(1) பக்கங்களின் எண்ணிக்கை 18

(2) புதுக்கித் திருப்பிய நாள் 10.2.90

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

தமிழ்நாடு ஆவணக் காப்பகம்.

(72)

தமிழ்நாடு அரசு

P.W.D துறை

அரசாணை எண். 2837 அச்சகம்
மு. கோப்புத் தாள் எண். பல்வகை

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GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

Read—the following paper:—

From Captain H. A. STREET, H. M.'s I. M., Presidency Port Officer, to the Chief Secretary to Government, dated Madras, 20th July 1889, No. 519—300.

I have the honor to forward herewith the annual report on lights and lighthouses for the official year 1888-89.

Enclosures.

Report on the Lights and Lighthouses on the coasts of the Madras Presidency for the official year 1888-89.

New Lights.

During the year 1888-89, a new light was exhibited at Manapad Point, coast of Tinnevelly. This light is a fixed red one of the sixth order dioptric, visible 6 miles in clear weather, and was first exhibited on 1st June 1888. It is intended as a guide for vessels passing Manapad Point and those bound for the port of Kulasekarapatnam, also to guide vessels clear of the dangerous shoals between Manapad Point and Tuticorin, and is displayed from a white masonry tower erected on the Point. An establishment of one Superintendent on Rs. 50 and two lightkeepers on Rs. 10 and 8, respectively, is attached to this light. Experience, however, proved in the course of some months after the light had been displayed that a sixth order light did not quite answer the necessary purpose, and proposals were submitted for replacing it by a fourth order red dioptric light, the range of visibility of which would be about 15 miles. Sanction was accorded to this change, and the further action taken is matter for notice in the ensuing year's report.

At Madras two lights were exhibited from and after the 15th October 1888—one a red fixed light from a pole on the T head of the Iron Pier, and the other a green fixed light from the roof of the Presidency Port Office, both visible at a distance of 5 miles. These lights are intended as a guide to ships leaving the Madras Harbour and to those making the outer anchorage at night. A lamp-trimmer on Rs. 13 per mensem is employed to look after these lights, and is paid by the Harbour Board from Madras Port Funds.

The temporary lights at Malpé and Kundapur, on the South Canara coast, noticed in last year's report, were extinguished on the morning of the 1st June 1888, and fresh arrangements were made for the permanent exhibition, during the working season of 8 months every year from 1st October to 31st May, of a fixed white light at Malpé and a fixed red light at Kundapur from the flagstaves already erected at those ports for the purpose, the necessary lamps being supplied by Government to replace those lent for the past season by Messrs. Shepherd and Co., of Bombay. In accordance with these arrangements, the lights in question were re-exhibited on the 1st October 1888. These lights are harbour lights only, and are intended for the purpose of guiding coasting vessels approaching the anchorages off Malpé and Kundapur after dark. A lightkeeper on Rs. 6 per month is attached to each of these lights for the 8 months during which they are displayed.

Proposed New Lights.

The question of providing a new light at Point Calimere for the use of small vessels passing within, say, 3 or 4 miles of the Point, was taken into consideration, and arrangements made towards the end of the year for procuring the necessary plan and estimates. Further action in reference to this will be noticed in the ensuing year's report.

Improvements to Lighting Apparatus.

The enormous expenditure of oil at the Santopilly lighthouse having attracted attention, measures were taken to effect a reduction by improvements to the lighting apparatus, suggested by Mr. Chatterton, the Superintendent of Muttum Lighthouse, on the lines adopted at that lighthouse. The circular burners and wicks supplied by Messrs. Chance, Brothers, for the 2nd order dioptric light at this lighthouse were replaced by Hink's duplex burners with flat wick, the existing apparatus being slightly altered to suit. The results have fully justified the adoption of the new lamps, a saving of more than 300 gallons of oil per annum having been effected, with the light still retaining its usual brilliancy.

Proposed Discontinuance of Beypore Light.

The railway terminus having been transferred from Beypore to Calicut, and Beypore having ceased to become a regular "port of call," the necessity for a light at Beypore no longer existed. A proposal was therefore submitted to Government to discontinue the flagstaff light at this port, which was approved, and the 1st July in the ensuing year was fixed as the date on and after which the light was not to be exhibited.

Repairs and Improvements.

(*a*) *Lighthouses.*—The lighthouses and light structures along the coast were all of them in a satisfactory condition at the close of the official year. In addition to periodical repairs, colorwashing, painting, &c., the following may be noticed, namely—

Calingapatam Light.—A wooden ladder and other improvements sanctioned and work commenced.

Seven Pagodas Light.—Arrangements made for fixing a lightning conductor, but the work had to stand over for the ensuing year.

Negapatam Light.—Improvements to the signalling appliances of the lighthouse and the removal of the inside handrail which connects with the lightning conductor sanctioned, and the work partially executed in the year.

Cochin Lighthouse.—New railings and doors fixed to the quarters of the signal and light station.

Calicut Lighthouse.—A wire fence was placed round the structure.

(*b*) *Lightkeepers' Quarters.*—The following may be noticed in addition to petty repairs to lightkeepers' quarters, namely—

Calingapatam Light.—New sheds for keepers sanctioned, and work commenced.

Vakalapudi Light.—New quarters for keepers nearly completed; delay attributed to bad workmanship of the contractor, owing to which the Public Works Department had to take over the work into their own hands.

Seven Pagodas Light.— Quarters for the Superintendent completed. The sinking of a well for the supply of drinking-water for the lightkeepers was arranged with the Public Works Department, but the work had to stand over for the ensuing year.

