Marine (1898) Department. 1224

G.O., No. 910 Marine
911

DATED 31st Oct 1898

140/5
80/2

[Despatch Abstract]

Lights & Lighthouses on the Coasts of the Madras Presidency

Letter from the Secy to Govt Madras forwarding Report on the working of the ——, for 1897-98, recorded, with remarks.

Lights & Lighthouses on the Coasts of the Madras Presidency: forwarding copies of Proc: recording with remarks, letter from the Govt Madras submitting Report on the working of the —— for 1897-98.

[2,000—28-10-98.]

10/11/98

P. W. 4.
500—17-6-98.

01710383B

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

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	968-9 clea.		27-10-99				

Government {1898} of Madras.

MARINE.

Recd. } 1898. *Enclosures*

Regd. *Spare copies*

G.O., Nos. 910, 911, 31st October 1898.

OCTOBER.

Lights and Lighthouses on the Coasts of the Madras Presidency

Forwarding copies of Proceedings recording, with remarks, letter from the Presidency Port Officer submitting Report on the working of the —, for 1897–98.

P. W. 4.
500—17-6-18.

GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

Read—the following paper:—

From Commander W. AVES, R.I.M., Acting Presidency Port Officer, Madras, to the Secretary to Government, Marine Department, dated Madras, 27th September 1898, No. 1890/332 G.

I have the honour to forward, herewith, Report on Lights and Lighthouses in the Madras Presidency for the official year 1897–98.

Enclosures.

REPORT ON THE LIGHTS AND LIGHTHOUSES ON THE COASTS OF THE MADRAS PRESIDENCY FOR THE OFFICIAL YEAR 1897-98.

General Remarks.

All the lights along the coast were displayed throughout the year without interruption. The lighthouse buildings and appurtenances were maintained in order, sundry petty repairs and whitewashing being carried out where necessary.

2. Heavy mineral oil was used at all the lights, except the Madras Harbour lights which used kerosine oil.

3. The total cost of maintaining the lighthouses during the year was Rs. 1,22,848 against Rs. 45,112 in the previous year, showing an increase in charges of Rs. 77,736. Particulars of charges, &c., relating to the different lights are furnished in Appendices A and A (i).

Particulars of Lights.

For list and description of lights corrected to date, *vide* Appendix B.

Inspections.

See remarks in Appendix C.

Lightning Conductors.

See remarks in Appendix C.

Stores and Supplies

Were well maintained during the year.

Consumption of Oil.

Appendix D gives the number of hours each light was burning in the year and the actual consumption of oil at each light.

Establishments.

A scheme for re-organizing lighthouse establishments generally was sanctioned in the year, which has partially been brought into force and will, in course of time, be in full force. Under this scheme the establishment is graded as follows:—

	Rs.
Lighthouse Inspector, East Coast division	100—150
Lighthouse Inspector, West Coast division	100—150
Head Lightkeepers, 1st class ...	70
Do. 2nd do. ...	65
Do. 3rd do. ...	60
Lightkeepers, 1st class, 1st grade ...	50
Lightkeepers, 1st class, 2nd grade ...	45
Do. do. 3rd do.	40
Do. 2nd class, 1st do.	20
Do. do. 2nd do.	15
Do. do. 3rd do.	12
Do. do. 4th do.	10
Do. do. 5th do.	9
Relief keepers	40

Appendix A.

Particulars of Charges relating to Different Lights.

Lights.	Establishment.		Oil.	Stores.	Contingencies and miscellaneous.	Construction and repairs.	Total, 1897-98.	Total, 1896-97.	Total, 1895-96.	Remarks.
	Head lightkeepers.	Lightkeepers.								
1	2	3	4	5	6	7	8	9	10	11
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Hangarkotta	..	184 11 4	69 1 4	106 3 4	57 11 7	22 3 0	439 14 7	1,300 2 6	..	
Coondapoor	..	191 11 8	64 5 4	36 3 7	18 10 5	..	310 15 0	261 13 4	311 4 3	
Malpe	..	195 11 5	53 6 5	52 9 10	1 8 0	7 2 0	310 5 8	279 11 6	287 10 2	
Mangalore	..	330 3 2	278 13 0	68 6 11	19 3 6	14 0 0	710 10 7	860 6 5	6,101 14 10	
Cannanore	..	242 5 2	75 15 9	35 3 11	22 4 3	..	375 13 1	304 10 11	337 6 3	
Tellicherry	..	234 0 0	76 0 11	53 9 8	9 10 6	— 36 9 3	336 11 10	323 7 9	492 7 6	
Calicut	..	320 15 5	251 13 7	95 9 3	5 8 6	232 11 5	906 10 2	688 15 0	1,671 13 6	Light at end of pier.
Do.	..		Expenditure met from Calicut pier contingencies.		123 0 1	42 8 0	848 13 8	899 14 3	778 12 9	
Cochin	..	1,100 0 0	216 4 0	74 15 1	145 5 5	54 0 6	3,575 1 10	4,137 15 3	3,491 4 6	
Muttum	..	655 4 6	528 9 0	82 6 11	40 13 1	16,109 2 4	17,388 0 4	1,754 9 5	1,290 8 1	
Manapad	..	..	80 10 6	14 6 1	231 10 9	103 4 0	1,391 1 10	1,916 14 4	1,683 9 7	
Tuticorin	..	..	255 5 0	58 1 7	56 12 0	0 2 6	680 10 11	1,021 8 1	880 10 2	
Pamban	..	..	208 12 7	52 0 3	8 9 6	..	384 10 10	328 13 7	452 6 1	
Tondi	..	..	87 4 8	16 2 6	45 6 9	692 10 9	1,027 2 1	704 13 10	353 13 11	
Point Calimere	..	..	41 10 6	4 7 5	47 8 5	434 11 6	1,096 12 11	768 13 0	861 4 1	
Negapatam	..	..	228 14 4	10 8 4	36 13 3	361 5 4	946 2 8	570 12 2	564 9 4	
Cuddalore	..	..	63 1 1	6 14 8	62 14 0	109 3 10	1,989 3 7	1,920 9 6	2,098 8 9	
Seven Pagodas	..	840 0 0	241 5 11	25 11 11	138 14 5	..	2,731 5 5	4,310 15 7	3,523 14 2	
Madras	..	960 15 11	695 7 3	260						Two lights mark the entrance to the harbour and two lights show the fair way.
Do.	..									
Do.	..									
Pulicat	..	840 0 0	196 5 1	256			Expenditure met from Madras port contingencies.			
Armeghon	..	1,200 0 0	197 11 0	2,181	63 14 10	68 9 10	1,872 12 2	1,663 11 4	1,826 7 5	
Point Diyi	..	840 0 0	230 14 1	107	68 14 4	2 9 0	4,268 15 3	2,512 2 1	2,413 5 4	
Masulipatam	..	..	49 5 0	34	32 10 5	66,031 8 8	66,915 3 0	2,463 6 3	1,556 12 0	
Do.	..	750 0 0	328 15 9	87			353 11 11	352 1 1	428 11 3	Bar lights.
Hope Island	..	..	69 14 3	15	177 8 6	..	2,140 7 2	2,299 7 9	2,295 15 0	
Sacramento	..	371 15 11			67 2 6	109 8 0	634 2 4	534 0 11	1,659 13 6	
Cocanada	..		Expenditure met from Landing and Shipping Dues Act III of 1885.							Groynes lights.
Do.	..				85 10 1	915 4 4	3,764 6 5	2,073 11 7	2,072 15 3	
Vakalapudi	..	595 4 9	235 0 7	2,022	116 9 3	709 3 6	3,854 11 1	4,569 13 4	3,012 9 10	
Santopilly	..	471 13 7	746 13 1	764	681 11 1	30 8 8	3,117 4 2	5,995 0 2	5,889 11 3	
Calingapatam	..	557 10 7	358 10 3	108	38 6 2		456 0 8	294 13 1	468 11 7	
Gopalpore	..	223 12 10	112 5 10	51			Expenditure met from Gopalpore pier contingencies.			Light at end of pier.
Do.	..				10 5	2,433 8 1	85,013 6 11	1,22,847 13 2	45,112 2 0	46,096 14 3
Total ..	9,573 3 5	11,391 4 3	6,337 12 1	8,098						

Appendix A (i).

