

(1) Number of pages 16
(2) Date of repair 10-1-1973
(3) Initials of the Referencer _____

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

REVENUE DEPARTMENT

G.O. No.
B.P. No.

1555

Press
Mis.

Dated

25-4-1877 197.

Not to be folded or roughly handled

1555

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*Proceedings of the Madras Government, Revenue Department,
25th April 1877.*

No. 631. Read the following Proceedings of the Board of Revenue, dated 23rd March 1877, No. 1,311:—

Read the following letter from J. G. HORSFALL, Esq., Acting Collector of South Arcot, to H. E. STOKES, Esq., Acting Secretary to the Board of Revenue, dated Cuddalore, 10th February 1877, No. 59.

ADVERTISING to the Board's Proceedings of the 15th December last, Miscellaneous No. 11,074, requesting me to submit any remarks I may have to offer on Dr. Ratton's report on the experimental manufacture of salt at Porto-Novo during the past fasli, I have the honor to submit
* Letter, No. 20, dated 27th January 1877. a copy* of Mr. Freer's explanation in regard to Dr. Ratton's charge of neglect on the part of the Salt Department, and to state that I consider the explanation to be satisfactory.

2. I beg further to submit a translation of a letter† from His Excellency the Governor of Pondicherry regarding the wind-mill at the Government Gardens in that place. I do not consider that a machine of this kind is likely to be profitable.

3. In conclusion, I beg to recommend that Mr. Freer be allowed to work these pans another year departmentally. A similar proposal was made by Mr. Garstin in paragraph 6 of his letter, dated 19th December last, No. 582.

ENCLOSURE No. 1.

From W. FREER, Esq., Deputy Collector, Salt Department, to J. G. HORSFALL, Esq., Acting Collector of South Arcot, dated Porto-Novo, 27th January 1877, No. 20.

WITH reference to your order, No. 267, of the 20th December last, on the Board's Proceedings, No. 11,074, of the 15th idem, communicating the Government Proceedings, No. 1,841, of the 29th of the preceding month, on Dr. Ratton's report on the result of the salt manufacture on the 16-cawny plot at Manambady in last season, I have the honor to refer you to my report, No. 141, of the 16th June last, in which I brought to your notice the state in which I found the pans when I returned from Merkanam on the 22nd May last. Had I been informed of the departure of Dr. Ratton either by himself or by the Superintendent or by the Assistant of the latter, I should have taken effectual measures for the conduct of the experiment during the first-named officer's absence. Both the Superintendent and his Assistant were punished by fine.

2. Dr. Ratton states in the 17th paragraph of his report that when he returned to Porto-Novo on the 7th of June, he found the outer condensers dry, the inner condensers nearly so, and all works suspended; in the 18th paragraph that as far as manufacture was concerned he had now to begin work all over again to fill the condensers, condense the brine, and prepare salt-beds for its reception; and in the 19th paragraph that it took him about a fortnight from the 9th June to get the saline into working order. I am sorry I am unable to admit as much. As reported in my letter, No. 234, of the 9th ultimo, there was a fall of 1.5875 inch of rain (and promise of more rain) from the 27th of May to the 3rd of June, dissolving all the salt in the beds and reducing the density of the brine in the condenser (which had already been filled by baling) so much so that I thought it advisable to close each condenser (that the brine in each might condense) before I left on the evening of the 5th of June for Cuddalore to consult with the Collector about working the pans any longer that season. I was unavoidably detained a day longer than I intended to remain away from Manambady in inspecting the several stations of the Gundalam Division on my way back. When I returned on the evening of the 8th June I found a great reduction in the quantity

of brine in the condenser without a corresponding increase in its strength, although salt had begun to form in the beds by the powerful action of the sun during those three days. Had then brine which I left in the condensers condensed in the ordinary course, Dr. Ratton would have found, in accordance with the French salines, more than sufficient brine in them to work with without a single hour's interruption, or had the brine in the condenser disappeared only circumferentially it would have percolated into the salt-beds, which are on a much lower level, and, according to Dr. Ratton's theory (paragraph 21) increased the crop of salt that was forming in them; but as this economical result did not follow it appeared to me that the brine leaked vertically through the untamped condensers until it reached its level and then spread circumferentially into the channel surrounding the pans. Be this as it may, why did Dr. Ratton wait till the 9th June, losing two more days, in which time the saline must have deteriorated further. Immediate action was necessary as according to his own showing in paragraph 21, and the Superintendent told him he had orders from me to supply him with whatever he required during my absence. Matters were left as Dr. Ratton found them until my return from Cuddalore on the evening of the 8th June when there was still some brine in the inner row of condensers to commence work with and salt was forming in the beds. I set to work without delay with the ten balers I could collect on the 9th and twenty-nine on the 10th and the full complement of thirty-two from the 11th of June. The brine in the inner row of condensers was utilized and the baling with two picottas at condenser No. 16 kept up till the 14th;