Establishments.—The establishments of the various light-houses on the coasts of the Madras Presidency may be summarised as follows:—One Superintendent on Rs. 125, three on Rs. 100 each, five on Rs. 70 each, and one on Rs. 50 per mensem, besides an Assistant Superintendent on Rs. 21, and head lightkeepers and lightkeepers on wages ranging at Rs. 15 and from Rs. 12 to 6 per mensem. Lighthouses to which no Superintendents are attached are in the charge of Head lightkeepers and lightkeepers, but under the immediate supervision of Port Officers or Port Conservators, who are *ex-officio* Superintendents. A scheme for the reorganization of the whole of the lighthouse establishments and classification of the Superintendents and Lightkeepers was submitted to Government, but effect was not given thereto till after the close of the year under review.

Distribution of Lights.—The lights are 29 in number, and are distributed as shown below, nine on the West and 20 on the East coast:—

West Coast.

1. Kundapur	..	Mast-head light on staff (a harbour light)	..	..	..	Red.
2. Malpé	..	Do. do. (do.)	..	..	..	White.
3. Mangalore	..	Lighthouse .. 4th Order ..	Dioptric	.. Fixed	..	Do.
4. Cannanore	..	Do. .. 6th do. ..	Dioptric	.. Fixed	..	Red.
5. Tellicherry	..	Do. .. 6th do. ..	Do.	.. Do.	..	White.
6. Calicut	..	Do. .. 4th do. ..	Do.	.. Do.	..	Do.
7. Beypore *	..	Flagstaff .. Lantern ..	Do.	.. Do.	..	Red.
8. Cochin	..	Lighthouse .. 4th Order ..	..	.. ..	..	White.
9. Muttum	..	Do. .. 1st do. ..	Catadioptric	. Fixed	..	Do.
			Dioptric	.. Do.		

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East Coast.

10. Manapad	.. Tower ..	6th Order ..	Dioptric ..	Fixed ..	Red.	
11. Tuticorin	.. Lighthouse ..	4th do. ..	Dioptric ..	Do. ..	White.	
12. Pámban	.. Do. ..	4th do. ..	Catadioptric .	Do. ..	Do.	
13. Negapatam	.. Do. ..	4th do. ..	Dioptric ..	Do. ..	Do.	
14. Seven Pagodas †	Do. (Grey turret).	4th do. ..	Do. ..	Do. ..	Red.	
15. Madras	.. Lighthouse ..	English ..	Catadioptric .	Reciprocating, Flashing.	White.	
16. Do.	.. Port Office terrace.	Ship's side light.	Dioptric ..	Fixed ..	Green.	
17. Do.	.. Pier	Do. ..	Do. ..	Do. ..	Red.	
18. Pulicat	.. Lighthouse ..	4th Order ..	Do. ..	Do. ..	White.	
19. Armeghon	.. Do. ..	4th do. ..	Do. ...	Revolving ..	Do.	
20. Point Divi	.. Do. ..	4th do. ..	Do. ..	Fixed ..	Do.	
21. Masulipatam	.. Flagstaff ..	6th do. ..	Do. ..	Do. ..	Do.	
22. Hope Island	.. Lighthouse ..	4th do. ..	Do. ..	Do. ..	Do.	
23. Cocanada	.. South Groyne end.	Globular lantern, ship's.	.. ..	..	Red.	
24. Do.	.. North Groyne end.	Do. ..	.. ..	Do. ..	Do.	
25. Vakalapudi	.. Lighthouse ..	4th Order ..	Catoptric ..	Revolving ..	White.	
26. Santopilly	.. Do. ..	2nd do. ..	Dioptric ..	Fixed ..	Do.	
27. Calingapatam	.. Do. ..	3rd do. ..	Country ..	Do. ..	Do.	
28. Gopálpur	.. Pier	Country lantern.	.. ..	Do. ..	Red.	
29. Do.	.. Flagstaff ..	3rd Order ..	Country ...	Do. ..	White.	

* Discontinued from 1st July 1889.

† Cuddalore—A red light exhibited from 1st July 1889.

Expenditure.—A statement showing the expenditure on account of light establishment and contingencies for the year under review as it stood on the books of this office on the closing of the accounts of March preliminary, drawn out in the form* prescribed in G.O., Marine, No. 432, dated 1st September 1888, is herewith forwarded. A revised statement showing the actual expenditure for the year will be submitted on the closing of accounts of March final, and on receipt of further information from the Examiner of Public Works Accounts as to the original cost of lighthouses and their apparatus.

* Slightly altered.

Inspection.—All the lighthouses, with the exception of those at Manapad, Pámban, Pulicat and Seven Pagodas, were inspected by the Presidency Port Officer during the year, and the Divisional officers of the Public Works Department also visited most of the lighthouses situated in their respective divisions, and the necessary measures were taken to supply such wants and to remedy such defects as were noticed by the Presidency Port Officer, or were brought to his notice by the officers of the Public Works Department. The Presidency Port Officer was unable to carry out his inspection jointly with the Chief Engineer to Government (as required by G.O., Marine, No. 529, of 3rd December 1884), as the latter officer could not conveniently accompany him.

General Remarks.—All the lights were efficiently maintained throughout the year, and the reports received from Commanders of vessels respecting their visibility have, on the whole, been satisfactory.

With the exception of the Madras light which burns cocoanut oil, and the Harbour light at Kundapur for which rapeseed oil is used, all the lights on the Madras coast use kerosine oil.

A list of the lights, corrected to the end of the official year under report, is forwarded herewith.

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West Coast.

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2. Malpé ..	..	Do. do. (do.)	..	..	..	White.
3. Mangalore	..	Lighthouse .. 4th Order ..	Dioptric	..	..	Do.
4. Cannanore	..	Do. .. 6th do. ..	Do.	.. Fixed	..	Red.
5. Tellicherry	..	Do. .. 6th do. ..	Do.	.. Do.	..	White.
6. Calicut ..	..	Do. .. 4th do. ..	Do.	.. Do.	..	Do.
7. Beypore*	..	Flagstaff .. Lantern ..	Do.	.. Do.	..	Red.
8. Cochin ..	..	Lighthouse .. 4th Order ..	..	.. ..	..	White.
9. Muttum	..	Do. .. 1st do. ..	Catadioptric	.. Fixed	..	Do.
			Dioptric	.. Do.	..	

