

Govt. of 1888 Madras.

MARINE.

*Order thereon No 2625 Wd
24th August 1888*

*Communicated
to Superintending Engineers
concerned for information
of J. O. H.*

Issued

Recd.

Encl.

G.O., &c., 23rd July 1888,
Nos. 344-348.

No 2625 Wd 24th August 1888

JULY.

Madras Lights and Lighthouses.

Recording report on — for 1887-88, and forwarding copies to the Governments of India, Bengal, and Bombay and to the Chief Commissioner of Burma.

Ats I, II, IV, V & VI Circles

GOVERNMENT OF MADRAS.
MARINE DEPARTMENT.

READ—the following paper:—

From Captain H. A. STREET, Port Officer, Madras, to the Chief Secretary to Government, dated Madras, 10th July 1888, No. G-321.

I have the honor to forward herewith the annual report on the lights and lighthouses of the Madras Presidency for the official year 1887-88.

ENCLOSURES.

REPORT on the lights and lighthouses on the coasts of the Madras Presidency for the official year 1887-88.

NEW LIGHTS.

During the official year 1887-88, lights were newly exhibited at the following places, namely, Gopálpur pier, Seven Pagodas, Malpe and Kundapur.

The Gopálpur pier light, which is a fixed red light, displayed from a country lantern with a single wick kerosine burner, is in addition to the port light, and was first exhibited on the 1st April 1887. It is intended to mark the extreme end (seaward) of the new iron pier at that port. A special establishment for this light being considered unnecessary, it is looked after by the port establishment.

The light at the Seven Pagodas is a fixed red one of the fourth order, dioptric, which was formerly in use at Santopilly. It is displayed from a small grey turret, and was first exhibited on the 10th July 1887. This light is intended to warn vessels off the Tripalora reef in its neighbourhood, and has supplied a desideratum long felt by the nautical public. An establishment of one Superintendent on Rs. 70, one head lightkeeper on Rs. 8, one lightkeeper on Rs. 7, and two on Rs. 6 each per mensem is attached to the Seven Pagodas lighthouse.

Messrs. Shepherd and Company, of the Bombay Steam Navigation Company, having arranged for their coasting steamers to call at various ports on the South Canara coast, addressed Government, during the early part of 1888, on the subject of providing harbour lights at certain ports on that coast during the fine weather season. A fixed white light at Malpe and a fixed red light at Kundapur, the lamps being lent for this season only by Messrs. Shepherd and Company, were accordingly exhibited on the 1st March 1888 from a flagstaff which had been erected at each of the ports named, and were to be extinguished on the 1st June 1888. *These lights are harbour lights only, and being solely required during the north-east monsoon for the purpose of guiding coasting vessels approaching the anchorage off Malpe and Kundapur after dark, it is proposed in future to exhibit them only between the 1st October and the 1st June, both dates inclusive. For the fair season of 1888-89, the necessary lamps will have to be provided at Government cost, and arrangements for the same are being made.* An establishment of one lightkeeper on Rs. 6 per mensem is attached to each of these lights for eight months during the year.

PROPOSED NEW LIGHT.

The coming official year will witness the addition of another light, viz., a sixth order red light at Manapad on the Tinnevely coast. The construction of the lighthouse sanctioned for this place had so far progressed at the end of the year under review, that it was anticipated that the light could be exhibited within two months more.

REPAIRS AND IMPROVEMENTS.

(a) *Lighthouses.*—All the lighthouses and light structures along the coast were in good condition at the close of the official year. Petty periodical repairs, color-washing, painting, &c., have been carried out at most of them, in addition to which the following may be noticed, namely

Santopilly light,—provided with a new lightning conductor; *Vakalapudi light*,—old lightning conductor removed and a new one fixed; *Masulipatam light*,—lamp provided with cover for protection from sun; *Armeghon light*,—the old lightning conductor inside the column removed and a new one fixed outside; *Hare Island light* (Tuticorin),—Lightning conductor tested and found in order; and *Calicut, Tellicherry and Cannanore lights*,—provided with lightning conductors.