Vide my diary for the week ending 17th June 1876.

on the 15th there was brine sufficient for only one picotta, and on the 16th the full supply of brine came up in its regular course to condenser No. 16 when the two picottas were put in hand again as usual. The time thus taken up was seven days and not a fortnight as alleged by Dr. Ratton, and there was only one day's interruption in the supply to the finishing condensers. Had Dr. Ratton resumed work on the 7th June that small interruption could have been

	MAUND
19th ...	120
20th ...	30
21st ...	146
22nd ...	120
Total...	416

on the 19th June the saline was in full working order and much salt forming in the beds to gather which a beginning was made on the 19th June, on and after which date the quantities as per margin was gathered within the fortnight.

3. Dr. Ratton lays great stress on the outturn of salt up to the 29th of April. This portion of the season was extraordinarily good, no rain having fallen from the 6th December last. Up to the former date Dr. Ratton was making salt in one cawny of beds with 10-cawny of condensers. If under such favorable circumstances Dr. Ratton could not turn out more than 15 garce of salt what could be expected when the scanty supply of saturated brine which was raised with great difficulty during the rains and reduced solar evaporation was frittered away over a larger area of salt-beds than the untamped condensers were able to supply adequately. Dr. Ratton laid out the salt-beds of Manambady after and not before excluding the portion which was rejected on the eastern side on account of its unsuitability, and allotted one-fourth of the remainder of salt-beds exclusive of ridges and pathways. This was in the proportion of 1 to 3 according as he believed the French salines are laid out, but after some experience obtained at Manambady he doubted the information supplied to him on this point. The system of irrigating the salt-beds with half of an inch of saturated brine at a time favored this reduction in the size of the condenser, and to avoid waste of brine the picottas at condenser No. 16 were at first worked only as the brine was required for irrigation. This was the state of affairs when I left on the 13th April for Merkanum, and of its soundness I had serious doubts as I told Dr. Ratton before I left. In my absence Dr. Ratton found it advisable to revert to the 2-inch irrigation system soundly advocated in his report of 1872 (and which has been tried with great success at

Vide paragraph 10 of Dr. Ratton's report.

Vide paragraph 7 of Dr. Ratton's report of the 15th November 1875, No. 76.

Of this fact I was not advised until after Dr. Ratton's return from Madras.

Vide paragraph 36 of Dr. Ratton's report, dated 15th November 1875, No. 76.

Merkanum) which the condensers even if tamped could not have supplied if the salt-beds had been extended to the fully allotted area, the proportion of salt-beds to tamped condenser required for 2-inch irrigations being as 1 is to 4 at the least. Consequently one-third of the area was not worked last season, and later in the season (that is after the 29th April) some of the salt-beds which had been worked were converted into condensers to supply the remaining beds with brine. If the result before the 29th of April was reasonably satisfactory the result obtained during the unfavorable weather which followed ought to consider so also, for it was nearly three times as much, the outturn of the whole season being 54 garce 96 maunds. Considering all the revisions which had to be made in experimenting on the best method of laying out and working salt-pans embodied in Dr. Ratton's report of the 15th November 1875, No. 76, a better result could not, in my opinion, be expected in last season; ground as favorably situated as it is in France must first be found before we can turn out salt as cheap. I think Dr. Ratton told me that it struck him the condenser of the French saline took up a very large area as compared with the salt-beds which were restricted in area to the quantity of salt that was required to be manufactured. Ground higher in level and restricted in area must of course involve a heavier expenditure to force to yield a larger outturn than it would if worked as naturally as it is in France.

4. With reference to the 20th paragraph of Dr. Ratton's report, I venture to observe that the pans were laid out under my personal supervision during the absence of that officer on account of sickness from the 3rd of February to the 27th of March, and it gratified me to find on his return that he was quite pleased with the manner in which the work had been performed during his absence. It was a very satisfactory result on my part to add that I had not devoted my personal attention to the pans from 8 to 11 noon each day, as had been made last season.