East Coast.

10. Manapad	.. Tower ..	6th Order ..	Dioptric	.. Fixed	..	Red.
11. Tuticorin	.. Lighthouse ..	4th do. ..	Do.	.. Do.	..	White.
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14. Seven Pagodas †	. Do. (Grey turret).	4th do. ..	Do.	.. Do.	..	Red.
15. Madras	.. Lighthouse ..	English ..	Catadioptric	. Reciprocating, Flashing.		White.
16. Do. ..	.. Port Office terrace.	Ship's side light.	Dioptric	.. Fixed	..	Green.
17. Do. ..	.. Pier	Do. ..	Do.	.. Do.	..	Red.
18. Pulicat	.. Lighthouse ..	4th Order ..	Do.	.. Do.	..	White.
19. Armeghon	.. Do. ..	4th do. ..	Do.	... Revolving	..	Do.
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22. Hope Island	.. Lighthouse ..	4th do. ..	Do.	.. Do.	..	Do.
23. Cocanada	.. South Groyne end.	Globular lantern, ship's.	..	.. Do.	..	Red.
24. Do.	.. North Groyne end.	Do. ..	..	.. Do.	..	Do.
25. Vakalapudi	.. Lighthouse ..	4th Order ..	Catoptric	.. Revolving	..	White.
26. Santopilly	.. Do. ..	2nd do. ..	Dioptric	.. Fixed	..	Do.
27. Calingapatam	.. Do. ..	3rd do. ..	Country	.. Do.	..	Do.
28. Gopálpur	.. Pier	Country lantern.	..	.. Do.	..	Red.
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A list of the lights, corrected to the end of the official year under report, is forwarded herewith.

LIST OF LIGHTS IN THE

Name of light.	Location.	Latitude N.	Longitude E.	Number and relative position of light.	Colour of light.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash or occultation.
							India West Coast,
Kundapur ..	On the north side of the entrance to the river.	DEG. M. S. 13 38 20	DEG. M. S. 74 39 40	1	Red ..	Fixed.	..
Malpé	Close to the entrance to the river.	13 20 40	74 42 0	1	White.	Do. ..	..
Mangalore ..	On a hill above the town and near some high trees.	12 52 17	74 50 08	1	Do. ..	Do. ..	..
Cannanore ..	On the Fort rampart near the beach.	11 51 10	75 21 45	1	Red ..	Do. ..	..
Tellicherry ..	On the Fort wall near the beach.	11 44 50	75 28 30	1	White.	Do. ..	..
Mahé (French Territory).	On the south side of the entrance to the river at the foot of the flagstaff.	11 42 10	75 31 10	1	Red ..	Do. ..	..
Calicut	On the sandy beach.	11 15 05	75 45 35	1	White.	Do. ..	..
Beypore ..	Near the beach on south point of entrance to river and about 7 miles to southward of Calicut.	11 10 0	75 47 0	1	Red ..	Do. ..	..
Narakel (Cochin Circar Territory).	On the beach at mouth of creek, 5 miles to the northward of Cochin.	10 03 0	76 12 0	1	White.	Do. ..	..
Cochin	On a small mound which formed a bastion of the old fort to the south of the harbour.	9 57 47	76 13 45	1	Do. ..	Do. ..	..
Allepy or Alipee (Travancore Territory).	On the beach about one cable inland.	9 30 0	76 19 0	Only one light visible at a time. There are 9 lamps placed in three sets of three .. As they revolve, each set of three gives one stream of light.	Do. ..	Revolving.	A flash every minute..

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MADRAS PRESIDENCY.

Miles visible in clear weather.	Arc of illumination (bearings are magnetic and from seaward).	Nature of construction, color, or any peculiarity of lighthouse.	Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
Madras Presidency.							
3	Visible from all directions seaward.	Flagstaff ..	28	25	Globular red lantern. Lantern not under control.	1st Oct. 1888.	Intended as a guide to vessels making the port, and will be exhibited annually from 1st October to 31st May only.
5	Visible from all directions seaward except where obscured to the westward by St. Mary's Island.	Do. ..	37	25	Admiralty pattern mast-head lantern.	Do. ..	Do. do.
14	Visible from all directions seaward.	Small white masonry tower.	240	65	Dioptric, 4th order.	1842; improved 1870.	As a guide to the anchorage.
6 to 8	Do. ..	Small masonry tower of a light yellow colour.	64	25 from the rampart.	Dioptric, 6th order.	1843; improved 1870; transferred to tower 1880.	Do. do.
8	Do. ..	Small masonry tower.	70	..	Do. ..	1835; improved 1870: transferred to tower 1881.	Do. do.
7	Do. ..	Small white pyramid.	52	..	...	1885 ..	Do. do.
14	Do. ..	White column.	102	93	Dioptric, 4th order.	1847; improved 1881.	To guide vessels to the anchorage clear of the reef which lies about 1 mile S. 30° W. from the light. A small red light is exhibited from the head of the pier as a guide for small coasting craft when entering the roadstead.
6	Visible from all directions seaward.	Flagstaff ..	60	..	Country-made lantern.	1883 ..	Discontinued on 1st July 1889, light not being required.
..	Do. ..	Do. ..	..	..	Do. ..	..	Is exhibited only during the south-west monsoon, viz., from 15th May to 30th Sept., when Cochin port is avoided by shipping.
15	Do. ...	White laterite column.	100	91	Catadioptric, 4th order.	1839; improved 1868.	
17	Do. ..	Masonry round white tower.	113	115	Catadioptric, 1st order (Holophotal.)	1862 ..	To guide vessels to the smooth water anchorage during the south-west monsoon.