Statement of Lighthouse Expenditure for 1897–98, compared with those for 1896–97.

—	1897–98.	1896–97.	Difference.	
			More.	Less.
	Rs.	Rs.	Rs.	Rs.
Salaries of Head Lightkeepers and Lightkeepers ..	20,964	21,530	..	566
Oil (*a*)	6,338	5,991	347	..
Stores (*b*)	8,099	4,904	3,195	..
Contingencies	2,434	2,608	..	174
	37,835	35,033	3,542	740
	85,013	10,079	74,934	..
Add Public Works charges (*c*)				
Total ..	1,22,848	45,112	78,476	740
			+ 77,736	

(*a*) The excess in expenditure under the heading "oil" is slight and calls for no special explanation.

(*b*) The increase under "stores" is, in a great measure, due to debit in 1897–98 of cost of new clock work supplied to Armeghon and Vakalapudi lighthouses at an aggregate cost of Rs. 2,971.

(*c*) There was a heavy expenditure during the year under "Public Works" relating to construction of new lighthouses at Havelock Point and Manapad Point to be termed, respectively, Kistna and Manapad lights.

Appendix

List of lights on the

Name of light.	Position.	Latitude, N.	Longitude, E.	Number of lights.	Colour of lights. Fog signal.	Character of light.	Period of revolution or flash.	Miles visible in clear weather.
Coondapoor ..	Seventeen yards northward of the southern boundary pillar.	13° 38′	74° 40′	1	White ..	F.	....	8
Hangarkotta ..	About 700 yards to south of position of northern pillar now washed away.	13 27	74 41	1	Red ..	F.	....	6
Malpe ..	On the beach at the entrance to the river.	13 21	74 42	1	White ..	F.	....	8
Mangalore ..	On a hill above the town.	12 52	74 50	1	Do. ..	F.	....	14
Cannanore ..	On the Fort rampart.	11 51	75 22	1	Red ..	F.	....	6
Tellicherry ..	On the Fort wall ..	11 45	75 29	1	White ..	F.	....	8
Mahé (French Territory).	On the south side of the entrance to the river, at the foot of the flagstaff.	11 42	75 31	1	Red ..	F.	....	6
Calicut ..	On the beach ..	11 15	75 46	1	White ..	F.	....	14
Narakel ..	On the beach at mouth of creek.	10 03	76 12	1	Do. ..	F.	....	10
Cochin ..	On a small mound which formed a bastion of the old fort to the south of the harbour.	9 58	76 14	1	Do. ..	F.	....	15
Alleppy ..	On the beach, about one cable inland.	9 30	76 19	1	Do. ..	Rev.	One minute ..	17
Muttum Point ..	On a rocky promontory, 300 yards from sea.	8 07	77 18	1	Do. ..	F.	....	16
Gulf of Manar. Manapad Point.	On summit ..	8 22	78 04	1	Red ..	F.	....	8
Gulf of Manar. Tuticorin ..	On the north extreme of Hare Island, 2½ miles east of Tuticorin town.	8 47	78 11	1	White ..	F.	....	14
Gulf of Manar. Pámban Pass.	On a sand-hill, about one mile east of Northern channel.	9 17	79 13	1	Do. ..	F.	....	14

B.

Coasts of the Madras Presidency.

Arc of illumination. (Bearings are magnetic and from seaward.)	General description of building or vessel.	Height, in feet, of centre of lantern above high-water.	Height, in feet, of building from base to vane.	Character and candle power or order of illuminating apparatus.	Year lighted.	Remarks.
From S. 28° E. through E. to N. 6° W.	Steel mast ..	45	40	Dioptric, 6th order, $\frac{1}{8}$.	1888; altered, 1891; altered, 1894.	Exhibited from 15th September to 31st May.
From N., through E. to S., except where obscured by trees, between S. and S. 9° E. and by St. Mary's Isles between N. to N. 5° E., and N. 9° E. to N. 15° E.	Small white masonry column.	12	15	Dioptric, 6th order, $\frac{1}{16}$.	1896 ..	Do. do.
Visible seaward from N. to S. except where obscured from N. to N. 45° E. by trees, and from N. 53° E. to N. 57° E., and N. 73° E. to N. 80° E. by St. Mary's Isles.	Steel mast ..	53	50	Dioptric, 6th order, $\frac{1}{8}$.	1888; altered, 1891.	Do. do.
From N. 16° E., through E. to S. 16° W.	Small white masonry tower.	240	65	Dioptric, 4th order, $1\frac{1}{4}$.	1842; improved, 1870.	
Seaward from N. 59° W. to S. 70° E.	Small light yellow masonry tower.	64	25	Dioptric, 6th order, $\frac{1}{16}$.	1843; improved, 1870; transferred to tower, 1880; 1885.	
Seaward from S. 59° E. to N. 38° W.	Small masonry tower.	82	27	Dioptric, 6th order, $\frac{1}{8}$.	1835; improved, 1870; transferred to tower, 1881.	
All round the compass.	Mast on the western bastion of the fort.	86	45	....	1885 ..	Shown only during north-east monsoon.
From N. 25° W., through E. to S. 14° E.	White column.	103	98	Dioptric, 4th order, $1\frac{1}{4}$.	1847; improved, 1881.	A small *red* light is exhibited from the head of the pier.
Seaward from N. 22° W. through E. to S. 22° E.	Flagstaff ..	95	102	Lantern ..	1865 ..	Is exhibited only during the south-west monsoon, namely, from 15th May to 30th September, when Cochin port is avoided by shipping.
Seaward from N. 20° W. through E. to S. 11° E.	White masonry column.	100	91	Dioptric, 4th order, $1\frac{1}{4}$.	1839; improved, 1868.	
All round the compass.	Round white masonry tower.	113	115	Catadioptric, 1st order (Holophotal).	1862.	
Seaward from N. 64° W. through N. to S. 84° E.	Column black and white horizontal stripes.	141	72	Dioptric, 1st order, 6.	1875; altered, 1883.	Is intended to mark the vicinity of the Crocodile Rock which lies 3 miles south-west ¾ S. of Cadiapatam Point.
From N. 22° E., through W. to S. 22° W.	White masonry tower.	104	27	Dioptric, 4th order, $\frac{1}{16}$.	1888; improved, 1890.	
All round the compass.	Sandstone column, coloured brown, lantern white.	85	91	Dioptric, 4th order, 1.	1845; improved, 1874; improved, 1893.	
Do. ..	Circular masonry column.	97	72	Do. ..	1846; improved, 1860; improved, 1893.	