5. In paragraph 21 of his report Dr. Ratton remarks that, if the supply of brine is diminished or cut off for two days nearly, the whole of the outer condensers stand empty. This contrasts very unfavorably with the result obtained at the French saline where the brine is retained in the outer system of condensers for seven or eight days to attain a density of 8° Beaumé before it is allowed to pass into the inner row where it is retained some days longer until it attains a density of 18° Beaumé, but the condensers of the French saline are very economically arranged below the level of the sea (with sub-soil brine at 12° Beaumé) into which the sea-water enters by natural gravitation, whereas the condensers at Manambady are much above the level of the sea and have to be kept supplied with sea-water by constant bare much above the level of the the water thus baled had to be hurried on as fast as the level of thing at great expense; and old leakage, and when it reached the last of the inner row (No. 16) the condenser had to be used to be more than 12° Beaumé even under the rapid solar evaporation the density defect to some extent remedied by tamping the condensers may remedy this defect by tamping themselves in being tried this year. To supply the place of coolies after tamping themselves in

(Initialled) W. F.

Fide paragraph 33 of Dr. Ratton's report of 1872.

7. - In paragraphs 12 and 19 Dr. Ra

No. 632.

Salt.

Exd. T. D. Ryan.

REVENUE DEPARTMENT.

No. 1977.

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From *Board of Revenue*

Dated *23rd March* 1877.

FOR ORDERS.

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is not work in any
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play they M
20/4*

Conf. of (1877) Mysore

REVENUE.

THE BOARD OF REVENUE.

Dated Apr. 25th.

Recd.

G.O., 25th April 1877, No. 1,555.

APRIL.

Nos. 681-682.

*Experimental Manufacture of Salt at Porto-Novo
in South Africa.—Recording Proceedings of the
Board of Revenue submitting Salt. Deputy Col-
lector's explanation in regard to Dr. Patton's report
on —.*

*Dr. Ratton's report on
Experimental Manu-
facture of Salt at
FOR ORDERS.
Porto Novo in South
Arcot during past
Fasli.*

From

Mr. 15-5-5

Recorded

25-4-77 24-4-77

14th to 15th of December 1877

C. 16/4/77. R. 24.

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No. 1,311.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 23rd March 1877.

Read the following letter from J. G. HORSFALL, Esq., Acting Collector of South Arcot, to H. E. STOKES, Esq., Acting Secretary to the Board of Revenue, dated Cuddalore, 10th February 1877, No. 59:—

ADVERTING to the Board's Proceedings of the 15th December last, Miscellaneous No. 11,074, requesting me to submit any remarks I may have to offer on Dr. Ratton's report on the experimental manufacture of salt at Porto-Novo during the past fasli, I have the honor to submit a copy* of Mr. Freer's explanation in regard to Dr. Ratton's charge of neglect on the part of the Salt Department, and to state that I consider the explanation to be satisfactory.

2. I beg further to submit a translation of a letter† from His Excellency the Governor of Pondicherry regarding the wind-mill at the Government Gardens in that place. I do not consider that a machine of this kind is likely to be profitable.

3. In conclusion, I beg to recommend that Mr. Freer be allowed to work these pans another year departmentally. A similar proposal was made by Mr. Garstin in paragraph 6 of his letter, dated 19th December last, No. 582.

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From W. FREER, Esq., Deputy Collector, Salt Department, to J. G. HORSFALL, Esq., Acting Collector of South Arcot, dated Porto-Novo, 27th January 1877, No. 20.

With reference to your order, No. 267, of the 20th December last, on the Board's Proceedings, No. 11,074, of the 15th idem, communicating the Government Proceedings, No. 1,811, of the 29th of the preceding month, on Dr. Ratton's report on the result of the salt manufacture on the 16-cawny plot at Manambady in last season, I have the honor to refer you to my report, No. 141, of the 16th June last, in which I brought to your notice the state in which I found the pans when I returned from Merkanam on the 22nd May last. Had I been informed of the departure of Dr. Ratton either by himself or by the Superintendent or by the Assistant of the latter, I should have taken effectual measures for the conduct of the experiment during the first-named officer's absence. Both the Superintendent and his Assistant were punished by fine.