(b) *Lightkeepers' Quarters*.—In addition to petty repairs to lightkeepers' quarters, the following may be noticed,—*Vakalapudi*,—Superintendent's quarters repaired; *Hope Island*,—godowns and Superintendent's quarters repaired; *Armeghon*,—repairs to Superintendent's quarters and lascars' lines commenced in the previous year completed; and *Seven Pagodas*,—lascars' lines fully completed and Superintendent's quarters very nearly finished at the end of the year.

RENEWAL OF APPARATUS.

The revolving machinery of the Madras light apparatus, which was in use since the year 1843, was removed and replaced by new machinery received from England. To perform this operation, it became necessary to extinguish the light from the 7th to the 31st March 1888, both days inclusive.

SUMMARY OF ESTABLISHMENTS.

The establishments of the various lighthouses on the coast of the Madras Presidency may be summarised as follows:—Five Superintendents on Rs. 70, three on Rs. 100, and one on Rs. 125, besides head lightkeepers and lightkeepers on wages ranging at Rs. 21, 15, and 12 to 6 per mensem. Lighthouses to which no Superintendents are appointed are in the charge of head lightkeepers and lightkeepers, but under the direct supervision of Port Officers or Port Conservators, who are *ex-officio* Superintendents.

DISTRIBUTION OF LIGHTS.

The lights are distributed as shown below, seventeen on the east and nine on the west coast:—

East Coast.						
1. Gopálpur	Flagstaff	3rd Order	Country	Fixed	White.	
2. Gopálpur	Pier	Country	lantern.	Do.	Red.	
3. Calingapatam	Lighthouse	3rd Order	Country	Do.	White.	
4. Santopilly	Do.	2nd Do.	Dioptric	Do.	Do.	
5. Vakalapudi	Do.	4th Do.	Catoptric	Revolving	Do.	
6. Cocanada	North	Globular	lantern ships.	Fixed	Red.	
7. Do.	Groyne end.	Globular	lantern ships.	Do.	Red.	
8. Hope Island	South	Globular	lantern ships.	Do.	Red.	
9. Masulipatam	Groyne end.	4th Order	Dioptric	Do.	White.	
10. Point Divi	Lighthouse	6th Do.	Do.	Do.	Do.	
11. Armeghon	Flagstaff	4th Do.	Do.	Do.	Do.	
12. Pulicat	Do.	4th Do.	Do.	Revolving	Do.	
13. Madras	Do.	4th Do.	Do.	Fixed	Do.	
	Do.	English	Catadioptric	Recipro- cating, Flashing.	Do.	
14. Seven Pagodas	Do.	4th Order	Dioptric	Fixed	Red.	
15. Negapatam	(Grey Turret).	4th Do.	Do.	Do.	White.	
16. Pámban	Lighthouse	4th Do.	Catadioptric	Do.	Do.	
17. Tuticorin	Do.	4th Do.	Dioptric	Do.	Do.	
West Coast.						
18. Muttum (Cadiapatam.)	Lighthouse	1st Order	Dioptric	Fixed	White.	
19. Cochin	Do.	4th Do.	Catadioptric	Do.	Do.	
20. Beypore	Flagstaff	Lantern	Do.	Do.	Red.	
21. Calicut	Lighthouse	4th Order	Dioptric	Fixed	White.	
22. Tellicherry	Do.	6th Do.	Do.	Do.	Do.	
23. Cannanore	Do.	6th Do.	Do.	Do.	Red.	
24. Mangalore	Do.	4th Do.	Do.	Do.	White.	
25. Malpe	Mast-head light	on staff (a harbour light)	Do.	Do.	Do.	
26. Kundapur	Do.	do. (do.)	Do.	Do.	Red.	

EXPENDITURE.

