

(1) Number of pages 36
(2) Date of repair 23 - 11-42
(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	1533	Press
129 - 130		Mis.
Dated	5-6	1865.

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*Proceedings of the Madras Government, Public Works Department,
5th June 1865.*

No. 129. Read the following Proceedings of the Madras Government in the Revenue Department :—

Passing orders on Mr. Clarke's Report on his inspection of the salt works, in the Kistna District. } (Here enter 29th May 1865, No. 1,123.)

N. 130. ORDER THEREON, 5th June 1865, No. 1,533.

CIVIL WORKS, No. 21.

Communicated to the Superintending Engineer 2nd Division who will, in communication with the Collector, prepare and submit estimates for the works referred to in paragraphs 4, 8, and 9, and give his attention to the subject of paragraph 10.

(True Extract.)

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

To the Superintending Engineer, 2nd Division.

Erd. S. T. Augustin.

From T. CLARKE, Esq., Member of the Board of Revenue;

To J. D. SIM, Esq., Secretary to Government, R. D.

SIR,

1. I have the honor to submit my Report on my inspection of the salt works of the Kistna District.

2. This district contains one division where spontaneous salt is collected, and three where salt is manufactured. The first called Buntumilly is ninety-two miles south of Karapa, the salt station of the Godavery district. It would be more appropriate to name this station Pandraka; for Buntumilly is three miles off, and is now no longer connected with the production of salt of with the salt works, further than that the Cutcherry is there. The other three succeed at the distances noted in the margin.

Manganapudy, 12 miles south of Buntumilly.
Nizampatam, 43 do. do. of Manganapudy.
Chinna Ganjam, 33 do. do. of Nizampatam, and 8 miles
north of Camapurty, the most northern station of
Nellore.

3. I have already reported on the Chinna Ganjam works. As I could not again inspect them and return to Masulipatam by the date of the Coasting Steamer's departure from that Port, I did not deem it necessary to re-visit that station.

4. The Buntumilly station consists of two divisions at which there are thirteen platforms of the regular stereotyped form of Government Salt Shops—mounds of earth raised on swamps without a road or an approach of any kind, without any trees or protection against the raging heat of the sun or the pitiless pelting of the storm, and without any material defences round the platforms.

5. The platforms are reached by carts over the high ground or ridges of the swamps on which they are placed; even in the rains it is not difficult for carts to travel to them. I cannot therefore see why roads should not be made on these ridges to all the platforms, and kept in good working order. At present the road-way is intercepted by paddy fields.

6. The spontaneous salt is collected from undulations on large plains of saline earth extending over several miles. These indentations are flooded at the spring-tides by water from the Cottairoo creek near Pedda Gollapollem. Salt swamps of many miles in length are thus formed.

7. Ridges of mud varying from two to six feet in height are raised across the swamps, dividing them into large beds of about twenty to thirty acres in area in which sea water is retained for about four months. When the first floods have subsided, fresh supplies of water are let in at each succeeding spring tide, and whenever the sea-water is driven into the swamps by the high winds which prevail in the salt making season.

8. The water is retained in the beds to a depth from one foot to two inches. If the floods have been sufficient, about the fourth month the swamp is found covered with a crust of salt of from quarter to one inch thick.

9. The salt thus formed is very fine; beautiful crystals of all shapes and forms are met with. I beg leave to send a specimen which I picked up in the swamps of the Pandraka range.

10. There are thirty-one beds in the Pandraka and Yendapully swamps. Sometimes the floods are insufficient to cover all the beds; but when all have been well flooded, and a good supply of salt is produced, as much as 4,000 Garce are collected in the season. This year only 2,00,016 Indian Maunds or 1,666 Garce had been collected up to the date of my visit. The Deputy Collector was in hopes that 50,000 Maunds or 416 Garce more would be collected from beds still under water.

11. The floods have been very scanty this year; but in other respects it was a very favorable season for the production of salt; a very fine large-grained white salt had been gathered.

12. When the salt is fully formed it is collected by coolies employed for the purpose, who bring it from the swamps in baskets and place it on the platforms, and when sufficiently dry it is heaped.

13. When I visited the station, the salt in the Pandraka swamps was said to have been all collected, and the work of the season to be concluded, except in a few beds under water. The swamps however were still covered with large quantities of an inferior kind of salt which had been rejected as unfit for storage, and also with some good and very fine salt. The good salt should, if possible, have been collected; if it was impossible to gather it, it should, with the inferior salt, have all been destroyed; for, if not appropriated by Government, this salt will certainly be turned to account by the contraband dealer, and by the villagers.

14. A heavy shower of rain too would cause salt to crop up again I should fear.

15. After the crop of the season has been gathered, it should be the duty of the Superintendent from time to time to destroy all the salt that appears on these swamps, which can be easily done by employing coolies with rakes to rake it into the mud.

16. The omission to destroy the rejected salt on the present occasion does not reflect on the Deputy Collector who had issued strict injunctions to the Superintendent on the subject. Since my leaving Pandraka I have heard that a large body of people came armed to the place with sticks, and missiles to gather the salt, and the Superintendent in resisting them has been ill-treated.

17. The accompanying sketch will give some idea of the swamps, and the number and position of the existing platforms. Each of the swamps bears a name derived either from the villages which skirt it, or some peculiar characteristic of the swamp.

18. I fear it is impossible effectually to guard these swamps with the small number of guards assigned. The swamps are extensive, being both broad and long, the ground is undulating and dark; and there are villages and high sand mounds in the neighbourhood. The guards patrol the swamps, and their beats are long. A man or set of men have only in a dark night to wait their opportunity when the guard has left a particular spot, to enter the swamp and carry off as much salt as they like.

19. I do not believe that under the old regime the heaps in the platforms were ever much pillaged. The thefts took place from the beds and unstored heaps. Salt when stored was openly sold, and portion of the sale proceeds was not brought to account; it was in this way frauds were committed. It did not answer the purpose of the servants to raise a suspicion against themselves by breaking into the heaps.

20. The heaps have, since the change of system, been found not unfrequently tampered with. These petty thefts indicate a want of concert and union between the two departments of the Police and Salt. I hope too they indicate that the more extensive and wholesale robberies of the pans are being put a stop to.

21. The platforms now need to be guarded by good natural defences. The present active and intelligent Deputy Collector has obtained sanction for surrounding all the platforms under his charge, with a good raised bank covered with a strong prickly-pear hedge, and with strong gates covered with spikes and provided with locks.

22. This proposal, which has been carried out at the other stations, is an admirable one; but I would strongly recommend that the number of platforms at Pandraka be reduced to eight, which number will prove amply sufficient for the requirements of the station. None of the platforms will be further from the extreme end of the swamp that supplies them with salt than half a mile.

23. The platforms that I would retain are those marked with a red cross in the plan. On the Cotampurrah platform I would recommend that the Cutcherry be built.

24. The Cutcherry is now at Buntumilly, which was the proper place for it when salt was manufactured at that station; but now that the manufacture is closed, and all our salt operations are carried on at a distance of three miles, Buntumilly is no longer a fit place for the Cutcherry.

25. The present Cutcherry is a fine building well planned large, and well and substantially built. It resembles the old Taluk Cutcherries with a court yard in the centre, and large spacious verandahs round the walls, with good rooms at three of the four corners. The building affords ample room for the Cutcherry and the Police establishment. It was built when materials were cheaper than they are now, and with the aid of the salt coolies, only cost in erection about 800 Rupees.

26. The platform I have indicated as that on which I would build the Cutcherry is in a central position as regards this division. It is not far from a village, and is at no great distance from any of the platforms of the Yendapully range.

27. The Police station should also be removed from Buntumilly to Pandraka. The Deputy Superintendent and Head Constable might have small buildings erected for them on one of the platforms of the Yendapully range.

28. If the platforms are not reduced, it will be necessary to strengthen the permanent guard now employed on the platforms.

29. The salt at this station is measured into store, and sold by boxes called "Parahs," the contents of which are equal to about $1\frac{1}{2}$ Indian Maund. On the issue of the Order of Government of 12th July 1855, increasing the contents of the measured garce from 400 to 424 mercals, the additional 6 per cent. has been measured by a small measure called a "Puddy." I found that 6 Indian Maunds by weight, as given by Colonel Orr's machine of the swamp salt, filled the box four times.

30. The great discrepancies discovered in the new machines sent from Madras led the Collector to postpone their introduction till my arrival. I would advise that they be not taken into use till the Board have submitted the Report called for by Government in regard to them.

