

*Proceedings of the Madras Government, Revenue Department,
15th July 1871.*

No. 183. Read the following Proceedings of the Board of Revenue, dated 22nd June 1871, No. 2,497 :—

Read again Board's Proceedings, dated 14th December 1870, No. 7,110, and Miscellaneous No. 1,064, dated 6th October 1870.

Read also the following letters :—

From W. T. BLAIR, Esq., Acting Collector of Chingleput, to the Acting Secretary to the Board of Revenue, dated Sydapet, 27th March 1871, No. 114.

With reference to the Board's Proceedings, dated the 14th December last, No. 7,110, I have the honour to forward a copy of Mr. Smith's report, affording information as to the plan pursued in the manufacture of salt.

ENCLOSURE No. 1.

From A. SMITH, Esq., lately in charge of the Salt Department, to the Acting Collector of Chingleput, dated Sydapet, 14th March 1871, No. 261.

Referring to the Proceedings of the Board of Revenue, dated the 14th December last, No. 7,110, I have the honour to report that I am not in a position to state how salt is being manufactured in this district during the current season.

2. I venture, however, to submit an abstract of the rules under which salt has been manufactured in previous years, when the season admitted of the instructions issued being fully carried into effect—

That at the commencement of the season the manufacturers shall give their attention first to the construction of the kondum or reservoir, and then proceed to the formation of the other parts of their holding.

That the water in the reservoir shall not be less than eighteen inches in depth, and that it shall be allowed to evaporate during the time (about 25 days) that the side and the salt-producing beds are under formation.

That the brine irrigated from the reservoir shall be allowed to stand in the side beds for four days, and be thereafter transferred to the salt-beds, where it shall remain for 10 days before salt is scraped.

That if, after 10 days, the salt scraped be of inferior quality, it shall be thrown again into the salt-beds, and more brine be let in from time to time until salt of good quality is produced.

3. It will be seen from the foregoing rules that water is exposed in the brine pits for 25 days, in the side beds for four days, and in the salt-beds for 10 days; being 39 days in all before salt is scraped.

4. I regret that the tone of my last letter should have evoked the censure of the Board. My remarks were necessarily defensive, being a reply to the serious allegation that salt of very inferior quality was being stored at the Madras Kotar. It will serve no useful purpose to again advert to the unpleasant topic; but if, in contending against an allegation which so deeply affected my administration of the department, I may have expressed myself unadvisedly, I venture to hope that the Board will be pleased, under the peculiar circumstances in which I was placed, to accept my respectful apologies. I had conscientiously striven—in spite of a serious illness which for some months was gradually developing itself, and at last proved nearly fatal—to carry out their instructions in the face of adverse influences of season almost unprecedented, and it grieved me much to find that instead of approbation I had elicited the condemnation of the Board.

From R. W. BARLOW, Esq., Acting Collector of Chingleput, to the Acting Secretary to the Board of Revenue, dated Sydapet, 22nd April 1871, No. 102.

I HAVE the honour, in continuation of Mr. Blair's letter of the 27th ultimo, No. 114, to forward, for the information of the Board, copy of a letter received from P. Chentsal Row, Deputy-

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Collector in charge of salt, affording further information with reference to the Board's Proceedings, No. 7,110, dated 14th December 1870.

2. A report from P. Chentsal Row, as well as from Mr. Smith, appears to have been required by Mr. Blair on the former's succeeding to the charge of the Salt Department.

ENCLOSURE No. 1.

From P. CHENTSAI ROW, Deputy-Collector in charge of Salt, to the Acting Collector of Chingleput, dated Madras, 19th April 1871, No. 177.

I HAVE the honour to acknowledge the receipt of the official memorandum from your Office, dated 7th ultimo, No. 236, calling upon me, with reference to the Proceedings of the Board of Revenue, dated 14th December 1870, to report upon the existing system of salt manufacture, chiefly in regard to the time for which brine is allowed to be condensed before it is let into the salt-pans, and the period for which it is exposed in the pans before the salt is scraped.

