove, but it is of simple construction and can be made up in almost any part of India from materials procurable on the spot. It is essential that the cooking pots should fit the openings of the stove plate accurately. It may be necessary to make up pots specially for the experiment.

PUBLIC WORKS DEPARTMENT PROCEEDINGS, SEPTEMBER 1865

MILITARY WORKS

Cooking stove

Proceedings, February 1865, Nos. 23—5 & K. W
,, June 1864, ,, 196—9 & No 151 & K W.
,, December ,, ,, 13—5 & K W.
,, September ,, ,, 102—3 ,,
,, July ,, ,, 72—4 ,,
,, January ,, ,, 108—9 ,, Table B
,, November ,, ,, 67—8 ,, Part B

From the Officiating Secretary to Government of Punjaub, in the Public Works Department, 11th July 1865, No. 547C; to the Secretary to Government of India, Public Works Department

In Colonel Strachey's letter, No $\frac{319M}{2695}$, of the 20th June 1864, a series of experiments were ordered to be carried out at Dugshaie, under Major Dumbleton, on the Franklyn Stove, or on any modifications in the details that he might think preferable

2 It was also ordered that a brick oven, of the size and shape of the iron skeleton frames used by the Commissariat Department, in camp, might be built and experimented upon

3. A report regarding the oven has not yet been received, but in regard to the Franklyn Stove, a preliminary report was forwarded with this office, No. 5831 of the 2nd February last.

4. The report of a Committee assembled to report further on the Franklyn Stove, and on the Dumbleton Stove, is now submitted, bearing date 3rd June 1865.

5. The Committee, it will be seen, unanimously condemn the Franklyn Stove, however modified. It was found to smoke immoderately, to be wasteful of fuel,* to take a long time to boil water, and in the previous report, it was noticed that the pots could only be reached with much inconvenience, it being necessary for the cook to mount on to the top plate to enable him to remove the vessel.

* *The cause was thought to be due to the quality of the fuel.*

6. The Dumbleton Stove, on the contrary, has met with unanimous approbation. It was found to be—

1st —Cleanly in use
2nd —Very convenient.
3rd —Economical in fuel (the saving on the ordinary arrangement being about one-third)
4th.—Suitable for all cooking, except roasting and baking
5th.—It did not smoke
6th —It was further found that when once heated it cooled very slowly.
7th —Its cost is named at from Rupees 30 to Rupees 50.
8th —One stove is said to be sufficient for a Company, and two stoves in a room 36′ × 16′ is recommended as a convenient arrangement for two Companies.
9th —The heat that escapes up the chimney cannot, it is considered, be utilized by making it heat an oven A separate oven in each cook-house for roasting and baking is recommended as necessary.

7. A report on the brick oven will be forwarded when received

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Dated 3rd June 1865.

PROCEEDINGS of a Committee assembled by order of Colonel SALUSBURY, C B, Commanding at Dugshaie, to inspect and report upon the experimental cooking range erected under orders of Government, in the Public Works Department, conveyed to the Executive Engineer of the Division.

PRESIDENT.

Colonel F. O. SALUSBURY, C. B, Commanding Her Majesty's 101st Royal Bengal Fusiliers.

MEMBERS.

Surgeon D MACDONALD, Her Majesty's 101st Royal Bengal Fusiliers, Senior Medical Officer.
Major C DUMBLETON, Executive Engineer, Upper Sirhind Division.

The assembly of this Committee has been at the request of the Executive Engineer.