List of lights on the

Name of light.	Position.	Latitude, N.	Longitude, E.	Number of lights.	Colour of lights. Fog signal.	Character of light.	Period of revolution or flash.	Miles visible in clear weather.
Tondi ..	About 14 yards south of the Tondi Sea Customs House.	9° 45′	79° 0′	1	Red ..	F.	....	6
Point Calimere ..	On the point ..	10 18	79 51	1	Pale red.	F.	....	6
Negapatam ..	On the jetty near the Custom House.	10 45	79 51	1	White ..	F.	....	14
Karikal (French Territory).	North side of the Arselar river entrance.	10 55	79 50	1	Do. ..	F.	....	9
Cuddalore ..	On mound ..	11 43	79 46	1	Red ..	F.	....	6
Pondicherry (French territory).	In square, near the beach.	11 55	79 50	1	White ..	F.	....	15
	End of landing stage.	..	..	1	Red ..	F.	....	4
Seven Pagodas or Mahábalipuram.	On a rock, half a mile inland, and about 6 miles northward of Sadras.	12 37	80 11	1	Do. ..	F.	....	10
Madras ..	Main Tower of new High Court.	13 05	80 17	1	White ..	Gp. Fl.	Half minute ..	20
Madras Leading Light.	End of iron pier ..	13 06	80 17	1	Red ..	F.	....	5
	Custom Office ..	13 06	80 17	1	Green ..	F.	....	5
Madras Harbour.	End of north breakwater.	13 06	80 18	1	Red ..	F.	....	6
	End of south breakwater.	13 06	80 18	1	Do. ..	F.	....	6
Pulicat ..	Near the beach ..	13 25	80 20	1	White ..	F.	....	13
Armeghon ..	On the mainland, near village of Maniapolliem.	13 53	80 12	1	Do. ..	Fl.	Forty-five seconds.	15
Point Divi ..	On bank of river about 2 miles north-west of the point.	15 59	81 08	1	Do. ..	F.	....	13
Masulipatam ..	In the Fort ..	16 09	81 09	1	Do. ..	F.	....	6
Sacramento ..	Near Kotapalem beacon.	16 35	82 17	1	Red ..	F.	....	10
Hope island ..	On the southern part of island and distant about 2½ miles from the sea.	16 49	82 19	1	White ..	F.	....	15
Cocanada. Vakalpudi ..	4¾ miles north of Cocanada river and about 500 yards from the shore.	17 01	82 17	1	Do. ..	Fl.	Twenty seconds ..	14
Cocanada ..	One on the end of the north groyne, and the other on the end of the south groyne, entrance to the river.	..	..	2	Red ..	F.	....	2½

Coasts of the Madras Presidency—*cont.*

Arc of illumination. (Bearings are magnetic and from seaward.)	General description of building or vessel.	Height, in feet, of centre of lantern above high-water.	Height, in feet, of building from base to vane.	Character and candle power or order of illuminating apparatus.	Year lighted.	Remarks.
Visible from all directions seaward.	Steel mast ..	63	52	Dioptric, 6th order, $\frac{1}{10}$.	1892.	
....	Steel mast, painted white.	55	45	Do.	1890.	
Seaward from N. to S.	Masonry column, painted white.	80	83	Dioptric, 4th order, 1¼.	1896; improved, 1870; improved, 1893.	
....	Staff	42	..	Lantern ..	1853.	
Seaward from N. to S.	Flagstaff ..	130	31	Dioptric, 6th order, $\frac{1}{10}$.	1889; 1891.	
....	Masonry column, painted light yellow.	89	76	Dioptric, 4th order.	1886.	When surf is heavy and approach to landing prohibited, a fixed *green* light is shown, 26 feet high, visible about 3 miles.
....	Mast ..	31	..	....	1881.	
Seaward from N. to S.	Small grey turret.	116	26	Dioptric, 4th order, ½.	1887; improved, 1893.	
Visible seaward from N. 21° E., through W. to S. 21° W.	Octagonal tower, gilded dome.	166	190	Dioptric, 3rd order, 5½ to 18.	1844; altered, 1894.	Shows flash 2 seconds, eclipse 3 seconds; flash 2 seconds, eclipse 23 seconds.
From S. 50° W. through W. to N. 17° W.	Wooden post ..	30	..	Lantern dioptric.	1888.	Leading lights kept in line lead through the centre of the harbour entrance.
Do.	Do. ..	60	..	Do. ..	1888.	
....	Tower ..	37	25	Dioptric, 6th order, $\frac{1}{10}$.	1896.	
....	Do. ..	37	25	Do.	1896.	
From N. 11° W. through W. to S. 11° E.	Masonry column, with horizontal black and white bands.	68	57	Dioptric, 4th order, 1¼.	1859; improved, 1870; altered, 1881; improved, 1893.	
....	White masonry column.	107	111	Dioptric, 4th order, 3¼.	1853; improved, 1870; improved, 1881; improved, 1893.	A single flash of about 5 seconds duration every 45 seconds. Obscured on bearings north of N. 24° W.
From N. 17° W. through W. to S. 38° W.	Do.	48	50	Dioptric, 4th order, 1.	1851; improved, 1870; improved, 1893.	
From S. 26° W. through W. to N. 9° E.	Flagstaff on brick base.	69	112	Dioptric, 6th order, $\frac{1}{10}$.	1858; improved, 1870.	
From N. 45° E. through W. to S. 45° W.	Wooden structure.	25	16	Dioptric, 4th order, $\frac{1}{10}$.	1895 ..	Temporary.
From N. 5° E. through W. to S. 5° W.	Masonry tower, horizontal alternate bands of black and white.	83	94	Dioptric, 4th order, ½.	1817; improved, 1886; improved, 1893.	
....	White column ..	80	76	Dioptric, 4th order, 3¼.	1879 ..	This lighthouse is connected by telephone with Cocanada Port Office.
....	Wooden posts ..	10	..	....	1886 ..	Exhibited to serve as a guide to boats entering or leaving Cocanada river.

List of Lights on the

Name of light.	Position.	Latitude, N.	Longitude, E.	Number of lights.	Colour of lights. Fog signal.	Character of light.	Period of revolution or flash.	Miles visible in clear weather.
Santopilly ..	On a small detached hill, three-quarters of a mile inland.	18° 04′	83° 38′	1	White ..	F.	....	16
Calingapatam ..	On sandy point ..	18 19	84 07	1	Do. ..	Occ.	Thirty seconds ..	14
Gopalpur ..	On the mainland, 60 yards from low-water mark.	19 15	84 54	1	Do. ..	F.	....	10
	On the extreme end of the pier head.	..	..	1	Red ..	F.	....	3

Coasts of the Madras Presidency—*cont.*

Arc of illumination. (Bearings are magnetic and from seaward.)	General description of building or vessel.	Height, in feet, of centre of lantern above high-water.	Height, in feet, of building from base to vane.	Character and candle power or order of illuminating apparatus.	Year lighted.	Remarks.
From N. 45° E. through W. to S. 45° W.	Low white building.	163	31	Dioptric, 2nd order, $4\frac{1}{2}$.	1849; improved, 1871; improved, 1886; improved, 1888.	
....	Obelisk of cut stone; column white; outside ladder red.	76	73	Dioptric, 4th order, $\frac{1}{2}$.	1876; improved, 1890; improved, 1895.	Eclipses two and-a-half seconds.
Seaward from N. 45° E. to S. 45° W.	Flagstaff, painted white.	54	33	Dioptric, 4th order, $\frac{1}{2}$.	Improved, 1871; improved, 1892.	
....	....	25	..	Lantern ..	1887 ..	

Appendix C.

Statement furnishing { (1) Particulars of inspections made of lighthouses on the Madras coasts in 1897–98. (2) Remarks in connection with lightning conductors.