2. The object of the inquiry appears to be to ascertain whether the inferior quality of the salt in the Madras Kotar is not due to any defect in the system of manufacture, and whether the brine is allowed to be sufficiently condensed before it is let into the pans. If so, I beg to submit that no definite idea of the strength of the brine could be obtained by the mere number of the days the brine is said to be exposed in the reservoirs and side beds. In the first place the time for which the salt-water is allowed to be condensed cannot be precisely ascertained, since the condensed water in the reservoirs is frequently, and without any fixed principle, mixed up with the fresh salt-water baled from the backwater, and since the period for which water is allowed to be condensed varies with reference to the nature of the season and the state of the atmosphere. Moreover, in the Southern Divisions brine is partly obtained from springs in wells and pits dug for the purpose, and is used in conjunction with the water of the backwater which is previously allowed to be condensed in reservoirs or side beds for a very short time.

3. Under these circumstances, and finding that the manufacturers and Salt Superintendents generally exaggerated the time for which water is allowed to be condensed previous to its being let into the pans, I have ascertained by means of an ordinary scale the specific gravity of the brine in the several localities at the stage of its being let into the pans, in view to obtaining a correct idea of its strength. The following are the results of my examination:—

	Ordinary good water	...	...	...	1.000
	Sea-water	...	...	...	1.016
Northern Divisions...	Brine at Attiput	...	...	...	1.082
	Do. at Ennore	...	...	...	1.095
	Do. at Vulloor	...	...	...	1.102
	Do. at Pudivakum	...	...	...	1.138
	Do. at Voyalur	...	...	...	1.191
	Do. at Kattur	...	...	...	1.191
Southern Divisions...	Vadasamunjery	...	...	...	1.085
	Covelong	...	...	...	1.072
	Chayur, no manufacture this year.				

4. From the above it will be observed that the strength of the brine in the different localities is not the same, although the Superintendents assert that the water is exposed in the reservoirs for an equal length of time everywhere.

5. After the brine is let into the pans salt is formed in four or five days, but it is not immediately scraped. It is dissolved, but generally only once, by the admixture of new brine and salt formed the second time scraped. At the commencement of the season, however, the first formation of salt is dissolved more than once, even as often as six times according to the nature of the weather.

6. There is no doubt that the formation of good salt depends on a variety of circumstances, such as the nature of the soil, the state of the atmosphere, the character of the winds and the like; but I feel assured that the strength of the brine used, and the quantity let into the pans at each time, are the chief and important elements for a successful manufacture of salt.

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7. My Salt Superintendents and manufacturers deny my assumption that the stronger the brine is the better, and state that when it is too strong the crystallization of salt is seriously affected, and that they are consequently obliged to mix with it uncondensed salt-water.

8. I have not watched the system of manufacture sufficiently long to give my own opinion regarding the maximum strength the brine could be allowed to attain with advantage, but so far as I have observed I entertain no doubt that the brine could be made much stronger than it is now. It is a fact that the salt of Voyalur is the best, and that the brine used there is the strongest.

9. I venture to think that if a Register of the strength of the brine used in each of the localities and for each scraping is kept in all the salt-producing districts, with the additional information of the quantity let into the pans on each occasion, the time for which it is there exposed, and the character of the salt produced, it would be a good step towards improving our knowledge of salt-making, and it may eventually enable us to conduct the manufacture of salt on almost scientific principles instead of leaving it, as it is now done, to the crude judgment of the manufacturers and the Salt Superintendents, who attach no importance to care and skill but point out to heaven for favourable results.

10. If you agree with me in this view I request that you will authorize me to purchase the necessary number of scales and weights and iron cups capable of containing a cubic foot of water to be used by my Superintendents for finding out the specific gravity of brine in the different localities and keeping a Register as above proposed. The charge will not exceed Rs. 60, and it can be met from savings in the Contingent. I do not think hydrometers can be purchased at present.

THE attention of the Board having been directed to the very inferior quality of the salt as sold at the Madras Kotars in September last, the Collector of Chingleput was asked to report on the subject, and the Proceedings quoted above contain Mr. Deputy-Collector Smith's explanation.

2. The Collector was then called upon to describe exactly the system pursued in the manufacture of salt; and the reply of the late Deputy-Collector is now forwarded by the Collector, and forms the second of the papers recorded at the head of these Proceedings.

3. A further very careful report by the Acting Deputy-Collector P. Chentsal Row was received subsequently (with the Collector's letter, No. 162, dated 22nd April 1871), which does not altogether agree with Mr. Smith's account; and there is evidently considerable room for improvement in the manufacture of salt everywhere.

4. It is, however, very difficult to lay down any general rules owing to the great uncertainty that prevails on the subject, and the diversity of opinion as to the best method of manufacturing salt.