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LIST OF LIGHTS IN THE

Name of light.	Location.	Latitude N.	Longitude E.	Number and relative position of light	Color of light.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash or occultation.
							India West Coast,
Muttum ..	On a rocky promontory 300 yards from sea known as Muttum Point.	DEG. M. S. 8 07 30	DEG. M. S. 77 18 10	1	White.	Fixed.	..
							India East Coast,
Manapad ..	On the Tinnevelly coast.	8 22 30	78 6 30	1	Red ..	Fixed.	..
Tuticorin ..	On the north extreme of Hare Island or Pandian-tivo 2½ miles east of Tuticorin town.	8 47 10	78 11 20	1	White.	Do. ..	..
Pámban or Pámban Pass.	On a sand hill about 1 mile east of northern channel.	9 17 14	79 12 38	1	Do. ..	Do. ..	..
Negapatam ..	On bastion	10 45 30	79 50 20	1	Do. ..	Do. ..	..
Cuddalore ..	On cross-trees of flagstaff.	11 43 0	79 46 15	1	Red ..	Do. ..	..
Karikal (French Territory).	At the mouth of the Arselaar river.	10 55 0	79 50 35	1	White.	Do. ..	..
Pondicherry (French Territory).	In square near the beach.	11 55 25	79 49 35	1	Do. ..	Do. ..	..
Do. ..	End of landing stage.	..	..	1	Red ..	Do. ..	..
Seven Pagodas or Mahabalipuram.	On a rock half a mile inland marked on chart "Ruined pagoda" on rock very conspicuous and about 6 miles northward of Sadras.	12 36 55	80 17 55	1	Red ..	Do. ..	..
Madras or Fort St. George.	On the Esplanade north of the Fort.	13 05 11	80 16 51	1	White.	Flashing. The motion is reciprocating and not rotatory.	There are 5 faces, and every minute one face flashes towards the same spot, but three faces are presented seaward at one time. The duration of the flashes to that of the eclipses or dark periods is in the ratio of 2 to 3, but as the nature of the motion is reciprocating instead of rotatory, the above ratio merely expresses the average proportion of the light and dark intervals which are themselves variable according to the position of the spectator. The rapidity of movement is so adjusted that the duration of the flashes will vary from 0° to 48° and that of the eclipses from 0° to 72°, the sums of the duration of light and darkness bearing, however, in every position the constant ratio of 2 to 3.

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MADRAS PRESIDENCY—*cont.*

Miles visible in clear weather.	Arc of illumination (bearings are magnetic and from seaward).	Nature of construction, color, or any peculiarity of light-house.	Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
Madras Presidency—cont.							
16	Visible from all directions seaward.	Dark grey granite column.	132	72	Dioptric, 1st order, with 6 duplex burners.	1875; altered 1883.	This light in the Territory of Travancore is intended to mark the vicinity of the Crocodile rock, which lies 3 miles S. W. ½ S. of Cadiapatam. Vessels, unless bound to Kolachel or Cadiapatam, should not pass inshore of Kota and Adunda islands, as they are difficult to be distinguished from seaward, and sometimes have the appearance of a sunken rock from the sea sweeping completely over it.
Madras Presidency.							
6	Visible from all directions seaward.	White masonry tower.	104	27	6th order ..	June 1888..	Is intended to warn vessels off the dangerous shoal in the vicinity.
14	Do. ..	Sand stone column, colored brown, lantern white.	85	91	Dioptric, 4th order.	1845; improved 1874.	As a guide to the anchorage.
14	Do. ..	Circular masonry column.	79	72	Catadioptric, 4th order.	1846; improved 1869.	Is a guide to vessels making for the Pámban Channel.
14	Do. ..	Masonry column, painted white.	79	83	Dioptric, 4th order.	1846; improved 1870.	As a guide to the anchorage.
5	Do. ..	Flagstaff ..	130	31	Country lantern with a duplex burner and a dioptric chimney.	1st July 1889.	As a guide to the anchorage. (Exhibited from 1st July 1889.)
9	Do. ..	Do. ..	42	..	Lamp burning cocoanut oil.	1853 ..	As a guide to the anchorage.
14	Do. ..	Masonry column, painted light yellow.	83	67	Dioptric, 4th order.	1886 ..	Do. do.
4	Do. ..	..	31	..	..	1881 ..	When surf is heavy and approach to landing prohibited, a fixed *green light* is shown.
17	Do. ..	Small grey turret.	119	26	Dioptric, 4th order.	1887 ..	Is intended to warn mariners of the dangerous outlying patches of rock composing *Tripalore Reef* and other reported dangers in its vicinity, to avoid which vessels navigating between Sadras and Covelong should not come into a less depth than 13 fathoms.
20	Do. ..	Granite column.	128	125	Catadioptric ..	1844 ..	To guide vessels clear of the *Pulicat shoal* and into the roadstead. Mariners should not bring this light to southward of S.S.W. ½ W. to avoid *Pulicat shoal*.