2. Dr. Ratton states in the 17th paragraph of his report that when he returned to Porto-Novo on the 7th of June, he found the outer condensers dry, the inner condensers nearly so, and all works suspended; in the 18th paragraph that as far as manufacture was concerned he had now to begin work all over again to fill the condensers, condense the brine, and prepare salt-beds for its reception; and in the 19th paragraph that it took him about a fortnight from the 9th June to get the saline into working order. I am sorry I am unable to admit as much. As reported in my letter, No. 234, of the 9th ultimo, there was a fall of 1.5875 inch of rain (and promise of more rain) from the 27th of May to the 3rd of June, dissolving all the salt in the beds and reducing the density of the brine in the condenser (which had already been filled by baling) so much so that I thought it advisable to close each condenser (that the brine in each might condense) before I left on the evening of the 5th of June for Cuddalore to consult with the Collector about working the pans any longer that season. I was unavoidably detained a day longer than I intended to remain

away from Manambady in inspecting the several stations of the Gundalam Division on my way back. When I returned on the evening of the 8th June I found a great reduction in the quantity of brine in the condenser without a corresponding increase in its strength, although salt had begun to form in the beds by the powerful action of the sun during those three days. Had then brine which I left in the condensers condensed in the ordinary course, Dr. Ratton would have found, in accordance with the French salines, more than sufficient brine in them to work with without a single hour's interruption, or had the brine in the condenser disappeared only circumferentially it would have percolated into the salt-beds, which are on a much lower level, and, according to Dr. Ratton's theory (paragraph 21), increased the crop of salt that was forming in them, but as this economical result did not follow it appeared to me that the brine leaked vertically through the untamped condensers until it reached its level and then spread circumferentially into the channel surrounding the pans. Be this as it may, why did Dr. Ratton wait till the 9th June, losing two more days, in which time the saline must have deteriorated further. Immediate action was necessary as according to his own showing in paragraph 21, and the Superintendent told him he had orders from me to supply him with whatever he required during my absence. Matters were left as Dr. Ratton found them until my return from Cuddalore on the evening of the 8th June when there was still some brine in the inner row of condensers to commence work with and salt was forming in the beds. I set to work without delay with the ten balers I could collect on the 9th and twenty-nine on the 10th and the full complement of thirty-two from the 11th of June. The brine in the inner row of condensers was utilized and the baling with two picottas at condenser No. 16 kept up till the 14th ;

Vide my diary for the week ending 17th June 1876.

of brine came up in its regular course to condenser No. 16 when the two picottas were put in hand again as usual. The time thus taken up was seven days and not a fortnight as alleged by Dr. Ratton, and there was only one day's interruption in the supply to the finishing condensers. Had Dr. Ratton resumed work on the 7th June that small interruption could have been

	MAUNDS.
19th ...	120
20th ...	80
21st ...	146
22nd ...	120
Total...	466

entirely avoided. When I left Manambady again on the 18th June the saline was in full working order and much salt forming in the beds to gather which a beginning was made on the 19th June, on and after which date the quantities as per margin was gathered within the fortnight.

3 Dr. Ratton lays great stress on the outturn of salt up to the 29th of April. This portion of the season was extraordinarily good, no rain having fallen from the 6th December last. Up to the former date Dr. Ratton was making salt in one cawny of beds with 10-cawny of condensers. If under such favorable circumstances Dr. Ratton could not turn out more than 15 garce of salt what could be expected when the scanty supply of saturated brine which was raised with great difficulty during the rains and reduced solar evaporation was frittered away over a larger area of salt-beds than the untamped condensers were able to supply adequately. Dr. Ratton laid out the salt-beds of Manambady after and not before excluding the portion which was rejected on the eastern

Vide paragraph 10 of Dr. Ratton's report.

Vide paragraph 7 of Dr. Ratton's report of the 15th November 1875, No. 76.

side on account of its unsuitability, and allotted one-fourth of the remainder of salt-beds exclusive of ridges and pathways. This was in the proportion of 1 to 3 according as he believed the French salines are laid out, but after some experience obtained at Manambady he doubted the information supplied to him on this point. The system of

Vide paragraph 36 of Dr. Ratton's report, dated 15th November 1875, No. 76.

irrigating the salt-beds with half of an inch of saturated brine at a time favored this reduction in the size of the condenser, and to avoid waste of brine the picottas at condenser No. 16 were at first worked only as the brine was required for irrigation. This was the state of affairs when I left

on the 13th April for Merkanum, and of its soundness I had serious doubts as I told Dr. Ratton before I left. In my absence Dr. Ratton found it advisable to revert to the 2-inch irrigation system soundly advocated in his report of 1872 (and

Of this fact I was not advised until after Dr. Ratton's return from Madras

which has been tried with great success at Merkanum) which the condensers even if tamped could not have supplied if the salt-beds had been extended to the fully allotted area, the proportion of salt-beds to tamped condenser required for 2-inch irrigations being as 1 is to 4 at the

Vide Dr. Ratton's report of November 1875, paragraph 253. But in paragraph 36 of his report of the 15th November 1875, No. 76, he says it should be 1 to 5.

least. Consequently one-third of the area was not worked last season, and later in the season (that is after the 29th April,) some of the salt-beds which had been worked were converted into condensers to supply the remaining beds with brine. If the result before the 29th of April was reasonable and satisfactory the result obtained during the unfavorable weather which followed ought to consider so

Vide paragraph 43 of Dr. Ratton's report of the 15th November 1875, No. 76.