Name of light.	Officers by whom inspected.	Number of inspections.	Remarks as to lightning conductors.
Kundapur	Presidency Port Officer	1	
	Port Officer, Mangalore	3	
Hangarkotta ..	Presidency Port Officer	1	
	Port Officer, Mangalore	2	
Malpe	Presidency Port Officer	1	
	Port Officer, Mangalore	2	
Mangalore	Presidency Port Officer	1	
	Sub-divisional Officer, Public Works Department.	2	Last tested in 1894.
Cannanore	Presidency Port Officer	1	
	Executive Engineer, West Coast division ..	1	
Tellicherry	Port Officer, Tellicherry	12	
	Presidency Port Officer	1	Last tested in May 1896.
Calicut	Superintending Engineer, IV Circle	1	
	Executive Engineer, West Coast division ..	3	Tested in 1897–98.
Cochin	Presidency Port Officer	1	
	Executive Engineer	1	
	Assistant Engineer	1	
Muttum	Presidency Port Officer	1	
	Executive Engineer	1	
	Port Officer, Tuticorin	1	
Manapad	Presidency Port Officer	2	
	Superintending Engineer	1	
	Port Officer, Tuticorin	2	Last tested in 1896.
Hare Island (Tuticorin).	Presidency Port Officer	2	
	Superintending Engineer	1	
	Executive Engineer	1	Tested during the year by the Sub-divisional Officer, Public Works Department.
Pámban	Presidency Port Officer	1	
	Superintending Engineer	1	
	Executive Engineer	1	
Tondi	Port Officer, Pamban	1	Last tested in 1895.
	Presidency Port Officer	3	
Point Calimere ..	Presidency Port Officer	1	
	Divisional Officer, Public Works Department ..	1	
	Port Officer, Negapatam	1	
Negapatam	Presidency Port Officer	12	
	Superintending Engineer	2	
	Executive Engineer	1	Tested in 1897.
Cuddalore	Presidency Port Officer	1	
	Reserve Port Officer	1	
	Superintending Engineer	2	
Seven Pagodas ..	Superintendent of Works, Lighthouse division ..	1	
	Executive Engineer	1	Last tested in 1897.
Madras	Presidency Port Officer	1	
	Personal Assistant to Presidency Port Officer ..	Frequently	
Pulicat	Presidency Port Officer	Do.	
	Superintendent of Works, Lighthouse division ..	1	Last tested in 1895.
Armeghon	Presidency Port Officer	1	
	Sub-divisional Officer, Public Works Department. ..	1	Last tested in 1856.
Point Divi	Presidency Port Officer	1	
	Superintendent of Works, Lighthouse division ..	1	
	Overseer, Public Works Department	1	Last tested in 1895.
Sacramento	Port Officer, Masulipatam	4	
	Presidency Port Officer	12	
Hope Island	Port Officer, Cocanada	1	
	Presidency Port Officer	5	
	Port Officer, Cocanada	1	
Vakalapudi	Presidency Port Officer	4	Tested in 1897–98.
	Port Officer, Cocanada	1	
	Overseer, Public Works Department	7	
	Superintending Engineer	1	Tested in March 1898.
Santopilly	Presidency Port Officer	1	
	Executive Engineer	1	
	Port Officer, Bimlipatam	1	Last tested in 1895.
Calingapatam ..	Presidency Port Officer	12	
Gopalpur	Executive Engineer	1	
	Presidency Port Officer	1	Last tested in 1895.

N.B.—Lights in the immediate charge of the local Port Officers were frequently inspected by such officers.

Appendix D.

Statement showing the Description of Lights and the Consumption of Oil.

Light.	Description of burner.	Number of hours light was burning.	Consumption of oil during 1897–98 in gallons (fractions omitted.)	Consumption per hour in fluid ounce.	Standard consumption in fluid ounce.	Description.
Cannanore	Hincks' Duplex burner, wick 1" wide.	4,224	45	1·7	2·3	Sixth, fixed.
Tellicherry		4,349	50	1·8		
Point Calimere ..		4,376	51	1·9		
Masulipatam	Chance's circular wick burner.	4,375	62	2·2		
Cuddalore		4,351	63	2·3		
Tondi		4,414	74	2·7		
Malpe		3,148	41*	2·	2·3	Sixth, fixed.
Coondapoor		3,135	53*	2·7		
Hangarkotta		3,146	52*	2·6		
Gopalpore		4,372	67	2·4		
Sacramento	Hincks' Duplex burner, wick 1¼".	4,404	91	3·3	2·5	Fourth, fixed.
Manapad		4,343	74	2·7		
Hope Island	Large two-wick Douglass burner.	4,351	293	10·7	12	Fourth, fixed.
Calingapatam		4,431	361	13·		
Seven Pagodas ..	Two-wick Douglass burner ..	4,343	220	8·	6·5 to 7	Fourth, fixed.
Pámban		4,328	212	7·8		
Tuticorin		4,327	214	7·8		
Point Divi		4,376	205	7·4		
Negapatam		4,147	186	7·2		
Mangalore		4,351	177	6·5		
Pulicat		4,356	201	7·3		
Calicut		4,412	214	7·7		
Cochin		4,351	219	8·		
Armeghon		4,352	217	7·7		
Vakalapudi		4,351	220	8·		Fourth, flashing.
Madras	Four-wick Douglass burner ..	4,406	890	32·3	37·8	Third, flashing.
Santopilly		4,413	777	28·1		Second, fixed.
Muttum		4,337	845	31·1		First, fixed.
			6,174			

* Exhibited during only eight months every year.

The whole consumption of oil is practically the same as last year; but in a few of the lights there are large differences in consumption.

At Malpe and Mangalore the decrease is noticeable, and the attention of the Port officer, Mangalore, was called to the necessity of maintaining a better flame, with the result that an improvement took place at the close of the year.

At Madras the consumption was less by 47 gallons during the year under report, the figures being 975 and 928 gallons, respectively, inclusive of oil used for keepers' lights which has been omitted from this year's statement, making the actual consumption on account of the light 890 gallons.

The decrease in consumption is due to the frequent change of keepers owing to the introduction of the new establishment and to men being sent to Madras for training. New men do not maintain the flame as well as more experienced ones.

In the majority of lights the standard consumption is exceeded, but with the four-wick burner it is doubtful if the standard will ever be quite reached.

There were no complaints regarding the visibility of the lights during the year.

ORDER—No. 910, Marine, dated 31st October 1898.

Recorded, with the remark that the cost of lighting the coasts of the Madras Presidency during the year 1897-98 amounted to Rs. 37,835 as against Rs. 35,033 in the previous year. There was, in addition, an expenditure of Rs. 85,013 under the head of "Public Works," two new lighthouses at Havelock Point and Manapad Point having been under construction.

[Here enter No. 911, Marine, dated 31st October 1898.]

(True Extract.)

(Signed) W. B. DEWINTON,
Secretary to Government.

To the Presidency Port Officer.
" Superintendent of Works, Lighthouse Division.

ENDORSEMENT—No. 911, Marine, dated 31st October 1898.

Five copies forwarded to the Government of India, Department of Finance and Commerce.

(By order.)

(Signed) W. B. DEWINTON,
Secretary to Government.

Exd. T. K. Narayana Aiyangar.

A Report on Light-houses of this Presidency for 1897-98

Marine DEPARTMENT.

Papers to be read in Proceedings:—

Again G.O., dated		189 , No.
Again G.O., dated		189 , No.
Current No. 1224	of 1898 , dated 29th September,	from the P.P.O.
" "	" 189 , "	, "
" "	" 189 , "	, "

No. 910 Mar. 31-10-98.

ORDER.

The Hon'ble Sir Henry Blois, K.C.S.I.