The first form of stove experimented upon, since the arrival of the 101st Royal Bengal Fusiliers at Dugshaie, was the simple "Franklyn" Stove. This seems to have found favor with the 42nd Royal Highland Regiment, and to have been reported on favorably by the Executive Engineer, in the fall of last year. However, it was plain to the Executive Engineer, as well as to the Officer Commanding Her Majesty's 101st, the Officer Commanding the Company using the stove, and all others visiting the range, that it was a failure. A heavy gaseous smoke rose when the fire was lighted, and, notwithstanding a small flue attached to it, the cook-house was full of smoke, so much so that it was most painful to the eyes to remain within it. This was one defect; another was, the water took so long a time to heat, that to have coffee for breakfast at 8 or 9 o'clock required that the caldrons should be put on the fire some three hours before hand. The consumption of fuel was very great also, so much so that much extra wood had to be procured to feed the furnace Executive Engineer gives it as his opinion, that the failure of this Franklyn Stove here (whereas it acts well in Umballa) is caused by the difference of wood. It may be said that dry wood is always obtainable below; but in the hills it is different; very frequently dry wood cannot be had, either from causes of sap in the wood, or from continuance of wet and snowy weather. The Executive Engineer states, he thinks in the present instance the two causes combined to cause the failure, especially as it was in dry weather, and in the fall of the year, when the stove used by Her Majesty's 42nd Royal Highland Regiment, acted satisfactorily, and even was considered to save fuel

2. The failure of the "Franklyn" Stove as above recorded, caused the Executive Engineer to produce the present form, which most undoubtedly acts in every way satisfactorily. The form and shape of this stove may be considered as a circular oven, with a flat top, the top being formed of iron. This top sheet of iron has holes cut in it, as near as possible to fit the caldrons—one 9 gallons, and two 7 gallons An ordinary furnace door is constructed at one end, and at the opposite, a small flue to carry off what smoke may not be consumed in the furnace. The sides of the furnace being of brick, on becoming heated, retain the heat as an oven does; and the caldrons fitting well down through the upper plate, a very little fire serves to keep up the necessary cooking heat. After a trial of six or seven weeks of this stove, it can safely be said

that a saving of one-third the fuel can be effected It seems handy and applicable for all the purposes required in cooking for Soldiers, excepting baking and roasting. It seems to effect readily, boiling, stewing, curry-cooking, frying, hashing, soup-making, coffee, tea, &c, &c, any of these may be carried on expeditiously, and in a manner perfectly cleanly, without a particle of smoke, and without even sight of the fire The fire requires no particular attention The heat is so much equalized by the radiations from the brick sides, that, though the fire may be low, no sudden chill takes place, in fact, the fire may be extinguished altogether, still the heat of the furnace itself will retain a vessel of water at boiling point for some time, and keep it warm probably till time for the next meal This is extremely handy where, on occasions of duty, men may be away at the ordinary meal hour. As this furnace is used at present, it is capable of cooking for 120 men; the daily cooking from it required is for 73 or 74 only Two such stoves in a cook-house, 36 by 16, would readily cook for two Companies.

3. The Committee are of opinion that the surplus heat from this furnace, or that going up the chimney and escaping to no purpose, would hardly be applicable to heating an oven, and passing away as it does in shape of smoke, it is probably better to let it go clear than to endeavour further to put it to any purpose, as in any endeavour to carry it round the outside of an oven, which would be the only way to apply the heat, it could not be so arranged that choking of flues from soot would not be the result The Committee would, therefore, strongly advocate that ovens, separate from the cooking ranges, projecting at one corner of the cook-house, should be resorted to in preference to attaching it to the cooking range. A common brick oven, four inches by three, would suffice for a Company, giving sufficient space for eight large joints of meat or pies

4 Accompanying is a drawing of the stove as it stands The common fire-places in the middle were constructed with a view to frying from, but this was not found necessary, as the frying is readily done over the furnace; the frying pan being the only peculiarity required, it may be considered a caldron of small depth about five and half inches only; this is let in at one of the holes used for the caldrons, and as the meat is cooked, it is picked out with a fork. This cooks the meat very nicely, and as the vessel fits to the furnace top quite close, no smoke or other dirt can touch the meat.

5. The uses of this stove may, no doubt, be further developed, and its capabilities of cooking increased in the hands of an ingenious man, like Private Rourke, Her Majesty's 101st, who has had the charge of it since it was set to work.