4

LIST OF LIGHTS IN THE

Name of light.	Location.	Latitude N.	Longitude E.	Number and relative position of light.	Color of light.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash or occultation.
					India East Coast,		
Madras leading light.	Madras Pier T head.	DEG. M. S. 13 05 44	DEG. M. S. 80 17 18	1	Red ..	Fixed.	..
Do. ..	Port Office Terrace.	13 05 47	80 17 05	1	Green.	Do. ..	..
Pulicat ..	Near the beach ..	13 25 15	80 19 06	1	White.	Do. ..	..
Armeghon or Armogham.	On the mainland village of Moona or Moonapollium.	13 53 08	80 11 47	1	Do. ..	Revolving.	A flash every 20 seconds.
Point Divi or Divy.	About 2 miles N.W. of the Point.	15 58 55	81 09 25	1	Do. ..	Fixed.	..
Masulipatam ..	In the Fort ..	16 09 15	81 09 25	1	Do. ..	Do. ..	..
Coringa or Hope Island.	On the southern part of Hope Island, Coringa Harbour and distant about 2½ miles from the sea.	16 49 05	82 18 58	1	Do. ..	Do. ..	..
Cocanada or Yakalapudi.	4¾ miles north of Cocanada river and about 500 yards from the shore.	17 0 40	82 16 30	1	Do. ..	Flashing.	A flash every 20 seconds.
Cocanada River..	One on the end of the North Groyne and the other on the end of the South Groyne, entrance to the river.	..	..	2	Red ..	Fixed.	..
Santopilly ..	On a small detached hill some distance inland. This distance said to be ⅔ of a mile.	18 04 56	83 37 35	1	White.	Do. ..	..
Calingapatam ..	On the Point ..	18 19 0	84 07 20	1	Do. ..	Do. ..	..
Gopálpur ..	On the mainland 60 yards from low water mark.	19 30 0	84 52 0	1	Do. ..	Do. ..	..
Do. ..	On the extreme end of the Pier head, Port of Gopalpur.	..	..	1	Red ..	Do. ..	..

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MADRAS PRESIDENCY—*cont.*

Miles visible in clear weather.	Arc of illumination (bearings are magnetic and from seaward).	Nature of construction, color or any peculiarity of light-house.	Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
Madras Presidency—cont.							
5	Visible from all directions seaward.	Wooden post ..	30	..	Ship's side light, Dioptric.	15th Oct. 1888.	To guide vessels leaving the harbour or making the anchorage at night.
5	Do. ..	Do. ..	30	..	Do. ..	Do. ..	Do. do.
14	Do. ..	Masonry column with black bands.	68	57	Dioptric, 4th order.	1859; improved 1870; altered 1881.	To guide vessels clear of the *Pulicat shoal*. When the light bears W. ½ N., a vessel is to the northward of all dangers.
14	Do. ..	White masonry column.	107	111	Do. ..	1853; improved 1870; present light 1881.	Warns vessels off the *Armeghon shoal*, the shoalest part of which (1¾ fathoms) lies 6 miles off shore.
14	Do. ..	Do. ..	48	50	Do. ..	1851; improved 1870.	Is intended to point out the position of the dangerous sands in the vicinity.
6	Do. ..	Flagstaff ..	69	112	Dioptric, 6th order.	1858; improved 1870.	As a guide for vessels to the anchorage.
14	Do. ..	Masonry tower, horizontal alternate bands of black and white.	83	94	Dioptric, 4th order.	1817; improved 1886.	Intended to lead vessels clear of shoals off Godávari Point.
14	Do. ..	White column..	80	76	Catoptric, 4th order.	1879 ..	This light is intended to lead vessels clear of the shoals to the northward of Point Godávari, when coming into the Cocanada anchorage from the southward and eastward.
2½	All round the compass.	Wooden posts ..	19	..	..	1886 ..	Exhibited to serve as a guide to boats entering or leaving the river.
16	Visible from all directions seaward.	On a small basement on the top of a small hill with a small building by the side of the lantern on the west side.	..	35½	Dioptric, 2nd order.	1849; improved 1871; present light 1886; improved Aug. 16th 1888.	Exhibited to warn mariners off the Santopilly rocks, from which this light bears N.W. ⅝ W., distant 6½ miles.
8	Do. ..	Obelisk of cut stone, column white, capital dark blue.	76	73	Third-class country-made.	1876 ..	Intended to warn vessels off a small reef which projects from the Point, and which should not be passed in less than 8 fathoms when making the port at night.
10	Do. ..	Flagstaff painted white.	85	..	Do. ..	1871 ..	As a guide to the anchorage.
3	Do. ..	..	25	..	Country lantern.	1887 ..	Points out the sea end of the pier.

5

Particulars relating to the different Lights.

Name.	Location.	Date of first exhibition.	Column or flagstaff.	Character, description, color.	Description of illuminant.	Height of centre of lantern above sea level.	Number of miles visible in clear weather.
1	2	3	4	5	6	7	8
						ft.	
Kundapur	Kundapur	1st October 1888	Flagstaff	Globular red lantern, F.	Rapeseed oil.	28	3
Malpé	Malpé	1st ,, ,,	Do.	Admiralty mast-head lantern, white, F.	Kerosin oils.	37	5
Mangalore	Mangalore	1842	Column	D. 4th order, white, F.	Do.	240	14
Cannanore	Cannanore	1843	Do.	D. 6th order, red, F.	Do.	64	6 to 8
Tellicherry	Tellicherry	1835	Do.	D. 6th order, white, F.	Do.	70	8
Calicut	Calicut	1847	Do.	D. 4th order, white, F.	Do.	102	14
Beypore	Beypore	1883	Flagstaff	Country-made lantern, red, F.	Do.	60	5
Cochin	Cochin	1839	Column	C.D. 4th order white, F.	Do.	100	15
Muttum	Muttum Point	1875	Do.	D. 1st order, white, F.	Do.	132	16
Manapad	Manapad Point, Tinnevelly Coast.	1st June 1888	Tower on elevated ground.	D. 6th order, red, F.	Do.	104	6
Tuticorin	Hare Island	1845	Column	D. 4th order, white, F.	Do.	85	14
Pamban	Pámban	1846	Do.	C.D. 4th order, white, F.	Do.	97	14
Negapatam	Negapatam	1846	Do.	D. 4th order, white, F.	Do.	79	14
Seven Pagodas	Mahabalipuram	1887	Turret on a rock	D. 4th order, red, F.	Do.	119	17
Madras	Madras	1844	Column	C.D. white, flashing	Cocoanut oil.	128	20
Do.	Do.	15th October 1888	Staff	D. Ship's side-light, red, F.	Do.	30	5
Do.	Do.	15th ,, ,,	Do.	Do. green, F.	Do.	30	5
Pulicat	Pulicat	1859	Column	D. 4th order, white, F.	Kerosine oil.	68	14
Armeghon	Moomapalliem	1863	Do.	D. 4th order, white, Rev.	Do.	107	14
Point Divi	Point Divi	1851	Do.	D. 4th order, white, F.	Do.	48	14
Masulipatam	Masulipatam	1853	Flagstaff	D. 6th order, white, F.	Do.	60	8
Hope Island	Coringa	1817	Column	D. 4th order, white, F.	Do.	83	14
Cocanada	Cocanada	1856	Staff	Ship's light, red, F.	Do.	10	7½
Do.	Do.	1886	Do	Do. do.	Do.	10	7½
Vakalapudi	Do.	1879	Column	C. 4th order, white, Fl.	Do.	80	14
Santopilly	Konada	1849	Basement on top of a hill.	D. 2nd order, white, F.	Do.	..	16
Calingapatam	Calingapatam	1876	Column	3rd class country, white, F.	Do.	76	8
Gopálpur	Gopálpur	1871	Flagstaff	Do. white, F.	Do.	85	10
Do.	Do.	1887	Staff	Country, red, F.	Do.	25	3