31. The swamp salt is a very heavy salt; and by weightment only 352 mercals on an average were found to make a garce.

32. I saw some of the swamp salt being stored at Pandraka. The Assistant Superintendent of the division was attending the work. The salt as it is brought from the swamp by different parties of coolies is placed in different heaps. The owners of these heaps employ men according to their ability to help to measure in the salt. At some heaps there were two boxes in use; at others there was only one. I saw six different parties measuring in the salt. A Peon or Vettyan was placed over each party, and a measurer assigned to each. The measurer struck the boxes and called out the number measured. When he had counted twenty boxes, the Peon reported the fact to the Assistant Superintendent who entered it in a book. The Peon kept a tally with a bit of string of each twenty boxes measured in. There appeared to me to be a want of method and order in this mode of receiving salt, and much room for fraud. It is impossible the Assistant Superintendent could exercise any real supervision, moving about as he was from one party to another.

33. The weighing machines when made effective, if placed in a line on the ground on which the storing is to take place and 6 Indian Maunds weighed at a time on each, might be more easily and effectually superintended by one man, and the work of receiving and storing the salt got through as rapidly as it is at present.

34. There are but two Assistant Superintendents and one Superintendent allowed for the thirteen platforms and thirty-one beds of the seven swamps. I think it desirable that another Assistant Superintendent should be added to the staff of servants. It is impossible that one man can efficiently overlook the gathering of the salt over all the Pandraka division swamps, even when assisted by the Superintendent.

35. The number of Vettyans too allowed to the Pandraka station is insufficient. There should at least be twelve instead of eight men. The Vettyans are employed in letting in the water and closing the banks when the tide turns, and without a sufficient number of men for this purpose the work cannot be properly executed, and the opportunity of filling the beds once lost cannot be easily, if ever, regained.

36. The whole of the swamp salt collected last year (Fasli 1272), only 1,78,504 Indian Maunds, was bought up at a very early date. The platforms were all empty by the 30th January 1863. The swamp salt in the previous year (Fasli 1271) was exhausted before the season of the in-gathering of Fasli 1272 commenced. The manufacturing season of Fasli 1271 was also a failure.

37. The manufacture of salt at Buntumilly has been closed with a view of setting free a larger amount of labor for collecting spontaneous salt, and because it was hoped a better salt would be made at Munganapudy.

38. The manufactured salt in store at Buntumilly is wretched stuff. There are still 24,144 Indian Maunds on one platform unsold. The inhabitants in the southern part of the Godavery District purchase largely of it. They are said to prefer it to the spontaneous salt, though so greatly inferior, strange as this may appear. This preference is said to arise from an idea that they obtain less of the swamp salt for their money than the manufactured salt, which, from its small crystals, packs better and in larger quantities into the Parah measure than the large-grained swamp salt, and because of the mistaken prejudice that the swamp salt is unwholesome.

39. Now that the Buntumilly manufacture is closed, it becomes more necessary to open a station somewhere in the south of the Godavery District; for the yield of the swamp salt is very precarious, and often fails altogether. A heavy fall of rain in April is fatal to it. Should the crop fail, or there be an unusual run on the store, the Godavery people will have to proceed twelve miles further south to Munganapudy over a swampy tract in order to obtain this necessary of life.

40. Buntumilly is a favorite store with the Brinjaries. The swamp salt is very good and bears carriage well.

41. The sales at the Buntumilly station have been increasing from 2,37,361 Indian Maunds at the commencement of the decade, to 3,24,751 Indian Maunds in Fasli 1270. There has been a falling off in the foreign sales of late years, owing to inability of the store to supply the demand from the failure of the swamp salt.

42. It is surprising so much salt is disposed of considering the almost entire absence of roads throughout the district. Good roads are found in Hyderabad to the very confines of our territory, and some few miles beyond it in one place; but there is little to be found in the district that can be called a road.

43. It is a strange sight to see towards the close of the nineteenth century, and after we have had possession of the country for more than half a century, a large portion of the traffic of the district being carried by coolies.

44. There are no doubt great difficulties to contend with in making roads through the delta. Good material cannot be got in it, and labor is not easily procurable. Material is found in the upper parts of the district, but its carriage would greatly raise the cost of road making in the delta. Still, the large revenue derived from the district demands some outlay on the communications, to enable the people to carry their produce to market, and I am sure it is sound policy to open up the country, simply looking to the profitable return from doing so. Bridges also might with advantage be multiplied over the canals and creeks on lines leading to the coast, and connecting one canal with another. A good line of bridged-road, or a canal, should also be carried along the coast.

45. It is a curious fact that while the demand for coolies is so great that the Public Works are often impeded for want of them; men and women are carried away from the northern Districts of Ganjam, Vizagapatam and the Godavery for employment in the Mauritius and Ceylon.

46. Something perhaps might be done to make known the wants of the Home market, and to induce coolies to remove to it rather than carry their labor to distant and unknown countries. As long as our labor is transported to supply foreign markets, not only Home labor but Home produce must continue to rise in price.

47. I believe legitimate means might be taken for more equally distributing the labor of the country.

48. It will be seen from the Statement attached to paragraph 136 of this Report that the Home sales of salt at Buntumilly have been gradually increasing till they attained the very high amount of 1,32,394 Indian Maunds in Fasli 1270. In the next year Fasli 1271 they again fell, probably from the rise in price and from the large stock of salt in the hands of the merchants. The manufacture of Fasli 1271 was a complete failure owing to the state of the season. Instead of the ditto of 6,00,000 of Indian Maunds, only about 20,000 Indian Maunds were produced. By January the whole of the salt in store was exhausted, and the people were compelled to go to Nizampatam, fifty-four miles south of Buntumilly, for their salt. These failures could not have been foreseen or prevented; but they show how necessary it is that our stores should not be reduced too low.

49. The closing of the Mogultoor stores have no doubt affected the inland sales of Buntumilly and caused the increase observable in them. Last year the inland sales fell off owing to the failure of the stock referred to above.

50. In the margin will be found the quantities of salt purchased at Buntumilly during the last six years for consumption in the Godavery district.

Fasli.	In. Mds.
1267	8,023
1268	2,637
1269	9,376
1270	16,068
1271	54,831
1272	32,992

51. The Munganapudy stores were opened at the close of the last Fasli, and no doubt the sales in this place have to a slight degree affected the Buntumilly Home sales of the present year.

52. Mr. Majoribanks, the Deputy Collector, has pointed out that a bridge is much wanted on the Ellore high level channel near Perekeed. The Lombardies who come to Buntumilly, via Noozed and Gollapilly, experience much difficulty in crossing their salt over this channel. No time should be lost in carrying into execution this recommendation. It is not fair to these enterprising merchants that they should be exposed to detention and loss from the want of a bridge which might probably be erected at a less sum than is realized from them in one year. The road should also be extended from Argole to Perekeed, and eventually carried on to Noozed.

53. There is said to be a great dearth of water at Buntumilly and at the Pandraka station. The village tank at Buntumilly should be deepened and enlarged. The Collector has sanctioned the sinking of two pot-wells at Pandraka and Yendapully. Their number, if possible, should be increased if a tank cannot be constructed.

54. It is proposed to connect Buntumilly with Bezvara by a canal, by taking off a branch from the Bezvara and Masulipatam canal at Pannuroo sixteen miles from Masulipatam; and steps are being taken for carrying out this design. The platforms at Pandraka should be connected with Buntumilly with good roads, the best that can be made, or by a canal, so that the salt may be taken with facility to Buntumilly.

55. If possible the road from Argole, via Gudivara, should be completed to Buntumilly. It now stops short at a distance of three and a half miles. The canals fail for three months in the year, and this in the busiest time, when the Home sales are largest. It is desirable that the people should then have roads they can travel on with carts. They should not be necessitated to have recourse to the expensive method of carrying their loads by cavady coolies. If the canal banks were well raised, and good roads formed on them, and bridges built across the canals at moderate distances, the convenience of the people would be greatly advanced. Fair material might, I should think, be brought down by boats when the canals are full and stored on the banks.

56. At about six miles to the north of Bunder is the Munganapudy station. It lies on a long, narrow swamp, divided from the sea by a bank of sand on the eastern side, and from a low jungle by the road from Nursapur to Bunder—if an unformed track can be termed road.

57. The Munganapudy station has been admirably laid out. The Deputy Collector deserves very great credit for the skill and neatness with which it has been constructed.

58. This station is a grand success; and will, I doubt not, prove highly remunerative and important. The sales this year are likely to rise to above a lac of Indian Maunds.

59. The salt made here is excellent. It is very white; of good, large, substantial crystals. The salt is made from water drawn from wells. There is no creek or Lagoon nearer than four miles. The supply of water from the wells is so precarious that it will be desirable if it can be done, to make a cutting from the creek near Caramode about four miles to the south and bring water from thence, or from the tidal swamp near Peddapettam about the same distance to the north of the works. The water should be carried round the works in a good, deep and broad moat, which would serve as a means of defending the works from depredations, as well as supply water to the manufacturers.