Recorded with the remark that the cost of lighting the coasts of the Madras Presidency during the year 1897-98 amounted to Rs. 37,835 as against Rs. 35,033 in the previous year. There was, in addition, an expenditure of Rs. 85,013 under the head of "Public Works," two new light-houses at Havelock Point and Manapad Point having been under construction.

The Presidency Port Officer.
" Superintendent of Works,
Lighthouse Division.

(Endorsement No. 911 Mar. 31-10-98.

Five copies forwarded to the Government of India, Department of Finance and Commerce.

Note There seems nothing in the report which calls for special remark.

P. W. 4.
500—17-6-98.

No. 1890 G
232 G

Heading

Presidency Port Office,

Madras, 27th September 1898.

From

Commander W. Aves, R.I.M.,
Ag. Presidency Port Officer,

Madras,

To

THE SECRETARY TO GOVERNMENT,

MARINE DEPARTMENT,

CHEPAK.

Sir,

I have the honour to forward herewith* Report on lights and lighthouses in the Madras Presidency for the official year 1897/98.

*per packet post.

I have the honour to be,
Sir,
Your obdt. servant,
W Aves
Commander, R.I.M.,
Ag. Presy. Port Officer

W.H.S.

M. 4.
500—14-8-97.

18-10-98 R. 19-10-98

Marine (1898) Department.

CURRENT No. 1224

Order

From The Presidency Port Officer

No. 1890/332 Q

Dated 27-9-98

Received 29-9-98

Enclosures One

Spare copies x 3 &c

SUBJECT.

Lights and Lighthouses in the Madras Presidency

—

Forwarding Report on — for the official year 1897-98.

M. 4.
500—14-5-97.

BACK PAPERS.

No.	Date.
G.O.No. 171	9-3-98
112	12-2-98
1051-28	23-12-97
679	29-7-97 (3 c)
766-797-Mg6	(..)

FURTHER PAPERS.

No.	Date.

REPORT ON THE LIGHTS AND LIGHTHOUSES ON THE COASTS OF THE MADRAS PRESIDENCY FOR THE OFFICIAL YEAR 1897-98.

General Remarks.

All the lights along the coast were displayed throughout the year without interruption. The lighthouse buildings and appurtenances were maintained in order, sundry petty repairs and whitewashing being carried out where necessary.

2. Heavy mineral oil was used at all the lights, except the Madras Harbour lights which used kerosine oil.

3. The total cost of maintaining the lighthouses during the year was Rs. 1,22,848 against Rs. 45,112 in the previous year, showing an increase in charges of Rs. 77,736. Particulars of charges, &c., relating to the different lights are furnished in Appendices A and A (i).

Particulars of Lights.

For list and description of lights corrected to date, *vide* Appendix B.

Inspections.

See remarks in Appendix C.

Lightning Conductors.

See remarks in Appendix C.

Stores and Supplies

Were well maintained during the year.

Consumption of Oil.

Appendix D gives the number of hours each light was burning in the year and the actual consumption of oil at each light.

Establishments.

A scheme for re-organizing lighthouse establishments generally was sanctioned in the year, which has partially been brought into force and will, in course of time, be in full force. Under this scheme the establishment is graded as follows:—

	Rs.		Rs.
Lighthouse Inspector, East Coast division	100—150	Lightkeepers, 1st class, 2nd grade...	45
		Do. do. 3rd do.	40
Lighthouse Inspector, West Coast division	100—150	Do. 2nd class, 1st do.	20
		Do. do. 2nd do.	15
Head Lightkeepers, 1st class ...	70	Do. do. 3rd do.	12
Do. 2nd do. ...	65	Do. do. 4th do.	10
Do. 3rd do. ...	60	Do. do. 5th do.	9
Lightkeepers, 1st class, 1st grade...	50	Relief keepers	40

APPENDIX A.

PARTICULARS of Charges relating to Different Lights.

Lights.	Establishment.		Oil.	Stores.	Contingencies and miscellaneous.	Construction and repairs.	Total, 1897-98.	Total, 1896-97.	Total, 1895-96.	Remarks.
	Head lightkeepers.	Lightkeepers.								
1	2	3	4	5	6	7	8	9	10	11
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Hangarkotta	..	184 11 4	69 1 4	106 3 4	57 11 7	22 3 0	439 14 7	1,300 2 6	..	
Coondapoor	..	191 11 8	64 5 4	36 3 7	18 10 5	..	310 15 0	261 13 4	311 4 3	
Malpe	..	195 11 5	53 6 5	52 9 10	1 8 0	7 2 0	310 5 8	279 11 6	287 10 2	
Mangalore	..	330 3 2	278 13 0	68 6 11	19 3 6	14 0 0	710 10 7	860 6 5	5,101 14 10	
Cannanore	..	242 5 2	75 15 9	35 3 11	22 4 3	..	375 13 1	304 10 11	337 6 3	
Tellicherry	..	234 0 0	76 0 11	53 9 8	9 10 6	— 36 9 3	336 11 10	323 7 9	492 7 6	
Calicut	..	320 15 5	251 13 7	95 9 3	5 8 6	232 11 5	906 10 2	688 15 0	1,671 13 5	
Do.	Expenditure met from Calicut pier contingencies.									
Cochin	..	347 0 8	216 4 0	120 0 11	123 0 1	42 8 0	848 13 8	899 14 3	778 12 9	Light at end of pier.
Muttum	1,100 0 0	572 3 10	828 9 0	874 15 1	145 5 5	54 0 6	3,575 1 10	4,137 15 3	3,491 4 6	
Manapad	655 4 6	319 11 0	80 10 6	182 6 11	40 13 1	16,109 2 4	17,388 9 4	1,754 9 5	1,290 8 1	
Tuticorin	..	686 8 0	255 5 0	114 6 1	231 10 9	103 4 0	1,391 1 10	1,915 14 4	1,683 9 7	
Pamban	..	351 14 3	203 12 7	68 1 7	56 12 0	0 2 6	680 10 11	1,021 8 1	880 10 2	
Tondi	..	236 12 5	87 4 8	52 0 3	8 9 6	..	384 10 10	328 13 7	452 6 1	
Point Calimere	..	211 3 7	41 10 6	36 2 6	45 6 9	692 10 9	1,027 2 1	704 13 10	353 13 11	
Negapatam	..	360 0 0	228 14 4	25 10 8	47 8 5	434 11 6	1,096 12 11	768 13 0	861 4 1	
Cuddalore	..	460 7 7	63 1 1	24 7 5	36 13 3	361 5 4	946 2 8	570 12 2	564 9 4	
Seven Pagodas	840 0 0	488 13 2	241 5 11	256 14 8	52 14 0	109 3 10	1,989 3 7	1,920 9 6	2,098 8 9	
Madras	959 15 11	670 3 11	695 7 3	266 11 11	138 14 5	..	2,731 5 5	4,310 15 7	3,523 14 2	
Do.	Expenditure met from Madras port contingencies.									
Pulicat	840 0 0	448 0 0	196 5 1	256 11 11	63 1 4	68 9 10	1,872 12 2	1,663 11 4	1,826 7 5	Two lights mark the entrance to the harbour and two lights show the fair way.
Armeghon	1,200 0 0	648 0 0	197 11 0	2,181 1 3	39 10 0	2 9 0	4,268 15 3	2,512 2 1	2,413 5 4	
Point Divi	840 0 0	636 6 0	230 14 1	107 7 11	68 14 4	65,031 8 8	66,915 3 0	2,463 6 3	1,856 12 0	
Masulipatam	..	237 12 0	49 5 0	34 0 6	32 10 5	..	353 11 11	352 1 1	428 11 3	
Do.	Expenditure met from Landing and Shipping Dues Act III of 1885.									
Hope Island	750 0 0	796 0 0	328 15 9	87 14 11	177 8 6	..	2,140 7 2	2,299 7 9	2,295 15 0	Bar lights.
Sacramento	..	371 15 11	69 14 3	15 9 8	67 2 6	109 8 0	634 2 4	534 0 11	1,659 13 6	
Cocanada	Expenditure met from Landing and Shipping Dues Act III of 1885.									
Do.	846 0 0	595 4 9	235 0 7	2,022 7 0	85 10 1	..	3,784 6 5	2,073 11 7	2,072 15 3	Groynes lights.
Vakalapudi	840 0 0	471 13 7	746 13 1	764 2 10	116 9 3	915 4 4	3,854 11 1	4,569 13 4	3,012 9 10	
Santopilly	701 15 0	557 10 7	358 10 3	108 1 9	681 11 1	709 3 6	3,117 4 2	5,995 0 2	5,889 11 3	
Calingapatam	..	223 12 10	112 5 10	51 4 2	38 6 2	30 3 8	456 0 8	294 13 1	458 11 7	
Gopalpore	Expenditure met from Gopalpore pier contingencies.									Light at end of pier.
Do.										
Total ..	9,573 3 5	11,391 4 3	6,337 12 1	8,098 10 5	2,433 8 1	85,013 6 11	1,22,847 13 2	45,112 2 0	46,096 14 3	