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maunds. Considering all the revisions which had to be made in experimenting on the best method of laying out and working salt-pans embodied in Dr. Ratton's report of the 15th November 1875, No. 76, a better result could not, in my opinion, be expected in last season; ground as favorably situated as it is in France must first be found before we can turn out salt as cheap. I think Dr. Ratton told me that it struck him the condenser of the French saline took up a very large area as compared with the salt-beds which were restricted in area to the quantity of salt that was required to be manufactured. Ground higher in level and restricted in area must of course involve a heavier expenditure to force to yield a larger outturn than it would if worked as naturally as it is in France.

4. With reference to the 20th paragraph of Dr. Ratton's report, I venture to observe that the pans were laid out under my personal supervision during the absence of that officer on account of sickness from the 3rd of February to the 27th of March, and it gratified me to find on his return that he was quite pleased with the manner in which the work had been performed during his absence. It would be considered egotistic on my part to add that if I had not devoted my personal attention to the pans from 8 to till noon each day, Sundays not excepted, so much progress would not have been made last season.

5. In paragraph 21 of his report Dr. Ratton remarks that, if the supply of brine is diminished or cut off for two days nearly, the whole of the outer condensers stand empty. This contrasts very unfavorably with the result obtained at the French saline where the brine is retained in the outer

Paragraph 12 of Dr. Ratton's report of 4th February 1875.

system of condensers for seven or eight days to attain a density of 8° Beaumé before it is allowed to pass into the inner row where it is retained some days longer until it attains a density of 18° Beaumé, but the condensers of the French saline are very economically arranged below the level of the sea (with sub-soil brine at 12° Beaumé) into which the sea-water enters by natural gravitation, whereas the condensers at Manambady are much above the level of the sea and have to be kept supplied with sea-water by constant baling at great expense; and the water thus baled had to be hurried on as fast as the level of the condenser would admit to avoid leakage, and when it reached the last of the inner row (No. 16) the density was not found to be more than 12° Beaumé even under the rapid solar evaporation that favored us previous to the 29th April. Tamping the condensers may remedy this defect to some extent, and that remedy is being tried this year. To supply the place of coolies absenting themselves in a body on account of festival occasions a wind-pump might be used if there was wind enough at the time to work it.

Vide Board's Proceedings, No. 2,662, of the 25th October 1876.

From Alcock's Engineering Pocket Book I learn that until the velocity of the wind is about 13

feet to the second or a little less than nine miles per hour a wind-pump will not begin to turn and Mr. Grainger has shown that that velocity is not attainable; and when it is not so uniformly for some definite time each day manual labor can be entirely dispensed with as stated

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Vide Board's Proceedings, No. 1,517, of the 13th June 1876. by Major Montgomerie and as manual labor is not available at the shortest notice the full number of balers will have to be kept up. The want of sufficient wind-power at all times accounts probably for my never having seen the wind-pump in the Governor's garden at Pondicherry worked during the past six years of my residence in this district, although I have passed three or four days in each month in that town and have invariably found the gardeners use the picotta. It is worthy of remark that there are no wind-pumps in the Botanical Gardens farther west. A steam-pump of suitable size would suit our purpose best, but the cost would have to be considered. In the meantime one or more tampons spoken of so highly by Dr. Ratton might be tried.