Particulars relating to the different lights—*cont.*

Name.	Cost of: Establishments. Superintendents.	Establishments. Lightkeepers.	Oil.	Stores.	Contingencies.	Construction and Repairs.	Total cost in 1886-87.	Total cost in 1887-88.	Total cost in 1888-89.	Original cost of Building.	Original cost of Apparatus.
	9	10	11	12	13	14	15	16	17	18	19
	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.	Rs. A. P.	Rs. A. P.
Kundapur	..	44 14 5	4 14 9	5 0 0	5 8 5	..	..	..	60 5 7	..	..
Malpé	..	48 0 0	4 14 4	..	0 13 0	..	..	..	53 11 4	..	..
Mangalore	..	299 11 9	148 8 0	0 5 5	28 9 5	445 7 6	687 0 0	1,163 0 0	922 10 1	..	..
Cannanore	..	216 0 0	120 0 0	0 10 1	21 3 10	..	305 0 0	709 0 0	357 13 11	..	..
Tellicherry	..	216 0 0	120 0 0	..	33 2 0	91 2 3	637 0 0	347 0 0	460 5 3	..	..
Calicut	..	323 8 0	237 8 0	6 5 11	45 6 1	665 10 0	580 0 0	1,508 0 0	1,278 6 0	..	..
Beypore	..	120 0 0	..	..	5 3 6	..	230 0 0	168 0 0	125 3 6	..	..
Cochin	..	346 10 7	107 0 0	20 13 5	17 12 9	..	686 0 0	359 0 0	492 4 9	..	..
Muttum	1,664 9 4	441 0 0	621 8 0	71 13 4	219 10 11	..	5,325 0 0	2,815 0 0	3,018 9 7	..	..
Manapad	446 12 5	161 0 0	40 0 0	11 1 10	63 15 0	2,357 10 2	..	1,809 0 0	* 3,080 7 5	..	..
Tuticorin	..	504 0 0	214 0 6	11 4 11	104 3 10	..	710 0 0	807 0 0	833 9 3	..	..
Pambán	..	215 3 8	..	..	22 0 0	..	426 0 0	397 0 0	237 3 8	..	..
Negapatam	..	300 0 0	147 8 0	18 11 0	26 3 8	..	546 0 0	674 0 0	492 6 8	..	..
Seven Pagodas	840 0 0	391 12 0	88 0 0	23 13 0	68 11 6	5,209 8 0	5,175 0 0	3,987 0 0	† 6,621 12 6	..	..
Madras	1,734 11 8	543 14 1	1,539 0 0	191 4 6	‡ 435 13 10	1,146 10 1	4,736 0 0	9,261 0 0	5,591 6 2	..	..
Do.	Expenditure defrayed by the Harbour Trust Board.										
Do.											
Pulicat	840 0 0	295 14 11	125 0 0	41 4 3	54 0 0	472 9 7	4,107 0 0	2,069 0 0	1,828 12 9	..	..
Armeghon	1,200 0 0	395 9 9	185 12 3	34 12 1	30 0 6	109 13 2	4,346 0 0	3,090 0 0	1,955 15 9	..	..
Point Divi	840 0 0	432 0 0	8 1 0	9 0 10	§ 151 8 3	..	1,492 0 0	1,496 0 0	1,440 10 1	..	..
Masulipatam	..	167 8 0	28 1 0	6 10 4	4 13 6	..	302 0 0	320 0 0	207 0 10	..	..
Hope Island	840 0 0	516 0 0	110 0 0	7 10 0	211 13 2	131 2 2	3,365 0 0	1,931 0 0	1,816 9 4	..	..
Cocanada	Expenditure met from Cocanada Port Dues.										
Do.											
Vakalapudi	1,200 0 0	504 0 0	135 0 0	2 10 0	50 0 2	2,202 1 10	2,228 0 0	2,348 0 0	‖ 4,093 12 0	..	..
Santopilly	840 0 0	482 5 6	675 9 6	¶ 202 0 3	83 10 2	..	2,624 0 0	3,897 0 0	2,283 9 6	..	..
Calingapatam	240 0 0	216 0 0	191 0 0	..	23 12 0	340 13 0	1,144 0 0	367 0 0	1,011 9 0	..	..
Gopálpur	..	216 0 0	47 8 0	..	3 0 0	..	542 0 0	421 0 0	266 8 0	..	..
Do.											
Total	10,686 1 5	7,397 0 8	4,898 13 4	665 3 2	1,711 0 6	13,172 7 9	40,193 0 0	40,033 0 0	38,530 10 10	..	..