APPENDIX A (i).

STATEMENT of Lighthouse Expenditure for 1897-98, compared with those for 1896-97.

	1897-98.	1896-97.	Difference.	
			More.	Less.
	Rs.	Rs.	Rs.	Rs.
Salaries of Head lightkeepers and lightkeepers	20964	21530	"	566
Oil (a)	6338	5991	347	"
Stores (b)	8099	4904	3195	"
Contingencies	2433	2805	"	372
	37835	35033	3534	372
Add Public works charges (c)	84378	10079	74934	740
Total	122848	45112	78470	740
			+77730	

(a) The excess in expenditure under the heading "oil" is slight and calls for no special explanation.

(b) The increase under "stores" is, in a great measure, due to debit in 1897-98 of cost of new clock work supplied to Armeghon and Vakalapudi lighthouses at an aggregate cost of Rs. 2,971.

(c) There was a heavy expenditure during the year under "Public Works" relating to construction of new lighthouses at Havelock Point and Manapad Point to be termed, respectively, Kistna and Manapad lights.

APPENDIX

LIST of lights on the Coasts of the Madras Presidency.

Name of light.	Position.	Latitude, N.	Longitude, E.	Number of lights.	Colour of lights. Fog signal.	Character of light.	Period of revolution or flash.	Miles visible in clear weather.
Coondapoor ..	Seventeen yards northward of the southern boundary pillar.	13° 38′	74° 40′	1	White ..	F.	....	8
Hangarkotta ..	About 700 yards to south of position of northern pillar now washed away.	13 27	74 41	1	Red ..	F.	....	6
Malpe ..	On the beach at the entrance to the river.	13 21	74 42	1	White ..	F.	....	8
Mangalore ..	On a hill above the town.	12 52	74 50	1	Do. ..	F.	....	14
Cannanore ..	On the Fort rampart.	11 51	75 22	1	Red ..	F.	....	6
Tellicherry ..	On the Fort wall ..	11 45	75 29	1	White ..	F.	....	8
Mahé (French Territory).	On the south side of the entrance to the river, at the foot of the flagstaff.	11 42	75 31	1	Red ..	F.	....	6
Calicut ..	On the beach ..	11 15	75 46	1	White ..	F.	....	14
Narakel ..	On the beach at mouth of creek.	10 03	76 12	1	Do. ..	F.	....	10
Cochin ..	On a small mound which formed a bastion of the old fort to the south of the harbour.	9 58	76 14	1	Do. ..	F.	....	15
Alleppy ..	On the beach, about one cable inland.	9 30	76 19	1	Do. ..	Rev.	One minute ..	17
Muttum Point ..	On a rocky promontory, 300 yards from sea.	8 07	77 18	1	Do. ..	F.	....	16
Gulf of Manar. Manapad Point.	On summit ..	8 22	78 04	1	Red ..	F.	....	8
Gulf of Manar. Tuticorin ..	On the north extreme of Hare Island, 2½ miles east of Tuticorin town.	8 47	78 11	1	White ..	F.	....	14
Gulf of Manar. Pamban Pass.	On a sand-hill, about one mile east of Northern channel.	9 17	79 13	1	Do. ..	F.	....	14

Coasts of the Madras Presidency.

Arc of illumination. (Bearings are magnetic and from seaward.)	General description of building or vessel.	Height, in feet, of centre of lattern above high-water.	Height, in feet, of building from base to vane.	Character and candle power or order of illuminating apparatus.	Year lighted.	Remarks.
From S. 28° E. through E. to N. 6° W.	Steel mast ..	45	40	Dioptric, 6th order, ⅛.	1888; altered, 1891; altered, 1894.	Exhibited from 15th September to 31st May.
From N. through E. to S., except where obscured by trees, between S. and S. 9° E. and by St. Mary's Isles between N. to N. 5° E., and N. 9° E. to N. 15° E.	Small white masonry column.	12	15	Dioptric, 6th order, $\frac{1}{10}$.	1896 ..	Do. do.
Visible seaward from N. to S. except where obscured from N. to N. 45° E. by trees, and from N. 53° E. to N. 57° E., and N. 73° E. to N. 80° E. by St. Mary's Isles.	Steel mast ..	53	50	Dioptric, 6th order, ⅛.	1888; altered, 1891.	Do. do.
From N. 16° E., through E. to S. 16° W.	Small white masonry tower.	240	65	Dioptric, 4th order, 1¼.	1842; improved, 1870.	
Seaward from N. 59° W. to S. 70° E.	Small light yellow masonry tower.	64	25	Dioptric, 6th order, $\frac{1}{10}$.	1843; improved, 1870; transferred to tower, 1880; 1885.	
Seaward from S. 59° E. to N. 38° W.	Small masonry tower.	82	27	Dioptric, 6th order, ⅛.	1835; improved, 1870; transferred to tower, 1881.	
All round the compass.	Mast on the western bastion of the fort.	86	45	....	1885 ..	Shown only during north-east monsoon.
From N. 25° W., through E. to S. 14° E.	White column.	103	98	Dioptric, 4th order, 1¼.	1847; improved, 1881.	A small *red* light is exhibited from the head of the pier.
Seaward from N. 22° W. through E. to S. 22° E.	Flagstaff ..	95	102	Lantern ..	1865 ..	Is exhibited only during the south-west monsoon, namely, from 15th May to 30th September, when Cochin port is avoided by shipping.
Seaward from N. 20° W. through E. to S. 11° E.	White masonry column.	100	91	Dioptric, 4th order, 1¼.	1839; improved, 1868.	
All round the compass.	Round white masonry tower.	113	115	Catadioptric, 1st order (Holophotal).	1862.	
Seaward from N. 64° W. through N. to S. 84° E.	Column black and white horizontal stripes.	141	72	Dioptric, 1st order, 6.	1875; altered, 1883.	Is intended to mark the vicinity of the Crocodile Rock which lies 3 miles south-west ¾ S. of Cadiapatam Point.
From N. 22° E., through W. to S. 22° W.	White masonry tower.	104	27	Dioptric, 4th order, $\frac{1}{10}$.	1888; improved, 1890.	
All round the compass.	Sandstone column, coloured brown, lantern white.	85	91	Dioptric, 4th order, 1.	1845; improved, 1874; improved, 1893.	
Do. ..	Circular masonry column.	97	72	Do. ..	1846; improved, 860; improveld, 1893.	