6 The cost of a stove, such as this, may be taken at from Rupees 30 to Rupees 50; sheet iron is expensive here, and moreover, a cast-iron half inch or one inch plate, for the top of the furnace, would be the proper thing, instead of the thin metal only that was available to the Executive Engineer at the time of the construction of the stove.

Nos 949—34M, dated 25th August 1865.

From the Secretary to Government of India, Public Works Department, No. 3, to the Quarter Master General.

I am directed to forward the accompanying drawing (*deposited*) of a cooking stove which has been designed by Major Dumbleton, Executive Engineer, Upper Sirhind Division, together with copy of a Committee report upon its working at Dugshaie, and to request that His Excellency the Commander-in-Chief may be moved to have the stove tried experimentally at the following stations, *viz*, Peshawur, Meerut, Lucknow and Saugor or Jubbulpore, and to have reports submitted of its working in due course.

2 The aid of Executive Engineers will be asked from the Local Governments concerned, for the construction of the stoves at the several stations named.

Nos 950—4M.

Endorsed by Public Works Department

Copy of the above, and of the drawing and Committee report referred to, forwarded to the Governments of Punjaub and North Western Provinces, in the Public Works Department, and to the Chief Commissioners, Oudh and Central Provinces, with a request that the Executive Engineers concerned may be instructed to construct the stoves in question in such buildings as may be fixed upon by the officers Commanding the several stations named.

Copy of the above and of the correspondence referred to, forwarded to the Military Department for information

No 948M, dated 25th August 1865.

From the Secretary to the Government of India, Public Works Department, No. 4 ; to the Officiating Secretary to Government of Punjaub, in the Public Works Department.

With reference to your letter No. 547C, dated 11th July 1865, reporting on the relative merits of the Franklyn Stove, and the modified plan of that stove proposed by Major Dumbleton, and in continuation of Public Works Department docket, No 951M of this date, I am directed to point out that no experiment seems to have been made with an oven combined with a double cooking range, as shown in plan and section, No 2 of the drawing which accompanied Public Works Department letter, No 343M, dated 20th June 1864, and to request that this may be tried at Dugshaie, and the result reported as early as possible.

2. The report on the brick oven, promised in your letter under acknowledgment is awaited.

3 In ordering experiments to be carried out both with a brick and an iron oven, I am to remark that it was doubted whether the former was best suited for cooking meat, pies, &c, and it was thought that a shorter and a sharper heat was required for cooking, and that this could be best obtained by adopting an iron oven attached to the cooking ranges, and surrounded by brickwork, and having a fire placed directly below it.

4 The Committee that assembled at Dugshaie consider that the surplus heat from the furnaces would not suffice to heat an oven, but plan No. 2 of the drawing above referred to, shows that it was intended to heat the oven mainly by a distinct fire, and at the same time to utilize the heat from the furnaces, an arrangement which would no doubt have a very economical effect

5 The report called for in Public Works Department Resolution, No. 746M, dated 26th September 1864, on a proposed plan of stove for married men's cook-houses, should also be submitted with the least practicable delay

6. I am to notice that considerable delay has occurred in carrying out the experiments with the stoves thus far, and to express a hope that future experiments may be expedited as much as possible.

Enclosure to current letter Nos. 3—10M of 1866.

Extract paragraphs 1, 2, 3, 4 and 7 from a letter from the Executive Engineer, Upper Sirhind Division, 31st October 1865, No 2275, to the Superintending Engineer, 2nd Circle, Punjaub.

"On the subject of cooking ranges, and especially the application of an oven between the two stoves, represented with the drawing submitted with my No. 439, dated 19th June, I have the honor to report that the apparatus has now been tried, and has been found quite successful for baking rations.