60. Good paths have been made down the works connecting one part with another and enabling the officers to visit any part of them with ease.

61. There are four platforms attached to this station, and this year the quantity of salt manufactured amounted to 1,62,152 Indian Maunds.

62. The three first platforms will hold 3,60,000 Maunds, and at the time of my visit 1,39,143 Indian Maunds were stored on them, as detailed in the margin. All the salt is of this year's production. The fourth platform is a small one, raised to receive the spontaneous salt collected on a swamp at the end of the work. The sea generally makes a breach at this part of the coast, and floods the swamp, which being very low the water remains and is evaporated and a fine salt is produced.

63. The sea also breaks into the works higher up, and floods the beds. The salt produced after the evaporation of these floods is very superior.

64. Three out of the four platforms are surrounded by a good ditch and hedge of prickly-pear. The soil of the fourth is such that nothing will grow on it. This platform might be protected by a palisade made of palmyra beams, which are abundant and cheap in the vicinity.

65. The salt when taken out of the pans is exposed on the ridges. By insisting on the scraping taking place early in the day and concluding by noon, the whole of the salt might be removed to the platforms where it would be easily guarded by the Police. Lying out as it now does it offers great temptations, which there is nothing to prevent the people availing themselves of but a few Police Constables. With a good ditch and hedge round the works, and the salt placed within the enclosure of the platform, the temptation to and means of peculation will be reduced to a minimum.

66. The public road to Nursapur touches the ridges on which the salt is placed out to dry.

67. There is a small low jungle between the Reddypollem village near No. 3 platform and the works, which should be removed. It only affords facilities for concealment.

68. It is necessary that a good approach should be made to the first and second platforms; the access to the first is over a piece of heavy sand; and that to the second, over swampy ground which cannot be crossed in the wet weather.

69. Near the first platform is a small piece of land covered with low palmyra trees, which should be cut down and the ground laid down with grass.

70. The salt is received and sold at Nizampatam by measurement. The measure used is the mercal.

71. I examined the weighing machines at Munganapudy. Below will be found the result of my experiments. Not one of the machines though set at one maund was in counterpoise with 3,200 Rupees, the declared equivalent of the Indian Maund. There were no Indian Maund weights by which to test the machines. The variations in the machines when tested with Rupees are very remarkable and striking. No two weighments on the same machine give the same results, though the variations are trifling when care is taken that all the baskets placed on the table are equally filled.

EXPERIMENTS made with the salt weighing machine at Munganapudy on the 4th May 1864.

Number of Machine.	Quantity of salt weighed.	Quantity found by measurement with- out 6 per cent. allowance.		Equivalent of one Garce.	
		Mer.	Mea.	Mer.	Mea.
No. 155	6	20	6½	416	2
" 156	6	19	5½	393	6
" 157	6	20	5½	414	3
" 158	6	19	6½	359	5
" 159	6	20	1½	404	3
5th May 1864.					
No. 158	6	18	7	377	4
" 158	6	19	1	382	4
" 158	6	18	7½	378	1
With Rupees.					
4th May 1864.					
No. 155	1	Rupees...3,320			
" 156	1	" 4,000			
" 157	1	" 3,080			
" 158	1	" 3,320			
" 159	1	" 3,400			

EXPERIMENTS made with Mercals on the morning of 5th May 1864.

Men employed to measure.	Quantity measured with force.	Quantity measured as prescribed at Government sales.		Percentage of difference.
		Mer.	Mea.	
1	Mercals.			
1	20	20	7	4½
1	20	21	5	8½
1	20	21	1	5½
On the afternoon of 5th May 1864.				
Men employed to measure.	Quantity measured.	Thesamere-measured		Per centage of difference.
		Mer.	Mea.	
1	Mercals.			
1	20	20	0	0
1	20	19	7	½
1	20	19	5½	1½

Division Establishment.

	RS.	A.	P.
1 Superintendent	50	0	0
1 Clerk	20	0	0
1 Shroff	10	0	0
2 Measurers at 6 Rupees each	12	0	0
2 Peons at 6 Rupees each	12	0	0
1 Vettyan	5	0	0
8	109	0	0

Station Establishment.

	RS.	A.	P.
1 Assistant Superintendent	15	0	0
4 Vettyans at 5 Rupees each	20	0	0
5	35	0	0

Preventive Establishment

	RS.	A.	P.
1 Head Constable	20	0	0
1 Deputy do.	10	8	0
10 Constables	61	0	0
12	91	8	0
25	235	8	0

Division Establishment.

	RS.	A.	P.
1 Superintendent	85	0	0
1 Clerk	20	0	0
2 do. at 15 Rupees each	30	0	0
1 Shroff	15	0	0
6 Measurers at 6 Rupees each	36	0	0
5 Peons at 6 Rupees each	30	0	0
2 Vettyans at 5 Rupees each	10	0	0
18	226	0	0

Station Establishment.

	RS.	A.	P.
1 Assistant Superintendent	15	0	0
3 Vettyans at 5 Rupees each	15	0	0
4	30	0	0

Second Station.

	RS.	A.	P.
1 Assistant Superintendent	20	0	0
3 Vettyans at 5 Rupees each	15	0	0
4	35	0	0

Preventive Establishment.

	RS.	A.	P.
1 Head Constable	20	0	0
2 Deputy do.	21	0	0
15 Constables	91	0	0
18	132	0	0
44	423	0	0

forms is large, about half a mile long and quarter broad. The salt is very superior if it can be gathered before the strong south winds set in; after that it becomes very black from the clouds of dust that blow over it.

77. One hundred and seventy-seven Garce of salt have been collected this year and stored at Cona, of which quantity 40 Garce have already been sold to Lombardies. The remainder is still on hand guarded by a party of temporary Constables and a Peon and Vettyan from the Munganapudy and Buntumilly divisions, from which they can ill be spared. When the salt is collected, some of the servants from Munganapudy and Buntumilly are detached from those stations.

78. I think the Munganapudy establishment should be raised to the strength of that at the Ganjam station, and a guard of a Deputy and three Constables should be allowed for the platform at Cona till the salt stored there is sold.

79. If the Munganapudy establishment be increased to the strength recommended, the works there may be thoroughly and efficiently superintended; and in case salt forms at Cona, a portion of the Munganapudy establishment could be easily and safely deputed to superintend the collection and sale of the salt at the former place.

72. The road from Bunder to Munganapudy is very heavy and almost impassable for carriage in parts owing to sand. This should be remedied if possible, and a good road formed. It is from Munganapudy that Bunder and the neighbouring villages draw their supply of salt. The monopoly price is already high, and should not be unnecessarily increased by subjecting the consumer to a high price for carriage, which he must pay while the road is in its present condition. If a fair workable road cannot be formed from Munganapudy to Bunder a canal should be dug. The distance, is only five or six miles.

73. For so large a station as Munganapudy is likely to become, the establishment allowed it as detailed in the margin is wholly inadequate.

74. Munganapudy is not at all smaller in extent or importance than the Ganjam station in the district of that name, which has the establishment noted in the margin.

75. Near Masulipatam, about eight miles to the south of it, lies the swamp known as the Cona swamp. Here large quantities of salt usually form every year. The place is almost inaccessible in the wet season, and at the best it is no easy matter to reach it. It too might be made accessible by a canal.

76. If the salt formed at the Cona swamp be not collected and stored it is usually carried away by the illicit trader. It is difficult to guard the spot, and it would be very expensive to destroy the salt. The area on which the salt

80. The length of the present works at Munganapudy is two miles, and its average breadth quarter of a mile. Two lacs of Indian Maunds of salt are being manufactured there this year. The probable annual manufacture will vary from one to one and a half lac of Indian Maunds, and 10,000 Indian Maunds were lying out to dry at one time. One man cannot look after the production of so much salt. The Superintendent is much employed in selling salt and is obliged to go to Cona, when, in addition to the Assistant Superintendent on 15 Rupees, there remains only a Clerk on 20 Rupees to look after this important station.

81. The Nizampatam station is not so well laid out as that of Munganapudy. The pans are straggling, and much ground in the centre has been left vacant, while inferior land is taken up, at the extremities of the works.

82. The village of Nizampatam is built on a large Lagoon of about twelve miles in length, formed by two openings into the sea at about nine miles apart. Near the village there is a small island, at the southern end of which a creek runs for three miles parallel to the Lagoon. This creek forms the eastern boundary of the Nizampatam salt works. A narrow swamp lies to the westward of the creek, and is often flooded by it. To prevent the floods destroying the pans a bank was raised last year on the unoccupied portion of the swamp between the creek and salt works. The pans extend from almost the mouth of the creek to about two miles down it. A broader belt of ground is taken up with pans at the south near the mouth of the creek than at the north end of the works. Three platforms flank the pans; the fourth No. 1 is nearly surrounded with pans. It is proposed to abandon the pans to the south of No. 1. The platforms are situated at the distance from one another indicated in the margin.