5. Long exposure of the brine lying undisturbed in the pans is certainly necessary to form large crystals; but the exact time required at each salt-station probably varies with the soil, the climate, and the rain-fall; and it is equally certain that the use of over-concentrated brine is rather injurious than otherwise; an opinion that a judicious admixture of fresh sea-water occasionally is essential to the formation of wholesome salt is not unsupported by experience, and the experiment is worth testing.

6. The Board are of opinion, therefore, that a thorough inquiry into the question is called for; and as it is due to the salt consumers that no effort should be spared to make salt of the most wholesome description, they resolve to call upon

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all Collectors of salt-producing districts to have careful experiments made, and to note down any suggestions that may occur to the most experienced manufacturers.

7. The Board wish it to be clearly understood that they do not wish for an immense number of doubtful experiments, but only a select few, carefully conducted as far as possible under the immediate superintendence of the Deputy-Collector himself. With the sanction of Government, hydrometers will be provided; and the strength of the brine when admitted into the final evaporating pans should be noted in each experiment, and the result of the different degrees of strength of the brine in the production of finely crystallized salt. A note should also be made of the shape of the pan, the direction of the wind, the state of the atmosphere, the soil, the time the brine is exposed, the depth of water in the pans, and the rain-fall during the manufacturing season.

8. Should Government approve of these proposals the Board request that 88 hydrometers (at a cost of about Rs. 5 each) may be ordered out from England at an early date.

9. The Second Member of the Board is not a party to these Proceedings, and has recorded a separate Minute on the subject.

No. 184.

ORDER THEREON, 15th July 1871, No. 1,229.

Separate Revenue, No. 10.
Salt.

THE Board of Revenue observing that the best method of manufacturing SALT remains to be determined, propose experiments in every district, and ask

the Government to indent for 88 hydrometers from England, at Rs. 5 each.

2. The Government resolve, in the first place, to ask Dr. Balfour, the Inspector-General, Indian Medical Department, if any Medical officer is available who can aid in the matter.

(True Extract.)

(Signed) D. F. CARMICHAEL,
Acting Secretary to Government.

To the Board of Revenue.
.. the Inspector-General, Indian Medical Department.

Edw. F. B. Bantleman.

Revenue Board Office
Madras 23rd September 1870.

Miscellaneous No. 104.

From,
The Acting Sub-Secretary to the
Board of Revenue

To,
The Acting Collector of
Chingleput
Sir,

I am directed to call your attention to the very inferior quality of the salt now being stored on the flat pans at the Madras Pitham, and to request that the Deputy Collector Mr. Smith may be called upon for a full and particular report as to the causes which have led to its deterioration. He should state at the same time the exact number of days he has spent in supervising the actual manufacture of salt during the last season, and (if possible) the amount rejected by himself personally and by his subordinates as unfit for consumption &c.

Have &c.

Signed J. B. Cunningham
Ag. Sub-Secretary

For,
The Ag. Collector of Chingleput
True copy/

For and

Ag. Sub-Secretary

No. 1229

15th July 1871.

From Board

Dated 22nd June 1871 No 2497.

FOR ORDERS.

Salt. (The majority of the Bd. observing that the best method of manufacture remains to be determined, propose experiments in every district, & ask Govt to underwrite for 80 Hydrometers from England at 5 Rs. each.

Mr. Robinson dissent. Nothing will result from this: we are to find "a practical man of known scientific attainments" & then send him round to Salt Pans as Inspector Genl. under the Bd.

2. The Govt. resolved, in the first place to

~~I think the Govt. might as well~~

But for if any of ^{any} Medical Officer

could find in the matter.

Send it to Genl. & England for

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practical experiments - but by

laboratory work. Am I to be sent back of

Salt has of the Govt. thought of. At the

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No. 15 July 1871 No 23. 16 1871

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FOR ORDERS.

*Be the Subject of
an order to be
made in the name
of the*

Govt. of 1871 Madras.

REVENUE.

To

THE BOARD OF REVENUE,

Ac. Ac. Ac.

Dated July 15th.

Recd.

Recd.

G. O. 15th July 1871, No. 1,219.

JULY.

No. 183-194.

Report on the manufacture of salt —
The Board, Executive Officer, Madras Medical
Department, requested to report if any Medical
officer is available to who can aid in the matter.

No. 183-194 of 1871

Completed

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