List of lights on the

Name of light.	Position.	Latitude, N.	Longitude, E.	Number of lights.	Colour of lights. Fog signal.	Character of light.	Period of revolution or flash.	Miles visible in clear weather.
Tondi ..	About 14 yards south of the Tondi Sea Customs House.	9° 45′	79° 0′	1	Red ..	F.	....	6
Point Calimere ..	On the point ..	10 18	79 51	1	Pale red.	F.	....	6
Negapatam ..	On the jetty near the Custom House.	10 45	79 51	1	White ..	F.	....	14
Karikal (French Territory).	North side of the Arselar river entrance.	10 55	79 50	1	Do. ..	F.	....	9
Cuddalore ..	On mound ..	11 43	79 46	1	Red ..	F.	....	6
Pondicherry (French territory).	In square, near the beach.	11 55	79 50	1	White ..	F.	....	15
	End of landing stage.	..	..	1	Red ..	F.	....	4
Seven Pagodas or Mahábalipuram.	On a rock, half a mile inland, and about 6 miles northward of Sadras.	12 37	80 11	1	Do. ..	F.	....	10
Madras ..	Main Tower of new High Court.	13 05	80 17	1	White ..	Gp. Fl.	Half minute ..	20
Madras Leading Light.	End of iron pier ..	13 06	80 17	1	Red ..	F.	....	5
Madras Harbour.	Custom Office ..	13 06	80 17	1	Green ..	F.	....	5
	End of north breakwater.	13 06	80 18	1	Red ..	F.	....	6
	End of south breakwater.	13 06	80 18	1	Do. ..	F.	....	6
Pulicat ..	Near the beach ..	13 25	80 20	1	White ..	F.	....	13
Armeghon ..	On the mainland, near village of Maniapolliem.	13 53	80 12	1	Do. ..	Fl.	Forty-five seconds.	15
Point Divi ..	On bank of river about 2 miles north-west of the point.	15 59	81 08	1	Do. ..	F.	....	13
Masulipatam ..	In the Fort ..	16 09	81 09	1	Do. ..	F.	....	6
Sacramento ..	Near Kotapalem beacon.	16 35	82 17	1	Red ..	F.	....	10
Hope island ..	On the southern part of island and distant about 2½ miles from the sea.	16 49	82 19	1	White ..	F.	....	15
Cocanada. Vakalpudi ..	4¾ miles north of Cocanada river and about 500 yards from the shore.	17 01	82 17	1	Do. ..	Fl.	Twenty seconds ..	14
Cocanada ..	One on the end of the north groyne, and the other on the end of the south groyne, entrance to the river.	..	..	2	Red ..	F.	....	2½

Coasts of the Madras Presidency—*cont.*

Arc of illumination. (Bearings are magnetic and from seaward.)	General description of building or vessel.	Height, in feet, of centre of lantern above high-water.	Height, in feet, of building from base to vane.	Character and candle power or order of illuminating apparatus.	Year lighted.	Remarks.
Visible from all directions seaward.	Steel mast ..	63	52	Dioptric, 6th order, $\frac{1}{10}$.	1892.	
....	Steel mast, painted white.	55	45	Do.	1890.	
Seaward from N. to S.	Masonry column, painted white.	80	83	Dioptric, 4th order, $1\frac{1}{4}$.	1896; improved, 1870; improved, 1893.	
....	Staff	42	..	Lantern ..	1853.	
Seaward from N. to S.	Flagstaff ..	130	31	Dioptric, 6th order, $\frac{1}{10}$.	1889; 1891.	
....	Masonry column, painted light yellow.	89	76	Dioptric, 4th order.	1886.	When surf is heavy and approach to landing prohibited, a fixed *green* light is shown, 26 feet high, visible about 3 miles.
....	Mast ..	31	..	....	1881.	
Seaward from N. to S.	Small grey turret.	116	26	Dioptric, 4th order, $\frac{1}{2}$.	1887; improved, 1893.	
Visible seaward from N. 21° E., through W. to S. 21° W.	Octagonal tower, gilded dome.	166	190	Dioptric, 3rd order, $5\frac{1}{2}$ to 18.	1844; altered, 1894.	Shows flash 2 seconds, eclipse 3 seconds; flash 2 seconds, eclipse 23 seconds.
From S. 50° W. through W. to N. 17° W.	Wooden post ..	30	..	Lantern dioptric.	1888.	Leading lights kept in line lead through the centre of the harbour entrance.
Do.	Do. ..	60	..	Do. ..	1888.	
....	Tower ..	37	25	Dioptric, 6th order, $\frac{1}{10}$.	1896.	
....	Do. ..	37	25	Do.	1896.	
From N. 11° W. through W. to S. 11° E.	Masonry column, with horizontal black and white bands.	68	57	Dioptric, 4th order, $1\frac{1}{4}$.	1859; improved, 1870; altered, 1881; improved, 1893.	
....	White masonry column.	107	111	Dioptric, 4th order, $3\frac{1}{4}$.	1853; improved, 1870; improved, 1881; improved, 1893.	A single flash of about 5 seconds duration every 45 seconds. Obscured on bearings north of N. 24° W.
From N. 17° W. through W. to S. 38° W.	Do.	48	50	Dioptric, 4th order, 1.	1851; improved, 1870; improved, 1893.	
From S. 26° W. through W. to N. 9° E.	Flagstaff on brick base.	69	112	Dioptric, 6th order, $\frac{1}{8}$.	1858; improved, 1870.	
From N. 45° E. through W. to S. 45° W.	Wooden structure.	25	16	Dioptric, 4th order, $\frac{1}{10}$.	1895 ..	Temporary.
From N. 5° E. through W. to S. 5° W.	Masonry tower, horizontal alternate bands of black and white.	83	94	Dioptric, 4th order, $\frac{1}{2}$.	1817; improved, 1886; improved, 1893.	
....	White column ..	80	76	Dioptric, 4th order, $3\frac{1}{4}$.	1879 ..	This lighthouse is connected by telephone with Cocanada Port Office.
....	Wooden posts ..	10	..	....	1886 ..	Exhibited to serve as a guide to boats entering or leaving Cocanada river.

List of Lights on the

Name of light.	Position.	Latitude, N.	Longitude, E.	Number of lights.	Colour of lights. Fog signal.	Character of light.	Period of revolution or flash.	Miles visible in clear weather.
Santopilly ..	On a small detached hill, three-quarters of a mile inland.	18° 04′	83° 38′	1	White ..	F.	....	16
Calingapatam ..	On sandy point ..	18 19	84 07	1	Do. ..	Occ.	Thirty seconds ..	14
Gopalpur ..	On the mainland, 60 yards from low-water mark.	19 15	84 54	1	Do. ..	F.	....	10
	On the extreme end of the pier head.	..	..	1	Red ..	F.	....	3

Coasts of the Madras Presidency—*cont.*

Arc of illumination (Bearings are magnetic and from seaward.)	General description of building or vessel.	Height, in feet, of centre of lantern above high-water.	Height, in feet, of building from base to vane.	Character and candle power or order of illuminating apparatus.	Year lighted.	Remarks.
From N. 45° E. through W. to S. 45° W.	Low white building.	163	31	Dioptric, 2nd order, 4½.	1849; improved, 1871; improved, 1886; improved, 1888.	
....	Obelisk of cut stone; column white; outside ladder red.	76	73	Dioptric, 4th order, ½.	1876; improved, 1890; improved, 1895.	Eclipse two and-a-half seconds.
Seaward from N. 45° E. to S. 45° W.	Flagstaff, painted white.	54	33	Dioptric, 4th order, ⅛.	Improved, 1871; improved, 1892.	
....	....	25	..	Lantern ..	1887 ..	