2. A full plan of the range is attached.

3 I requested Colonel Crommelin, C. B, Inspector General of Military Buildings, to examine this stove as he passed down on his way from Simla to Kalka; this he did in company with the Officer Commanding and myself on the 27th instant, and was much pleased with what he saw. The range was in full operation, the stoves on either side boiling meat and vegetables, and the oven baking joints of meat with potatoes, all appeared well-done, and the ration to be much liked by the men, the range, as it is, is calculated to cook for 250 men; the oven being large enough to meet the requirements of the average number of men probably wishing for baked rations, though not sufficient to bake for the whole at one time.

4. The oven itself has cost Rupees 38, the whole is made of one-eighth of an inch sheet iron, excepting the bars on which it rests; had there been a foundry at hand, a more suitable thickness of metal would have been given, and the door to both oven and furnace below would have been better made.

7. The amount of fuel consumed cannot be accurately stated at present, but as yet all has been done with the Commissariat allowance, and the saving in working the stoves apparently will always allow plenty of fuel over for working the oven."

Referred to the Military Department.

(Signed) C. A. ORR, Colonel, R. E.,
Secretary to Government, P. W. D.

25th February 1866.

Referred for the observations of His Excellency the Commander-in-Chief.

29th January 1866.

From the Quarter Master General, Fort Saint George, 17th February 1866, No. 1971; to the Secretary to Government, Military Department.

Referring to the correspondence on the subject of the Dumbleton cooking range forwarded on the 29th ultimo by Government, for the observations of His Excellency the Commander-in-Chief, I have the honor, by order, to state that the Commander-in-Chief thinks one of the ranges should be sanctioned for trial at Bangalore. Its merits, as compared with the Duff ranges just made in the Mint, and adverted to in my letter of 15th instant, No. 1898, could be then fairly tested.

2. It seems to possess at least two advantages, that of being much cheaper, and capable of being made up in any of our European Cantonments, from materials procurable in the spot, but whether the more expensive Duff Stove, is not more durable, and therefore cheaper in the end, remains to be seen.

3. It is presumed that the cooking vessels now in use with the troops are to be used with these ranges; else, it is not possible, that the ranges can be as cheap as they are represented to be.

Order, No. 858, 6th March 1866.

Ordered that the foregoing letter from the Quarter Master General, be communicated to the Public Works Department.

2. The Governor in Council concurs in the suggestion of His Excellency the Commander-in-Chief, regarding the experiment of the cooking range.

(True Extract.)

Deputy Secretary to Government.

To the Public Works Department, with 2 plans.
,, Quarter Master General.
,, Adjutant General.
,, Controller of Military Accounts.
,, Military Accountant.
,, Examiner Pay Department.
,, Commissary General, } for information.
,, President Sanitary Commission, }

Exd. A. W. Cooke.

P. W. 1866 Dept.
Pro. of Govt. for March
No. 971

Pro. of the Madras Govt.
in the Military Dept.

Dt. 6 } March/66
Rec. 9 }

No. 858.

Ex. 2

Communicating letter from the Dr. Mr. Genl. regarding the Dumbleton cooking ranges plans of which has been received from the Govt. of India and sanctioning the trial of one at Bangalore, as an experiment.

No. 257

No. 820 - 12th March/66.

Public Works Department
No. 820

Proceedings of the Madras Government
Under date the 12th March 1866.
Read the following
of the Madras Govt.
in the Military Department (Here enter 6th March 1866 No. 858)

Commd. to the Supy Engineer of the 5 Dn. who will adopt measures for the construction of a cooking stove at Bangalore on the plan proposed by Major Dumbleton, submitting in due course, an Estimate for the Sanction of Govt. and for the provision of the necessary funds.

To S E 5 Dn with 2 Plans
To Controller
To A/G
To Mil Dept.
Dept. 13th March

P W 1866 Deptt

Pro: of Govt for March

No. 820

Pro: of the Madras Govt

Dd 12th March/66

Dumbleton Cooking Ranges — Pro. Milyr Deptt on letter from the Qr Mr Govt relative to — plan of which has been received from the Govt of India and sanctioning the trial of one at Bangalore, as an Experiment; Communicated to the Supg. Eng. of the 5 Division, with certain instructions.

No. 257. 258.