From No. 1 Platform to No. 2,	740 yards.
" " 2 " " 3,	500 "
" " 3 " " 4,	832 "

83. The salt at Nizampatam is manufactured from water obtained from the creek, and from ponds sunk in the swamp. The number of beds supplied with water from the creek is about one-third of those supplied from the wells.

84. The salt made at Nizampatam is good. The crystals are large, hard and white. The salt obtained late in the season is liable to be discoloured from the dust driven into it by the winds which then prevail.

85. Near the northern extremity of the works a bridge crosses the creek, and a public road from the town runs through them. This road joins the line to Bapetla.

86. The bridge is too narrow to allow of carts passing over it; but it is much frequented by foot passengers coming and going from Bapetla and the intermediate villages, to and from Nizampatam.

87. This road should be closed to the public, and a good road formed about half a mile lower down, with a bridge large enough for carts to cross over. The road should start from the street at the south of the village near the present Salt Cutcherry, and should be carried up to the point where the present road meets the Bapetla line. This new road should be connected with each of the platforms by good approaches.

88. A deep and wide moat should be taken off the creek and carried round the pans in front of the platforms, and a good hedge planted on the outside of the moat. The number of platforms might be reduced to three, and the pans much more concentrated by new ones being opened on the ground now left waste.

89. The second or fourth platform might be given up. I should myself recommend the closing of the fourth platform and the abandonment of the greater part of the pans lying to the north of the public path at present traversing the works. A bridge might be built over the moat opposite the present one, and gates placed on the outside of the bridges.

90. A piece of ground should be cleared in front of each of the platforms for the bandies to halt at, and the brushwood and the low palmyra trees at the back of the platforms should be cleared away.

91. A canal has been cut from Bezvara to the Lagoon at about three miles from the village of Nizampatam by land, but seven by water. It is called the Nizampatam canal. This canal is nearly completed. When opened I doubt not it will greatly benefit the Port of Nizampatam, and stimulate the trade in salt between this place and Bezvara.

92. The salt is sold and stored by measurement at this as at the other stores; the common salt merca is used for this purpose.

93. The following Table gives the result of my examination of the weighing Machines sent to Nizampatam, and the contents of a heap of 1272 Fasli's storing, as found on weighing it out with four of Colonel Orr's weighing Machines.

EXPERIMENTS made with Salt Weighing Machines at Nizampatam with heap No 33 of Fasli 1272, 12th May 1864, containing 1,253 Indian Maunds.

Number of Machine.	Quantity of Salt weighed.	Quantity found by measurement without 6 per cent. allowance.		Equivalent of one Garce.	
	I. Mds.	Mer.	Mea.	Mer.	Mea.
No. 136	6	20	3 $\frac{1}{4}$	409	3
" 138	6	20	1	402	4
" 139	6	19	3 $\frac{1}{4}$	388	6
" 142	6	19	6 $\frac{1}{4}$	396	7
	With Rupees.				
No. 136	1	Rs. 3,450			
" 138	1	" 3,560			
" 139	1	" 3,700			
" 142	1	" 3,606			

94. The sales at this Cotar are not large at present. Last year, owing to the failure of salt at Buntumilly, there was an unusual run on it, which accounts for the great increase in the sales of Fasli 1272 over those of the preceding Fasli.

95. This year up to the 10th May the sales have amounted in the gross to 43,321 $\frac{1}{2}$ Indian maunds, and Rupees 64,712 $\frac{1}{2}$, as particularized in the margin.

	Quantity, I. Maunds	Amount, Rs.
Home Consumption	37,255 $\frac{1}{2}$	55,683 $\frac{1}{2}$
Other Districts	...	...
Foreign countries	6,066	8,829
Total ...	43,321 $\frac{1}{2}$	64,712 $\frac{1}{2}$

97. The exports of salt amounted last year to only the small quantity of 33 Garce; and this year no salt has been applied for for this purpose.

98. Unless a brisker trade springs up in a few years, the platform might be used solely for boats plying on the canal.

99. The cost of the exported salt to Government per garce is Rupees 20-5-6, as detailed in the Statement shown below; while we obtain from the exporter for the same quantity, Rupees 18,

Statement.

PARTICULARS of the cost to Government per garce and per maund of salt exported to Calcutta from Nizampatam.

Exported to Calcutta on private trade.			I. Mds. 3,960, or 33 Garces.	
Costs incurred by Government.			RS.	A. P.
<i>Exportation Charges.</i>				
Hire of conveyance from platforms to boats	RS.	A. P.	33	0 0
Boat hire	107	4 0		
Mats	0 9 0			
Baskets	1 5 0			
Weighing salt	6 3 0			
Carrying scales to platforms	0 11 0			
	8 12 0			
<i>Proportion of other charges.</i>			149	0 0
Kudivarum	268	2 0		
For covering heaps	14	11 6		
For destroying spontaneous salt	0	6 6		
Saderwarid	2	15 9		
Huzur charges after appointment of Deputy Collectors	53	2 0		
Establishment, permanent and temporary	88	1 8		
Police Guards	88	11 8		
Repairs	3	10 11		
Value of Monities	0 4 7			
Stacking grass	2 1 4			
	2 5 11		522	3 11
Total...			671	3 11
Cost per maund	0 2 8 $\frac{1}{2}$			
do. garce	20 5 6			

100. The Inland and Foreign sales at this station are not large; but I expect they will increase when the Nizampatam canal referred to above is opened.

101. Our sales of salt to Hyderabad should be much larger. We cannot have exhausted, if we have in any adequate degree indeed met, the demand for salt in that large dependency. Large portions of the country have not been tapped; nor can the bulk of the people obtain their salt from us. The population of Hyderabad is computed to be 10,666,080, which at 18 lbs. per head would consume 1,91,989,440 lbs., or 23,33,205 Indian Maunds. Taking the whole of the salt sold in this and the Nellore district for Hyderabad, the whole amount is only 5,65,173 Indian Maunds, or 4,65,05,664 lbs., which would give at the rate of 4 $\frac{1}{2}$ lbs. per head of the Hyderabad population.

102. I doubt not the sales would greatly increase and bring us in a much larger revenue, if we fostered and encouraged the trade by the legitimate and wise course of opening up good communications between Hyderabad and the salt pans and through the district.

103. The canal communication is by no means complete; the canals are closed during three months of the year. But it is necessary to the full development of these water-ways that lines of communication should connect them with the parts of the country they cannot and do not reach.

104. It is also necessary that the number of bridges should be greatly multiplied, and where bridges cannot be constructed that good ferry boats should be supplied.

105. The want of labor and the great natural difficulties which have to be contended with in the opening up this district appear to have led to very little being done.

106. There is hardly a road in the district, and very few bridges. The usual method of crossing rivers is on p.d.nyra stocks hollowed out, or basket boats; both offering but poor means of transport, and both very dangerous.

107. There are four streams to cross between Nizampatam and Masulipatam besides the river Kistna. All these streams might easily be bridged and a fair-weather road might be marked out and kept in order. At present nothing marks the line of communication but ill-defined tracks. At the Kistna, wooden flat boats should be kept, and the tolls rented out, as is usual where such boats now exist.

108. A road has been commenced with from Guntoor to Nizampatam; but it stops short at Ponnor fifteen miles distant from Nizampatam. It should be completed to the coast.

109. Until the coast canal is completed from the south to Nizampatam, as was once contemplated, the road from Chandavole to Bapetla and thence to Chinna Ganjam should be put in order and completed with bridges, &c. Also a road from Chandavole northward to the Kistna.

110. The road from Chinna Ganjam to Shamacoorthes in the Nellore district, thence through Cumbum, Nundial, and Kurnool, to the Hyderabad frontier, should be completed, and a good road made from Chinna Ganjam to Incole and Addanky to connect Chinna Ganjam with the Great Trunk Road No. 7. I believe too that great advantage would be derived from connecting Incole with Rajapet and Vinoocondah by Comalapad, and Vinoocondah with Datchapilly by Carumbuddy, and by carrying a line from Datchapilly to Thumaracotah, and thence to the banks of the Kistna.