Appendix C.

Statement furnishing { (1) Particulars of inspections made of lighthouses on the Madras coasts in 1897–98. (2) Remarks in connection with lightning conductors.

Name of light.	Officers by whom inspected.	Number of inspections.	Remarks as to lightning conductors.
Kundapur	Presidency Port Officer	1	
	Port Officer, Mangalore	3	
Hangarkotta ..	Presidency Port Officer	1	
	Port Officer, Mangalore	2	
Malpe	Presidency Port Officer	1	
	Port Officer, Mangalore	2	
Mangalore	Presidency Port Officer	1	
	Sub-divisional Officer, Public Works Department.	2	Last tested in 1894.
Cannanore	Presidency Port Officer	1	
	Executive Engineer, West Coast division ..	1	
Tellicherry	Port Officer, Tellicherry	12	
	Presidency Port Officer	1	Last tested in May 1896.
Calicut	Superintending Engineer, IV Circle	1	Tested in 1897–98.
	Executive Engineer, West Coast division ..	3	
	Presidency Port Officer	1	
Cochin	Executive Engineer	1	
	Assistant Engineer	1	
	Presidency Port Officer	1	
Muttum	Executive Engineer	1	
	Port Officer, Tuticorin	1	Last tested in 1896.
	Presidency Port Officer	2	
Manapad	Superintending Engineer	1	
	Port Officer, Tuticorin	2	
	Presidency Port Officer	2	
	Superintending Engineer	1	Tested during the year by the Sub-divisional Officer, Public Works Department.
Hare Island (Tuticorin).	Executive Engineer	1	
	Presidency Port Officer	1	
Pamban	Superintending Engineer	1	
	Executive Engineer	1	Last tested in 1895.
Tondi	Port Officer, Pamban	1	
	Presidency Port Officer	3	
	Presidency Port Officer	1	
Point Calimere ..	Divisional Officer, Public Works Department ..	1	
	Port Officer, Negapatam	1	
	Presidency Port Officer	12	
Negapatam	Superintending Engineer	2	
	Executive Engineer	1	Tested in 1897.
	Presidency Port Officer	1	
Cuddalore	Reserve Port Officer	1	
	Superintending Engineer	2	
Seven Pagodas ..	Superintendent of Works, Lighthouse division ..	1	
	Executive Engineer	1	Last tested in 1897.
Madras	Presidency Port Officer	1	
	Personal Assistant to Presidency Port Officer ..	Frequently	
Pulicat	Presidency Port Officer	Do.	
	Superintendent of Works, Lighthouse division ..	1	Last tested in 1895.
Armeghon	Presidency Port Officer	1	
	Sub-divisional Officer, Public Works Department.	1	Last tested in 1896.
	Presidency Port Officer	1	
Point Divi	Superintendent of Works, Lighthouse division ..	1	
	Overseer, Public Works Department	1	Last tested in 1895.
	Port Officer, Masulipatam	4	
Sacramento	Presidency Port Officer	12	
	Port Officer, Cocanada	1	
Hope Island	Presidency Port Officer	5	
	Port Officer, Cocanada	1	Tested in 1897–98.
Vakalapudi	Presidency Port Officer	4	
	Port Officer, Cocanada	1	
	Overseer, Public Works Department	7	Tested in March 1898.
	Superintending Engineer	1	
Santopilly	Presidency Port Officer	1	
	Executive Engineer	1	Last tested in 1895.
	Port Officer, Bimlipatam	1	
Calingapatam ..	Presidency Port Officer	12	
	Executive Engineer	1	Last tested in 1895.
Gopalpur	Presidency Port Officer	1	
		1	

N.B.—Lights in the immediate charge of the local Port Officers were frequently inspected by such officers.

Appendix D.

Statement showing the Description of Lights and the Consumption of Oil.

Light.	Description of burner.	Number of hours light was burning.	Consumption of oil during 1897–98 in gallons (fractions omitted.)	Consumption per hour in fluid ounces.	Standard consumption in fluid ounce.	Description.
Cannanore	Hincks' Duplex burner, wick 1" wide.	4,224	45	1·7	2·3	Sixth, fixed.
Tellicherry		4,349	50	1·8		
Point Calimere ..		4,376	51	1·9		
Masulipatam	Chance's circular wick burner.	4,375	62	2·2	2·3	Sixth, fixed.
Cuddalore		4,351	63	2·3		
Tondi		4,414	74	2·7		
Malpe		3,148	41*	2·		
Coondapoor		3,135	53*	2·7		
Hangarkotta		3,146	52*	2·6		
Gopalpore	Hincks' Duplex burner, wick 1½".	4,372	67	2·4	2·5	Fourth, fixed.
Sacramento		4,404	91	3·3		
Manapad	Large two-wick Douglass burner.	4,343	74	2·7	12	Fourth, fixed.
Hope Island		4,351	293	10·7		
Calingapatam		4,431	361	13·		
Seven Pagodas ..	Two-wick Douglass burner ..	4,343	220	8·	6·5 to 7	Fourth, fixed.
Pamban		4,328	212	7·8		
Tuticorin		4,327	214	7·8		
Point Divi		4,376	205	7·4		
Negapatam		4,147	186	7·2		
Mangalore		4,351	177	6·5		
Pulicat		4,356	201	7·3		
Calicut		4,412	214	7·7		
Cochin		4,351	219	8·		
Armeghon		4,352	217	7·7		
Vakalapudi		4,351	220	8·		
Madras	Four-wick Douglass burner ..	4,406	890	32·3	37·8	Third, flashing.
Santopilly		4,413	777	28·1		Second, fixed.
Muttum		4,337	845	31·1		First, fixed.
			6,174			

* Exhibited during only eight months every year.

The whole consumption of oil is practically the same as last year; but in a few of the lights there are large differences in consumption.

At Malpe and Mangalore the decrease is noticeable, and the attention of the Port officer, Mangalore, was called to the necessity of maintaining a better flame, with the result that an improvement took place at the close of the year.

At Madras the consumption was less by 47 gallons during the year under report, the figures being 975 and 928 gallons, respectively, inclusive of oil used for keepers' lights which has been omitted from this year's statement, making the actual consumption on account of the light 890 gallons.

The decrease in consumption is due to the frequent change of keepers owing to the introduction of the new establishment and to men being sent to Madras for training. New men do not maintain the flame as well as more experienced ones.

In the majority of lights the standard consumption is exceeded, but with the four-wick burner it is doubtful if the standard will ever be quite reached.

There were no complaints regarding the visibility of the lights during the year.

18-1-12 ✓

[R.O. / 10]

5,000—5 12-10.

MADRAS RECORD OFFICE.

Block No. II

Paper taken out of the Records from the charge of the Referencer,

Dept. Marine Press / Mic. / Rout. No. 912, dated 31-10-1911 98 Rack No. Range,

Date taken out.	For what purpose.			Initials of Referencer.	Date returned.	Initials of attender.
	Department.	C. No.	Year.			
28/3/11	Marine	361	11	[illegible]	14.6.11	[illegible]

to [illegible] of the
in the Marine branches of the Public Service is appointed
as an Assessor at a Court of Inquiry, he shall be
permitted to draw half the fee prescribed for
Nautical Assessors in Rs 32193 28 Sept 85
Communicated to the Port Officer.

INDEXED

[illegible]

31/10/98