* Increase due to Public Works charges on account of Superintendents' quarters.

† Do. to Superintendent's quarters and Lightkeepers' lines.

‡ Includes charges for testing and fixing machinery .. .. Rs. 234 2 0

Telegram despatched regarding temporary extinction of light 117 2 0

Total .. 351 4 0

§ Expenses on account of canoe, Rs. 100.

‖ Increase due to Public Works charges on account of Lightkeepers' quarters.

¶ Value of chimneys, Rs. 135.

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Particulars relating to the different Lights.

Name.	Location.	Date of first exhibition.	Column or flagstaff.	Character, description, color.	Description of illuminant.	Height of centre of lantern above sea level.	Number of miles visible in clear weather.
1	2	3	4	5	6	7	8
Kundapur	Kundapur	1st October 1888	Flagstaff	Globular red lantern, F.	Rapeseed oil.	ft. 28	3
Malpé	Malpé	1st ,, ,,	Do.	Admiralty mast-head lantern, white, F.	Kerosin oils.	37	5
Mangalore	Mangalore	1842	Column	D. 4th order, white, F.	Do.	240	14
Cannanore	Cannanore	1843	Do.	D. 6th order, red, F.	Do.	61	6 to 8
Tellicherry	Tellicherry	1835	Do.	D. 6th order, white, F.	Do.	70	8
Calicut	Calicut	1847	Do.	D. 4th order, white, F.	Do.	102	14
Beypore	Beypore	1883	Flagstaff	Country-made lantern, red, F.	Do.	60	5
Cochin	Cochin	1839	Column	C.D. 4th order white, F.	Do.	100	15
Muttum	Muttum Point	1876	Do.	D. 1st order, white, F.	Do.	132	16
Manapad	Manapad Point, Tinnevelly Coast.	1st June 1888	Tower on elevated ground.	D. 6th order, red, F.	Do.	104	6
Tuticorin	Hare Island	1845	Column	D. 4th order, white, F.	Do.	85	14
Pamban	Pamban	1846	Do.	C.D. 4th order, white, F.	Do.	97	14
Negapatam	Negapatam	1846	Do.	D. 4th order, white, F.	Do.	79	14
Seven Pagodas	Mahabalipuram	1887	Turret on a rock	D. 4th order, red, F.	Do.	119	17
Madras	Madras	1844	Column	C.D. white, flashing	Cocoanut oil.	128	20
Do.	Do.	15th October 1888	Staff	D. Ship's side-light, red, F.	Do.	30	5
Do.	Do.	15th ,, ,,	Do.	Do. green, F.	Do.	30	5
Pulicat	Pulicat	1859	Column	D. 4th order, white, F.	Kerosine oil.	68	14
Armeghon	Moomapalliem	1853	Do.	D. 4th order, white, Rev.	Do.	107	14
Point Divi	Point Divi	1851	Do.	D. 4th order, white, F.	Do.	48	14
Masulipatam	Masulipatam	1853	Flagstaff	D. 6th order, white, F.	Do.	69	6
Hope Island	Coringa	1817	Column	D. 4th order, white, F.	Do.	83	14
Cocanada	Cocanada	1886	Staff	Ship's light, red, F.	Do.	10	7½
Do.	Do.	1886	Do.	Do. do.	Do.	10	7½
Vakalapudi	Do.	1879	Column	C. 4th order, white, Fl.	Do.	80	14
Santopilly	Konada	1849	Basement on top of a hill.	D. 2nd order, white, F.	Do.	..	16
Calingapatam	Calingapatam	1876	Column	3rd class. country, white, F.	Do.	76	8
Gopálpur	Gopálpur	1871	Flagstaff	Do. white, F.	Do.	85	10
Do.	Do.	1887	Staff	Country, red, F.	Do.	25	3