111. A road is also necessary from Jagayapet to Casoor, and thence by Sattanapilly to Guntoor. Bridges should be constructed where possible, and where they cannot be built good ferry boats should be maintained at the several portions of the Kistna which are crossed by the Bringaries, and lines of road made from them to central points in the district. I believe that in this way we should give a fair stimulus to trade of all kinds, and should afford to our Ryots and people those legitimate facilities for obtaining the products they need, and for disposing of their surplus produce; facilities which I cannot but think the increasing revenue we are yearly extracting from them imperatively requires from us, and which a wise policy dictates.

112. The high prices of many of the articles raised inland are already affecting our export trade; and unless new openings can be found for such produce, inland prices must fall, and with prices it is a question whether our revenue must not also fall.

113. If it is allowable to reason from analogy, the district of Ganjam offers us a most pregnant instance of the wisdom of liberal and well-planned expenditure on roads, bridges and internal communications. Taking only the salt branch of the revenue, we see it in ten years quadrupling itself, and giving a return of more than three hundred per cent. for the money expended in that period. In fact the increase of the revenue in this year over the revenue of the first year of the decade covers the whole of the expenditure made in Ganjam in the ten years though that outlay was a large one. And though it may be said that the whole of this increase is not owing entirely to the increased consumption, but partly to the increase in price, yet it is a fair and just answer that the communications have so largely benefited and enriched the people, that they have been enabled to bear the increased taxation and to consume more largely this necessary of life.

114. Through this district I have had the benefit of the presence of Captain Frazer the very able and active Acting Superintendent of Police. He seemed to be thoroughly familiar with peculiar features and difficulties of the country; the characteristics of the people; and to possess a tact and wisdom in dealing with the latter seldom surpassed. He showed and explained to me all the arrangements made for guarding the platforms and works, and the means he employed for utilizing to the utmost the extra guards placed at his disposal for this purpose.

115. The fixed guards at Pandraka and Yendapully appear to me wholly insufficient to guard effectually the present number of platforms. When the number of platforms at Pandraka is reduced to eight, the manufacturing platform at Buntumilly closed, and the Treasury, &c., transferred to the neighbourhood of the works, I doubt not the existing guard of two Heads, two Deputies and twenty-seven Constables will be ample. It will allow of one Head and one Deputy to each range of swamps, and three Constables to each platform, with three to the Treasury.

116. I do not think a weaker guard than this can be of any real or practical use in guarding night and day these isolated and extensive stores of Government property.

117. The extra guard consists of one Head, one Deputy and thirteen Constables to guard the thirty-one beds. These guards are entertained for four months only. If the season is a good and early terminated one, this number and period may be sufficient. But when it is a backward one and lasts for six months the temptations to thieving are much greater. The quantities of water received at each tide are small, and the salt lies exposed longer, offering stronger temptations to evil disposed persons to rob and steal.

118. At Munganapudy, one Head Constable, one Deputy and ten Constables are allowed for four platforms. This gives three guards to the platform with the Treasury, and two to each of the other platforms, with one extra Constable available to assist in any emergency. I hardly think that less than three Constables are sufficient for each platform.

119. The extra guard consists of a Deputy Constable and seven Constables, who have to watch an extent of unprotected country of two miles in length covered with valuable property, skirted on one side by low brushwood and jungle, and on the other by sand hills, and situated among a people accustomed to carrying away such property by day and night, openly and covertly, by force and by fraud.

120. When the works are surrounded by good material defences, such as I have suggested, the number of guards allowed may be sufficient; but I do not think they can at present be very effective in coping with real difficulties and well concerted plans of plunder.

121. It is necessary that a guard should be allowed for Cona, and a patrol guard for Parali and Pedda Ganjam, former stations where spontaneous salt is largely generated in the abandoned wells during the hot weather. I think too the Police guard should watch swamps where salt forms, and villages bordering on them with greater care. Much salt is no doubt clandestinely thrown into the country from these sources.

122. The standing guard at Nizampatam seems sufficient; but the extra guard is weak. The platforms here are well formed and protected by good defences of prickly-pear and good gates.

123. The Cutchery is in the village a mile distant. It is an old building, not well adapted for the purpose. It might be disposed of to the Police for their guard house, and a Cutcherry built on the third platform. If not required by the Police, the material might be used in erecting a new building.

124. Chinna Ganjam is an immense concern where from 2 to 4 lacs of Indian Maunds of salt have sometimes been manufactured in a large area. There are now twelve platforms separated from each other, and 24,058 salt beds.

125. For these works, there are allowed one Head Constable, two Deputies, and twenty Constables. Three Constables are employed in patrolling from two to three platforms; and six Constables are employed in the Treasury and as a reserve guard for contingencies. It is to be recollected that the Treasure from the salt Treasuries has to be carried to the Huzur periodically by a portion of the standing guards, and that large sums of money have to be guarded.

126. I do not think a less guard than three Constables to each platform is sufficient.

127. The Cutcherry in this place is in the town. It might with great advantage be removed and erected on one of the platforms.

128. The sales in this place have greatly fallen off since the date of my last visit.

129. The increased price of salt, and the opening of the works at Nizampatam, have no doubt affected the Home sales which have fallen off from 1,16,032 Indian Maunds in Fasli 1270 to 72,506 Indian Maunds in Fasli 1272. However in Fasli 1272, 72,325 Indian Maunds of salt were sold for Home consumption in Nizampatam. Assigning a portion of this increase to the absence of salt in the Buntumilly stores, the remainder makes up for the decrease in Chinna Ganjam.

130. The inland and foreign sales too have greatly fallen off; the former from 15,228 Indian Maunds in Fasli 1267 to 108 Indian Maunds in Fasli 1272; and the latter from 2,66,335 Indian Maunds in Fasli 1269 to 1,44,324 Indian Maunds in Fasli 1272. No doubt the discontinuance of the improper practices of over-storing and holding out unlawful indulgences of over-measurement and probably the giving salt at reduced rates, and the present large store of old Salt have deterred the inhabitants of Nellore from leaving their own stores to come to those of Chinna Ganjam, which is like all the salt stations of this district unprovided with roads.

131. I am informed by Mr. Marjoribanks that the reduction in the number of platforms, ordered on my Report of 25th October 1860, is being carried out at Chinna Ganjam, and the works are being concentrated.

132. The Deputy Collector brings to my notice that the manufacturers are much inconvenienced by not being allowed to enter the works before 6 A. M., and recommends that they be allowed to commence operations at day light.

133. The baling the water into the beds is better done early. I would therefore support Mr. Marjoribanks' proposal. There can be no difficulty in guarding, if they do not go among the pans till day dawn.

134. If the defences I have suggested be carried round the works, and only two or three outlets provided, there can be no objection to the people being allowed to enter the works at early dawn, and to leave it at sun-set. They should also be allowed to leave and enter the works whenever they please by the regular door way. They are not slaves but free men, and should enjoy the liberty of freemen. All we have to do is to take care that they carry away no salt with them, and with only two or three well guarded outlets it will be easy to prevent their doing so.

135. The population of the Kistna district is calculated at 12,07,191 souls. The sale of salt last year for Home consumption amounted to 2,30,736 Indian Maunds, or 1,89,86,276 lbs, being at the rate of 15½ lbs per head of the population.

136. The subjoined Tables give the usual statistics of the district, and show the cost to Government of the salt sold in the several stations attached to the Kistna district.

STATEMENT showing the particulars of the cost to Government of Salt per Garce and per Maund before sale in the Kistna District on an average of ten years.

Faslis.	Quantity of salt ordered to be manufactured.	Quantity received into store.	SALES.			Kudivaram.	Cost of storing, &c.	Hire for destroying spontaneous salt, and rewards for detection of smuggling.
			Home.	Inland.	Foreign.			
1	2	3	4	5	6	7	8	9
	IN. MDS.	IN. MDS.	IN. MDS.	IN. MDS.	IN. MDS.	RS. A. P.	RS. A. P.	RS. A. P.
1263.....	2,40,000	5,63,424	20,076	3,192	2,14,693	6,541 14 5	1,416 5 3	400 0 0
1264.....	4,20,000	3,31,462½	18,946	4,359	1,51,574	4,028 3 1	969 11 8	... ..
1265.....	2,76,000	...	19,201	5,238	1,96,793	...	40 12 0	... ..
1266.....	2,40,000	1,38,252	36,538	3,396	1,80,701	4,304 12 5	1,204 6 1	45 10 8
1267.....	4,80,000	1,63,636½	78,492	8,782	1,79,354	4,832 13 1	942 0 6	36 0 6
1268.....	...	2,09,605½	88,437	3,046	1,53,918	7,320 15 0	1,758 2 5	21 10 0
1269.....	3,80,000	5,04,117	98,233	9,377	1,92,631	17,630 10 6	2,165 2 2	4 14 0
1270.....	3,00,000	2,09,933½	1,32,394	16,063	1,76,239	3,863 5 8	1,317 11 0	98 8 8
1271.....	6,00,000	23,236½	84,605	54,831	1,71,351	1,169 15 6	1,548 7 9	0 14 0
1272.....	6,50,000	3,13,486½	81,797	32,993	1,25,922	14,717 10 9	1,375 8 3	23 14 0
Total.....	35,86,000	24,57,154	6,58,719	1,41,282	17,42,626	64,410 4 5	12,768 3 1	641 7 10
Average.....	3,58,600	2,45,715½	65,871½	14,138½	1,74,262½	6,441 0 5	1,276 13 1	64 2 4

Statement showing the particulars of the cost to Government of Salt per Garce and per Maund, &c.—(Concluded.)