6. In the 22nd paragraph of his report Dr. Ratton says, "we required fifteen picottas to keep the saline going. Fifteen picottas were accordingly erected and for sometime worked, but one of them giving away we continued with fourteen with difficulty the rest of the season." In his private note to me of the 31st March last after the fifteen picottas had been removed to condenser No. 16 Dr. Ratton says, "at half an inch a day rate of evaporation fifteen picottas are required for twelve cawnies; we have not yet twelve cawnies irrigated, so fourteen, perhaps less, might do, as the half inch rate scarcely exists at present. I do not think we could do with less than twelve as leakage is not included." A simple machine like a picotta could be rigged up in a few days, and if Dr. Ratton wanted it he had only to ask for it and it would have been supplied at once, but from his private note it would be seen he did not require it. I did not see the necessity for it during my personal supervision of the work till noon each day. During my absence for Manambady the baling was neglected and what was required was a closer supervision of the balers and not an addition of picottas to increase the cost. I am now working with only fourteen picottas, have ample supply of brine, and shall insist upon the same being kept up during my absence. I think that too much attention cannot be paid to the fact that as at the French saline so at the Manambady pans the brine should be regulated through the condenser so that the density may rise at least to 13° Beaumé (the point at which it loses its sulphate of calcium) when it reaches condenser No. 16 and before it is baled into the finishing condensers. The tamping that the condensers are getting this year will remedy this, if not altogether at least to some extent, and the remainder must be remedied by a reduction in the number of salt-beds, but if there be any other remedy I should like to be instructed of the same.

I do not see the utility of baling more water than can be condensed in this manner.
 (Initialled) W. F.
Vide paragraph 33 of Dr. Ratton's report of 1872.

7. In paragraphs 12 and 19 Dr. Ratton complains of the salt-beds getting soft. This appears to me to be owing to the size of the beds, viz., 40 x 20 yards. To gather salt from such sized beds with the wooden rake, or by the hand in cakes, without treading them to softness is impossible. In the Merkanam Division where this latter mode of gathering the salt has been in vogue from time immemorial (and salt has been gathered in the same manner from the experiment at pans), the beds are, owing to the loamy nature of the soil, as soft as possible. Here the salt is allowed to accrete for more than a month before it is gathered, otherwise it would be expensive to gather it in handfulls. In the meantime a heavy shower, which often comes down after April, causes much loss, as the brine lying over the salt is not of sufficient depth to protect it. If the large sized salt-beds are to be maintained the salt must be allowed to crystalize from a suitable depth, say six inches, of saturated brine to protect it from the vicissitudes of the weather and gathered once a month in harmonious modification of the system pursued in France, or the beds should be reduced in width to admit of the salt being gathered once a week, as it crops up under shallower irrigation of brine, with wooden rakes so that the gatherers may not enter the beds and tread them to softness. I prefer the latter method and this can be attained by reducing the width of the salt-beds to 15 feet. The salt can then be gathered by the laborers standing on the pathways on both sides of the beds and if from any

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 other cause the beds become soft they will, I think, regain their stiffness by being exposed two or three days to the action of the sun. I have reduced the width of the salt-beds this year.

(True Copy.)

(Signed) P. VURDA CHARRY,
 Deputy-Collector,
 for Acting Collector.

ENCLOSURE No. 2.

From His Excellency the Governor of Pondicherry, to the Collector of South Arcot, dated Pondicherry, 19th January 1877, No. 10.

In reply to your communication of date the 21st December last, No. 255, I have the honor to inform you that the pump in the Government House garden worked by a wind-mill lifts on an average 1,080 litres of water an hour, and the height to which it lifts it is four metres.

2. The body of the pump measures 60 centimetres in height by 14 centimetres in diameter, and the length of the piston is 0 m. 20 cc.

(True Translation.)

(Signed) J. G. HORSEFALL,
 Acting Collector.

SUBMITTED for the information of Government with reference to G.O., dated 29th November 1876, No. 1,841.

2. Mr. Freer's explanation appears satisfactory, as far as can be judged from his lengthy communication; he should be directed to condense his reports in future. The Board have already authorized the working of the Manambady pans departmentally—*vide* Proceedings, dated 13th January 1877, No. 600.

3. The District Engineer should be requested to examine and report upon the wind-mill at Pondicherry. The lift appears to be about 13 feet and the discharge is stated to be about 237 gallons "an hour", which is possibly a mistake for "minute."

(True Copy and Extract.)

Calcutta
 Sub-Secretary.

To the Secretary to Government, Revenue Department.
 " Collector of South Arcot.

Encl. W. J. Lewis.

Pro 1877. Sept
Nov 1977
BOARD of REVENUE,
MADRAS.

PROCEEDINGS, 23RD MARCH 1877, No. 1,311.

Dec 29/1877.

Encl.

Encl. 3/1 March

MARCH.
No. 1,311.

Experimental Manufacture of Salt — at
Porto Novo in South Arcot District during past
year. — Submitting to Government Salt Deputy
Collector's explanation in regard to Dr. Raton's
report on, and stating that District Engineer
should be requested to examine and report upon
wind-mills at Pondicherry.

for Order

14/4/77

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