Particulars relating to the different lights—*cont.*

Name.	Cost of: Establishments. Superintendents.	Establishments. Lightkeepers.	Oil.	Stores.	Contingencies.	Construction and Repairs.	Total cost in 1886-87.	Total cost in 1887-88.	Total cost in 1888-89.	Original cost of Building.	Original cost of Apparatus.
	9	10	11	12	13	14	15	16	17	18	19
	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.	Rs. A. P.	Rs. A. P.
Kundapur	..	44 14 5	4 14 9	5 0 0	5 8 5	..	..	..	60 5 7	..	..
Malpé	..	48 0 0	4 14 4	..	0 13 0	..	..	..	53 11 4	..	..
Mangalore	..	299 11 9	148 8 0	0 5 5	28 9 5	445 7 6	687 0 0	1,163 0 0	922 10 1	..	..
Cannanore	..	216 0 0	120 0 0	0 10 1	21 3 10	..	305 0 0	709 0 0	357 13 11	..	..
Tellicherry	..	216 0 0	120 0 0	..	33 3 0	91 2 3	637 0 0	347 0 0	460 5 3	..	..
Calicut	..	323 8 0	237 8 0	6 5 11	45 6 1	665 10 0	580 0 0	1,598 0 0	1,278 6 0	..	..
Beypore	..	120 0 0	..	..	5 3 6	..	230 0 0	168 0 0	125 3 6	..	..
Cochin	..	346 10 7	107 0 0	20 13 5	17 12 9	..	686 0 0	359 0 0	492 4 9	..	..
Muttum	1,664 9 4	441 0 0	621 8 0	71 13 4	219 10 11	..	5,325 0 0	2,815 0 0	3,018 9 7	..	..
Manapad	446 12 5	161 0 0	40 0 0	11 1 10	63 15 0	2,357 10 2	..	1,809 0 0	* 3,080 7 5	..	..
Tuticorin	..	504 0 0	214 0 6	11 4 11	104 3 10	..	710 0 0	807 0 0	833 9 3	..	..
Pambán	..	215 5 8	..	..	22 0 0	..	426 0 0	397 0 0	237 3 8	..	..
Negapatam	..	300 0 0	147 8 0	18 11 0	26 3 8	..	546 0 0	674 0 0	492 6 8	..	..
Seven Pagodas	840 0 0	391 12 0	88 0 0	23 13 0	68 11 6	5,209 8 0	5,175 0 0	3,987 0 0	† 6,621 12 6	..	..
Madras	1,734 11 8	543 14 1	1,539 0 0	191 4 6	‡ 435 13 10	1,146 10 1	4,736 0 0	9,261 0 0	5,591 6 2	..	..
Do.	Expenditure defrayed by the Harbour Trust Board.										
Do.											
Pulicat	840 0 0	295 14 11	125 0 0	41 4 3	54 0 0	472 9 7	4,107 0 0	2,069 0 0	1,828 12 9	..	..
Armeghon	1,200 0 0	396 9 9	185 12 3	34 12 1	30 0 6	109 13 2	4,346 0 0	3,090 0 0	1,955 15 9	..	..
Point Divi	840 0 0	432 0 0	8 1 0	9 0 10	§ 151 8 3	..	1,492 0 0	1,496 0 0	1,440 10 1	..	..
Masulipatam	..	167 8 0	28 1 0	6 10 4	4 13 6	..	302 0 0	320 0 0	207 0 10	..	..
Hope Island	840 0 0	516 0 0	110 0 0	7 10 0	211 13 2	131 2 2	3,365 0 0	1,931 0 0	1,816 9 4	..	..
Cocanada	Expenditure met from Cocanada Port Dues.										
Do.											
Vakalapudi	1,200 0 0	504 0 0	135 0 0	2 10 0	50 0 2	2,202 1 10	2,228 0 0	2,348 0 0	‖ 4,093 12 0	..	..
Santopilly	840 0 0	482 5 6	675 9 6	¶ 202 0 3	83 10 2	..	2,624 0 0	3,897 0 0	2,283 9 5	..	..
Calingapatam	240 0 0	216 0 0	191 0 0	..	23 12 0	340 13 0	1,144 0 0	367 0 0	1,011 9 0	..	..
Gopálpur	..	216 0 0	47 8 0	..	3 0 0	..	{ 542 0 0	{ 421 0 0	266 8 0	..	..
Do.											
Total	10,686 1 5	7,397 0 8	4,898 13 4	665 3 2	1,711 0 6	13,172 7 9	40,193 0 0	40,033 0 0	38,530 10 10	..	..

* Increase due to Public Works charges on account of Superintendents' quarters.
† Do. to Superintendent's quarters and Lightkeepers' lines.
‡ Includes charges for testing and fixing machinery .. .. Rs. 234 2 0
Telegram despatched regarding temporary extinction of light 117 2 0
Total .. 351 4 0

§ Expenses on account of canoe, Rs. 100.
‖ Increase due to Public Works charges on account of Lightkeepers' quarters.
¶ Value of chimneys, Rs. 136.

9

2837

Order—dated 1st August 1889, No. 331, Marine.

Recorded.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Presidency Port Officer.
" Public Works Department.

Endorsement—dated 1st August 1889, No. 332, Marine.

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

J. F. PRICE,
Chief Secretary.

Endorsement—dated 1st August 1889, No. 333, Marine.

Twenty copies to the Government of Bengal, Municipal Department, with reference to its letter, dated 18th April 1887, No. 1877.

J. F. PRICE,
Chief Secretary.

Endorsement—dated 1st August 1889, No. 334, Marine.

Fifty copies forwarded to the officers and departments named in the letter from the Government of Bombay, Marine Department, dated 6th July 1887, No. 234.

J. F. PRICE,
Chief Secretary.

Endorsement—dated 1st August 1889, No. 335, Marine.

Ten copies forwarded to the Chief Commissioner of Burma.

J. F. PRICE,
Chief Secretary.

Exd. A. Raitt.

2837

From the Government of India, Finance & Commerce Department, dated 18th July 1889 No 3696.
From the Presidency Post Office, dated 2nd September 1889 No 480/372 G.

Order:- dy 30th September 1889. No 420.

× × ×

× ×

2. The Public Works Department will be requested to communicate copies of the Resolutions of the Department of Finance & Commerce noted in the margin to the Presidency Post Office.

No 427 M, dy 26th October 1883.
" 520 dy 28th September 1889.

(True extract)
his hand
Asstt Secretary.

To

The Public Works Department. ✓
The Presidency Post Office.

G

Gobt. of 188 | Madras.

2837

To

Proceedings, dated 188 .
No.

Subject.

[6]

PWC F. 9414

Govt. of 188 Madras.

To

The Secy to Govt

SECRETARY TO GOVERNMENT
28 OCT 88
P.W. DEPARTMENT, MADRAS.

Pg 8-10-89

Proceedings, dated 20 Sept 188 8

No. 420

Subject.

Wrong Govt of India that the height of Pamban light is 97 instead of 79 & that the list of Light & Lighthouses as at 31st August 89 follows.

No 2837 Wa/Oct 6th 11 1889.

B

Ordered accordingly that copies of the undermentioned Proceedings be communicated to the Port Officer Pacy:

No: 3157 W dy 12-11-88
3405 W dy 25-10-88

Secy
8.10.89

Revd
8.10.89

CM

(9) The Pacy Port officer
with copies of the Govt
& Marine Dept.

Dept
11-10-89

Cal/10
12/10
Secy 14/10
Dy
Dy