BUNTUMILLY.									
Faslis.	Fixed Establishment.	Temporary Establishment.	Police Guards.	Saderward and Sundries.	Repairs to Salt works.	Total cost.	Cost per Garce.	Cost per Maund.	
	10	11	12	13	14	15	16	17	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1263.....	4,063 1 7	390 4 3	...	67 3 6	1,037 13 0	13,946 10 0	2 15 6	0 0 4½	
1264.....	3,993 10 1	901 5 10	...	110 6 6	579 1 4	10,582 6 6	3 13 3	0 0 6½	
1265.....	4,145 15 7	798 8 7	...	49 11 11	209 11 0	5,244 11 1	...	...	
1266.....	4,704 14 4	703 0 0	...	41 6 9	3,752 14 7	14,757 0 10	12 13 0	0 1 8½	
1267.....	5,358 13 8	200 9 10	...	55 15 1	4,173 12 2	15,600 0 10	11 6 7	0 1 6½	
1268.....	5,333 5 3	310 4 9	...	83 1 1	6,856 3 4	21,683 9 10	12 3 6	0 1 7½	
1269.....	5,308 4 8	285 6 8	...	74 5 5	5,362 6 9	30,831 2 2	7 5 6	0 0 11½	
1270.....	5,349 5 11	167 11 8	...	141 5 1	1,650 9 10	12,588 9 10	7 3 0	0 0 11½	
1271.....	5,332 11 0	535 6 8	...	132 8 9	4,782 1 4	13,502 1 0	69 0 0	0 9 3	
1272.....	4,882 6 3	409 6 3	2,429 4 11	218 10 6	5,721 9 7	29,788 6 6	11 6 6	0 1 6½	
Total.....	48,472 8 4	4,702 0 6	2,429 4 11	974 10 7	34,126 2 11	1,68,324 10 7	...	...	
Average.....	4,847 4 0	470 3 0	242 14 10	97 7 5	3,412 9 10	16,852 7 5	8 2 0	0 1 1	

MUNGANTUPUDY.

Fasly.	Quantity of salt ordered to be manufactured.			Quantity received into store.			SALTS.			Kudivarum.	Cost of storing, &c.	Litre for destroying spontaneous salt, and rewards for detection of smuggling.	Fixed Establishment.	Temporary Establishment.	Police Guards.	Saderward and Sundries.	Repairs to salt works.	Total cost.	Cost per Garce.	Cost per Maund.
	I. Mds.	I. Mds.	I. Mds.	I. Mds.	I. Mds.	I. Mds.	Home.	Inland.	Foreign.											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1263 to 1271	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1272	1,09,600	60,107½	14 108	134	.....	8,691 0 9	725 11 9	0 6	566 5 334	8 3	21 0	070 5 5	132 14 5	5,482 4 2	10 15 2	0 1 5½				

NIZAMPATAM.

Fasli.	Quantity of salt ordered to be manufactured.	Quantity received into store.	SALES.			Kudivaram.	Cost of storing, &c.	Hire for destroying spon- taneous salt, and rewards for detection of smuggling.		Fixed Esta- blishment.
			Home.	Inland.	Foreign.			RS. A. P.	RS. A. P.	
1	2	3	4	5	6	7	8	9	10	
1263.....	I. MDS.	I. MDS.	I. MDS.	I. MDS.	I. MDS.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
1264.....	...	...	24,945	3,098	14,045	...	...	...	...	
1265.....	...	...	20,604	1,058	1,755	...	Accounts not forthcoming.	...	...	
1266.....	...	...	22,113	300	19,684	...	...	...	...	
1267.....	...	...	27,110	342	14,104	...	Do. closed.	...	...	
1268.....	...	...	...	...	...	...	...	...	...	
1269.....	...	...	...	...	...	...	...	...	...	
1270.....	2,00,000	76,860½	...	...	...	4,803 12 10	424 3 10	10 2 4	953 9 7	
1271.....	1,00,000	1,01,329½	34,576	...	3,532	6,333 1 6	321 15 11	41 4 2	1,897 14 4	
1272.....	1,20,000	1,13,533½	72,325	134	14,923	7,687 2 7	430 7 4	8 15 8	1,914 0 11	
Total.....	4,20,000	2,91,723½	2,01,673	4,932	68,003	18,824 0 11	1,176 11 1	60 6 2	4,765 8 10	
Average.....	1,40,000	97,241	67,224	1,644	22,687	6,274 10 11	392 3 8	20 2 0	1,588 8 3	

NIZAMPATAM.—(Concluded.)

Fasli.	Temporary Establish- ment.	Police Guards.	Sadarward and Sundries.	Repair to Salt works.	Total costs.	Cost per garce.	Cost per maund.
	11	12	13	14	15	16	17
1263.....	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
1264.....	...	...	...	...	...	...	...
1265.....	...	...	...	...	...	...	...
1266.....	...	...	...	...	...	...	...
1267.....	...	...	...	...	...	...	...
1268.....	...	...	...	...	...	...	...
1269.....	...	...	...	...	...	...	...
1270.....	...	...	41 15 7	2,762 10 2	8,996 6 4	14 0 0	0 1 10½
1271.....	73 8 6	178 14 11	111 14 6	138 6 4	9,097 0 2	10 10 5	0 1 5½
1272.....	30 0 0	1,957 13 10	111 13 3	81 8 4	12,221 8 11	13 0 0	0 1 8½
Total.....	103 8 6	2,136 12 9	265 11 4	2,982 3 10	30,314 14 5	...	...
Average.....	34 8 2	712 4 3	88 9 1	994 1 3	10,104 10 1	12 8 0	0 1 8

CHINNA GANJAM.

Fasli.	Quantity of salt ordered to be made.	Quantity received into store.	SALES.			Kudivarum.	Cost of storing &c.	Line for destroying spontaneous salt, and rewards for detection of smuggling.
			Home.	Inland.	Foreign.			
1	2	3	4	5	6	7	8	9
	I. MDS.	I. MDS.	I. MDS.	I. MDS.	I. MDS.	RS. A. P.	RS. A. P.	RS. A. P.
1263.....	6,00,000	7,37,201½	53,673	11,008	1,61,053	37,210 5 5	3,136 12 6	...
1264.....	.....	.....	69,350	15,495	2,78,715	...	...	3 5 4
1265.....	5,40,000	1,46,313	54,872	5,772	1,75,898	8,992 2 7	455 1 7	...
1266.....	.....	5,34,241½	48,623	8,860	2,24,663	33,098 12 9	2,780 5 3	3 7 0
1267.....	3,60,000	5,33,815½	85,524	15,228	2,17,407	33,085 6 11	1,482 7 9	5 10 0
1268.....	3,60,000	3,97,004	93,067	9,039	1,85,218	24,605 15 5	1,879 14 7	28 8 7
1269.....	4,56,200	4,20,407	1,07,546	5,820	2,66,335	25,813 15 2	2,904 10 3	...
1270.....	2,00,000	2,08,472½	1,16,052	.....	1,85,516	13,029 8 5	461 5 0	15 5 6
1271.....	2,00,000	1,92,431½	60,359	175	63,780	12,026 15 7	1,540 14 11	3 12 0
1272.....	.....	.....	72,506	108	1,44,324	...	33 11 0	6 12 0
Total.....	27,16,200	31,69,886½	7,61,552	71,514	19,02,939	1,87,863 2 3	14,675 2 10	66 12 5
Average...	2,71,620	3,16,988½	76,155½	7,151½	1,90,293½	18,786 5 0	1,467 8 3	6 10 10

CHINNA GANJAM.—Concluded.)

Fasli.	Fixed Establishment.	Temporary Establishment.	Police Guards.	Sadarward and Sundries	Repairs to salt works.	Total cost.	Cost per garce.	Cost per maund.
	10	11	12	13	14	15	16	17
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
1263.....	4,704 0 0	...	...	185 8 7	3,938 5 11	49,175 0 5	7 15 6	0 1 0½
1264.....	4,620 0 0	...	...	199 9 9	623 0 10	5,445 15 11	...	...
1265.....	4,620 0 0	...	...	188 15 5	1,210 15 8	15,467 3 3	13 7 0	0 1 9½
1266.....	4,620 0 0	...	...	166 1 0	3,586 12 6	44,255 6 6	10 0 0	0 1 4
1267.....	6,657 11 3	36 0 0	...	118 3 8	2,548 4 4	43,933 11 11	9 13 6	0 1 3½
1268.....	6,611 5 1	36 0 0	...	236 15	3,369 10 5	36,708 5 1	11 1 6	0 1 5½
1269.....	6,540 8 4	36 0 0	...	206 3 7	1,341 12 7	36,843 1 11	10 6 0	0 1 4½
1270.....	6,542 9 1	36 0 0	...	224 15 1	1,090 10 2	21,400 5 3	12 5 6	0 1 7½
1271.....	6,614 6 7	36 0 0	...	214 15 3	447 1 6	20,884 1 10	13 0 0	0 1 8½
1272.....	5,751 1 5	36 0 0	1,250 1 6	229 1 3	191 13 7	7,498 8 9	...	...
Total.....	57,281 9 9	216 0 0	1,250 1 6	1,970 8 7	18,348 7 6	2,81,671 12 10	...	...
Average.....	5,728 2 6	21 9 7	125 0 1	197 0 10	1,834 13 6	28,167 2 10	10 10 0	0 1 5

STATEMENT showing the particulars of items forming the total cost of salt per Garce and per Maund in the Kistna District, from Fasli 1263 to 1272.

Depôts.	Quantity of salt ordered to be manufactured.	Quantity received into store.	Kudivaram.	Cost of covering heaps.	Miscellaneous charges incurred in storing.	Cost of destroying spurious salt.	Rewards for seizure of smuggled salt.	Fixed establishment.
1	2	3	4	5	6	7	8	9
	In. Mds.	In. Mds.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Buntumilly.....	35,86,000	24,57,154	64,410 4 5	12,441 0 1	327 3 0	241 7 10	400 0 0	48,472 8 4
* Munganapudy.....	1,09,600	60,107½	3,691 0 9	725 11 9	...	0 6 0	...	566 5 3
† Nizampatam.....	4,20,000	2,91,723½	12,824 0 11	1,152 3 1	24 8 0	60 6 2	...	4,765 8 10
Chinna Ganjam.....	27,16,200	31,69,886½	1,87,863 2 3	14,574 7 2	100 11 8	66 12 5	...	57,281 9 9

Statement showing the particulars of items forming the total cost of salt per Garce and per Maund in the Kistna District, from Fasli 1263 to 1272.—Concluded.

Depôts.	Temporary establishment.	Police Guards.	Saderwarid.	Sundries.	Repairs to salt works.	Total cost.	Cost per Garce.	Cost per Maund.
	10	11	12	13	14	15	16	17
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Buntumilly.....	4,702 0 6	2,429 4 11	411 9 6	563 1 1	34,126 2 11	1,68,524 10 7	8 2 0	0 1 1
* Munganapudy.....	34 8 3	261 0 0	19 1 0	51 4 9	132 14 5	5,482 4 2	10 15 2	0 1 5½
† Nizampatam.....	103 8 6	2,136 12 9	176 1 2	89 10 2	2,982 3 10	30,314 14 5	12 8 0	0 1 8
Chinna Ganjam.....	216 0 0	1,250 1 6	1,422 0 0	648 8 7	18,348 7 6	2,81,671 12 10	10 10 8	0 1 5

* This Station was only opened in Fasli 1272.

† The accounts of only three years are shown here, as the station was closed from Fasli 1266 to 1270; and the accounts of previous years are not forthcoming.

STATEMENT showing the Home Inland and Foreign sales of Salt at Ingodoor, Parali and Pedda Ganjam in the Kistna District from Fasli 1263 to 1266.

Faslis.	INGODOOR SALES.			PARALI SALES.			PEDDA GANJAM SALES.		
	Home.	Inland.	Foreign.	Home.	Inland.	Foreign.	Home.	Inland.	Foreign.
1263.....	In. Mds. 37,112	In. Mds.	In. Mds. 3,113	In. Mds. 12,640	In. Mds. 1,087	In. Mds. 2,400	In. Mds. 8,983	In. Mds. 6,902	In. Mds. 88,604
1264.....	38,328	.....	2,681	7,352	.....	286	8,294	5,804	71,228
1265.....	39,587	.....	11,754	11,088	.....	4,607	13,086	8,058	86,725
1266.....	22,044	.....	19,791	20,317	1,331	.....	23,190	995	30,650
1267 to 1272.....	Closed	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	1,37,071	.....	27,339	51,397	2,418	7,293	53,553	21,759	2,77,207
Average.....	34,267½	.....	6,834½	12,849½	1,209	1,823½	13,388½	5,439½	69,301½

STATEMENT showing details of the cost of manufacture of salt in the Kistna District, from Fasli 1269 to 1272 inclusive.

Depôts.	Quantity of salt ordered to be manufactured.	Quantity received into store.	Kudivaram.	Cost of covering heaps.	Miscellaneous charges incurred in storing.	Cost of destroying spurious salt.	Rewards for seizure of smuggled salt.	Fixed Establishment.	Temporary Establishment.	Police guards.
1	2	3	4	5	6	7	8	9	10	11
Buntumilly.....	IN. MDS. 19,30,000	IN. MDS. 10,50,773½	RS. A. P. 37,381 10 5	RS. A. P. 6,346 10 8	RS. A. P. 60 2 6	RS. A. P. 138 2 8	RS. A. P.	RS. A. P. 20,872 11 10	RS. A. P. 397 15 3	RS. A. P. 2,429 4 11
Munganapudy.....	1,09,600	60,107½	3,691 0 9	725 11 9	... ..	0 6 0	... ..	566 5 3	34 8 3	261 0 0
Nizampatam.....	4,20,000	2,91,723½	18,824 0 11	1,152 3 1	24 8 0	60 6 2	... ..	4,765 8 10	103 8 6	2,136 12 9
China Ganjam.....	8,56,000	8,21,311	50,870 7 2	4,885 12 8	54 12 6	25 13 6	... ..	25,448 9 5	144 0 0	1,250 0 0

STATEMENT showing details of the cost of manufacture of salt in the Kistna District, from Fasli 1269 to 1272 inclusive (Concluded)

Depôts.	Saderwarid.	Sundries.	Repairs to salt works.	Total cost.	Cost per Garce.	Cost per Maund.	Average annual manufacture of District.	Average annual charges after appointment of salt Deputy Collectors.	Increase by column 19 to cost per Maund.
	12	13	14	15	16	17	18	19	20
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	In. Mds.	RS. A. P.	RS. A. P.
Buntumilly.....	177 9 6	339 4 3	17,516 11	6,86,710 3 6	10 0 0	0 1 4			
Munganapudy.....	19 1 9	51 4 9	132 14 5	5,482 4 2	10 15 2	0 1 5½			
Nizampatam.....	176 1 2	89 10 2	2,982 3 10	30,314 14 5	12 8 0	0 1 8	6,25,369	3,971 10 5	0 0 1½
Chinna Ganjam.....	612 0 0	263 3 2	3,071 5 10	86,626 0 3	12 8 0	0 1 8			

137. Mr. Marjoribanks reports favorably of Mr. J. Cresswell; of his brother acting at Buntumilly; of Annajee Row, the Superintendent of Buntumilly; and of Chowbay Ram Prasad, the Assistant Superintendent of Pandraka. He also makes favorable mention of some of the Ministerial servants, and peons and measurers.

138. The Shroff of the Buntumilly division, Numboory Jaganathum, and T. Verasawmy Naidoo, Assistant Superintendent at the Chinna Ganjam station, are considered too old for effective work. They should both be pensioned if entitled to this indulgence, if not, some steps should be taken for supplying their places with more efficient men.

139. I have very much pleasure in recording my sense of the very valuable assistance afforded me by Mr. Marjoribanks in my tour through his district. I have always received the highest testimony to Mr. Marjoribanks' character and conduct, and his thorough acquaintance with his work in all its details. His collection of a body of useful and statistical information; the admirable condition in which the stations are kept; the quiet and orderly manner in which his work is performed; and the implicit and ready obedience he enforces without noise or effort bespeak a public servant of no ordinary character and usefulness.

140. It will be gathered from what has gone before in this Report that the most important and large salt stations lie to the north of the town of Masulipatam. Nizampatam and Chinna Ganjam may rise to be places of greater importance; but at present they are not equal to the Pandraka and Munganapudy. I think, therefore, after personal inspection that Masulipatam and not Nizampatam is the best locality for the head quarters of the Deputy Collector. Masulipatam is seventeen miles south of Pandraka, and sixty-nine miles north of Chinna Ganjam.

141. Still with the great swamps to guard and provide for, and with the new and important station of Munganapudy to the north, I think the Deputy Collector had better be stationed at Masulipatam than at Nizampatam, where there are no houses to be had, and the means of building are not easy.

142. In conclusion I have to express my best thanks to Mr. Thornhill, who not only supplied me with much valuable information in regard to the district in general, and of the salt works in particular, but did everything in his power to facilitate my tour through his district, and to place before me all the information I might need.

I have the honor to be,
Sir,
Your most obedient servant,
(Signed) T. CLARKE,
Member, Board of Revenue.

MADRAS, 25th May 1864.

*Proceedings of the Madras Government, Revenue Department,
29th May 1865.*

APPENDIX B.

EXPERIMENTS made with the Salt Weighing Machines at Buntumilly, 30th April 1864.

Number of Machine.	Quantity of salt weighed.	Quantity found by measurement, inclusive of 6 per cent. allowance.		Equivalent of one Garce.	Description of Salt.
No. 131	I. Mds.	Mds.	S.	Mds. S.	Manufactured.
140	5	4	31	114 24	do.
147	5	4	30	114 0	do.
168	5	4	33	115 32	do.
140	5	4	28	112 32	do.
147	3	3	0	120 0	do.
147	3	2	30	110 0	do.
2nd May 1864.					
Number of Machine.	Quantity of salt weighed.	Quantity found by measurement exclusive of 6 per cent. allowance.		Equivalent of one Garce.	Description of Salt.
No. 134	I. Mds.	Mer.	Mea.	Mercals.	Manufactured.
134	5	15	6	378	Cherkamilly swamp.
140	5	14	6	354	do.
147	5	14	6	354	do.
166	5	14	6½	356	do.
170	5	14	4	348	do.
170	5	14	4½	349½	do.
With Rupees. 30th April 1864.					
No. 134	1	Rupees	3,500		
140	1		3,200		
147	1		3,360		
166	1		3,310		
168	1		3,600		
170	1		3,500		
2nd May 1864.					
No. 134	1	Rupees	3,242		
140	1		2,693		
147	1	"	3,380		
166	1	"	3,733		
170	1	"	3,660		

No. 486. Read the following letter from T. CLARKE, Esq., Member of the Board of Revenue:—

Submitting report on the inspection of the Salt works of the Kistna District. } (Here enter 25th May 1864.)

No. 487. ORDER THEREON, 29th May 1865, No. 1,128.

Separate Revenue, No. 39.
1. The foregoing letter is Mr. Clarke's report on the Salt works at Bantoomilly, Munganapoody, and Nizampatam, in the Kistna District. On the only other Salt station, Chinna Ganjam, Mr. Clarke reported in his letter dated 25th October 1860.

2. BANTOOMILLY.—The Bantoomilly Station comprises two Divisions, Pondraaka and Yendromilly, with thirteen platforms. The manufacture of Salt in the usual manner has been discontinued, the article produced having been very inferior. The supply is now entirely drawn from the swamps which are periodically inundated. The Salt thus obtained is very fine, and much preferred by traders for conveyance inland. The yield, however, is somewhat precarious. In a good year as much as 4,80,000 Indian Maunds are collected. In Fusly 1271 only 23,000 Indian Maunds were obtained; in Fusly 1272 Indian Maunds 3,13,000; and in Fusly 1273 it was expected that Indian Maunds 2,50,000 would be the supply. In January 1863 the stock was entirely exhausted, and purchasers had to go to Nizampatam, 54 miles south of Bantoomilly, for Salt. This is most undesirable, and every advantage must be taken of favorable seasons to lay in a stock, sufficient to meet such contingencies.

Fuslies.	In. Mds.
1263 ...	2,45,400
1269 ...	3,00,240
1270 ...	3,24,750
1271 ...	3,10,780
1272 ...	2,40,710

3. The sales at Bantoomilly during the five years ending with Fusly 1272 are given in the margin; the great falling off in the last year of the series was owing to the failure of the stock.

4. The number of platforms, viz., thirteen, is very large, and must greatly enhance the difficulty and expense of guarding the stores. Mr. Clarke proposes to reduce the number to eight, which certainly seems ample. None of the reserved platforms will, he states, be more than half a mile from the extreme ends of the swamps from whence they draw their supplies. This reduction is sanctioned. The removal of the Cutcherry, which is three miles from the place where the Salt operations are now carried on, to the Cotamparra platform, in the centre of them, seems also very desirable, and plans and estimates should be submitted accordingly.

5. The failure of the Superintendent effectually to destroy the rejected Salt at Pondraaka should be duly noticed by the Collector, and the recurrence of such misconduct should lead to his removal.

6. The Board will give their opinion on Mr. Clarke's proposals to add an Assistant and four Vetties to the establishment at these works.

7. The present arrangements for measuring the Salt received into store are very defective, and should be amended without delay. The great discrepancies discovered in the weighing machines sent from Madras render it undesirable that weightment should be introduced, until the improved machines can be supplied.

8. MUGANAPOODY.—The Munganapoody station was opened in 1862, it is said to be admirably laid down, the Salt produced is very fine, and Mr. Clarke speaks confidently of the works proving highly remunerative. Estimates for cutting a channel to provide an ample supply of water, and to serve as a protection to the pans, should be submitted as soon as practicable. The Collector will be good enough to take measures for clearing the ground near platforms No. 1 and No. 3, as recommended in paragraphs 67 and 69. The Board will report their opinion on Mr. Clarke's proposal, that the Munganapoody establishment should be raised to the strength of

*Proceedings of the Madras Government, Revenue Department,
29th May 1865.*

that at the Ganjam station, and a separate guard of a Deputy and three Constables allowed for the platform at Cona, until the swamp Salt stored there has been sold.

9. NIZAMPATAM.—The average annual sale of Salt at Nizampatam between Fusly 1269 and 1272 was only 72,931 Maunds; but Mr. Clarke expects that the sales will increase when the canal which is now in progress from Bezvara to a lagoon near the works is completed. These pans are straggling, and the platforms inconveniently distant from one another, but the quality of the Salt manufactured is good. Mr. Clarke recommends that the pans south of No. 1 platform should be abandoned; that the present road should be closed, and a new road made from the village to the point where the present road joins the Bapetla line; that the pans should be protected by a moat and hedge, and one of the platforms given up, and that a piece of land in front of each of the retained platforms should be cleared for bandies to halt at. These proposals are approved of, and the Collector, in connection with the Superintending Engineer, will take the requisite measures for carrying them into effect as soon as possible.

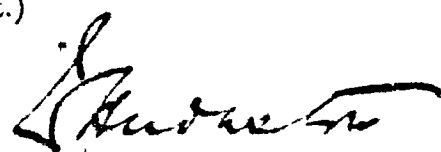
10. Mr. Clarke points out again the necessity for improving the internal communications of the District. They are everywhere in a defective state, and there can be no doubt but that Mr. Clarke is right in attributing the comparatively dull trade in Salt, and especially the smallness of the Hyderabad exports to this cause. The parts of the report alluding to roads and bridges, which are urgently required, will be communicated to the Public Works Department, for consideration as soon as funds can be made available.

11. Paragraphs 114 to 126, which treat of the insufficiency of the Police Guards at various stations, will be referred to the Inspector General for report; and the alterations sanctioned in this Order, which will materially lessen the work of the Police, will be carried out as soon as practicable.

12. Government observe with pleasure the favorable terms in which Mr. Clarke brings to notice the qualifications of the Deputy Collector, Mr. Majoribanks, who has lately been promoted.

13. The Collector should be directed to get rid of the two old inefficient men mentioned in paragraph 138 of Mr. Clarke's report.

(True Extract.)



Acting Secretary to Government.

To T. Clarke, Esq.
To the Board of Revenue.
.. the Collector of the Kistna District.
.. the Public Works Department. ✓
.. the Inspector General of Madras Police.

Ed. S. T. Augustin.

Civil Works

152
223/1533

Communicated to the Chief
Engineer & Division who will in
communication with the Collector,
procure & furnish estimates for the
works referred to in paras 4, 5 & 9 give
his attention to the subject of Para 10

Frank & George
5th June 1865 } W.B.

To The Superintending Engineer

of the Division

287

22nd July 1865

22nd 1865 De 19th
Pro. of Eng. 1942

Pro: 11 Nov 1865

The Revenue Dept

Recd 129 } May 1865
No. 131 }
S. 1 No 1128

Receiving orders

on the Plan No report
on his inspection of the
half works in the
the small works

with an order
22nd 1865 - 5th June 1865

22nd 1865

5