The detailed statement of actual expenditure for the year on account of salaries of establishment, contingencies and other charges, is not submitted with this report, as the same cannot be completed till the books of the Accountant-General and of the Examiner of Public Works accounts for the past official year have been closed. It will, however, be forwarded to Government separately as soon as practicable.

INSPECTION.

The joint inspection of lighthouses by the Chief Engineer to Government and the Port Officer, Madras (ordered in G.O., Marine, of 3rd December 1884, No. 529), was not carried out during the official year under notice, partly owing to the absence in England, during the early part of the year, of Captain Taylor, late Port Officer, on special deputation in connection with the Madras Harbour and his continued illness and lamented death not long after his return to India, and partly because the present Port Officer, Captain Street, could not, in the interval of his taking charge and the closing of the official year, conveniently leave head-quarters for any long period. The earliest favorable opportunity will, however, be availed of in carrying out this inspection during the next official year.

Several lighthouses, it may be added, were casually inspected by the Superintending Engineers and Executive Engineers of the divisions in which they are situated, and due action taken on the various recommendations of those officers.

GENERAL REMARKS.

All the lights were, on the whole, maintained in an efficient state, and the exhibition of the same has been regular and uninterrupted, excepting the temporary non-exhibition of the Madras light to which reference has already been made.

With the exception of the Madras light, which burns cocoanut oil, 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.

LIST OF LIGHTS IN THE

Names of lights.	Location.	Position.		Number and relative position of lights.	Color of lights.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash.	Miles visible in clear weather.
		Latitude.	Longitude.					
		N. DEG. M. S.	E. DEG. M. S.					MILES.
Gopálpur ..	On mainland sixty yards from low watermark.	19 13 0	84 52 0	1	White.	Fixed.	..	10
Gopálpur pier ..	T end of pier ..	19 15 0	84 57 0	1	Red ..	Do. ..	..	3
Calingapatam ..	On the Point ..	18 19 0	84 7 30	1	White.	Do. ..	..	8
Santopilly ..	On Santopilly hill, three-quarters of a mile inland.	18 4 56	83 37 35	1	Do. ..	Do. ..	..	14
Cocanada (Vakalapudi.)	Four-and-three-quarter miles north of Cocanada river, 500 yards from the shore.	17 0 40	82 16 30	1	Do. ..	Revolving.	A flash every 10 seconds.	14
Cocanada river entrance.	Sea ends of north and south groynes.	16 56 0	82 15 0	2	Red ..	Fixed.	..	2½
Coringa or Hope Island.	On the southern part of Hope Island and distant about two-and-a-half miles from the sea.	16 49 5	82 18 58	1	White.	Do. ..	..	14
Masulipatam ..	In the fort ..	16 9 15	81 9 25	1	Do. ..	Do. ..	..	6
Point Divi ..	Two miles N. W. of Point.	15 58 55	81 9 25	1	Do. ..	Do. ..	..	14
Armeghon or Armogham.	Mainland, village of Moona or Moona-pollum.	13 53 8	80 11 47	1	Do. ..	Revolving.	A flash every 20 seconds.	14
Pulicat ..	Near the beach ..	13 25 15	80 19 6	1	Do. ..	Fixed.	..	14
Madras ..	On Esplanade north of the Fort.	13 5 11	80 16 51	1	Do. ..	Flashing.	Light has five faces and every minute one face flashes towards the same spot, but three faces are presented seaward at one time.	20
Seven Pagodas..	On a rock at Mahabalipuram.	12 37 0	80 11 0	1	Red ..	Fixed.	..	10
Negapatam ..	On bastion ..	10 45 30	79 50 20	1	White.	Do.	..	14
Pámban Pass ..	On a sand hill about one mile east of northern channel.	9 17 14	79 12 38	1	Do.	Do.	..	14

MADRAS PRESIDENCY.

Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Arc of illumination (bearings are magnetic and from seaward.)	Nature of construction, color, or any peculiarity of lighthouse.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
FEET.	FEET.					
85	..	180° or the whole sea horizon.	Flagstaff painted white.	Third class country-made.	1871.	Intended as a guide to vessels making the anchorage at night, and exhibited at the special requisition of Commanders of the British India Steam Navigation Company's Mail Steamers.
24-6	..	..	..	Common lantern with single wick, kerosine burner.	1st April 1887.	To mark the extent to seaward of the new iron Pier constructed at Gopálpur.
68	73	..	Obelisk of cut stone, column white, capital dark blue.	Third class country-made.	15th December 1876.	Intended to warn vessels off a small reef, which projects from the Point, and which should not be passed in less than 10 fathoms when making the port at night.
173	32	180°, facing S.E.	On the roof of a house.	Dioptric order.	2nd 1st November 1849; improved 1871; present light 1886.	Exhibited to warn mariners off the Santopilly Rocks, from which this light bears N.W. & W., distant 6½ miles.
80	76	In every direction seaward.	White column.	Catoptric order.	4th 15th January 1879.	This light is intended to lead vessels clear of the shoals to the northward of the Point Godáviri, when coming into the Cocanada anchorage from the southward and eastward.
10	..	..	Fitted on wooden posts.	Ship's Globular lanterns.	15th September 1884.	Guide to boats entering and leaving Cocanada river.
83	94	180° from north, 20° east to south, 20° west.	Masonry tower, horizontal alternate bands of black and white.	Dioptric order.	4th 1817; improved 1886.	Intended to lead vessels clear of the rocks and shoals off Godáviri Point.
69	112	180°	Flagstaff ..	Dioptric order.	6th 1858; improved 1870.	As guide for vessels to the anchorage.
48½	50	225°, or from north through west to south-west.	Masonry column, white.	Dioptric order.	4th 1st May 1851; improved 1870.	Is intended to point out the position of the danger.
107	111	180°, or the whole sea horizon.	Do. ..	Do. ..	1st January 1853; improved 1870; present light 1881.	Warns vessels off the Armeghon shoal, the shoalest part of which (1½ fathoms) lies six miles off shore.
63	57	180°, or the whole sea horizon.	Masonry column, white, with black bands.	Do.	1859; improved 1870; altered 1881.	To guide vessels clear of the Pulicat shoal. When the light bears W. & N., a vessel is to the northward of all dangers.
128	125	310°, facing east.	Granite column.	Catadioptric ..	1st January 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.
116	26	180°, or the whole sea horizon.	Small gray turret.	Dioptric order.	4th 10th July 1887.	To warn vessels off the Tripaloro reef.
79½	83	180°, or the whole sea horizon.	Masonry column, white.	Do.	1st August 1846; improved 1870.	As a guide for vessels to the anchorage.
97	72	All round the compass.	Circular masonry column.	Catadioptric, 4th order.	21st April 1846; improved 1860.	Is a guide to vessels making for the Pámban channel.

LIST OF LIGHTS IN THE

Names of lights.	Location.	Position.		Number and relative position of lights.	Color of lights.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash.	Miles visible in clear weather.
		Latitude.	Longitude.					
		N. DEG. M. S.	E. DEG. M. S.					MILES.
Tuticorin	North extreme of Hare Island or Paundiantivo, 2½ miles east of Tuticorin.	8 47 10	78 11 20	1	White.	Fixed.	..	14
Muttum (Cadiapatam).	A rocky promontory known as "Muttum Point."	8 7 30	77 18 10	1	Do.	Do.	..	20
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.	..	15
Calicut	On the sandy beach.	11 15 5	75 45 35	1	Do.	Do.	..	14
Bey pore	Near the beach ..	11 10 0	75 47 0	1	Red..	Do.	..	5
Tellicherry ..	On the fort wall near the beach.	11 44 50	75 28 30	1	White.	Do.	..	8
Cannanore ..	On the fort rampart near the beach.	11 51 10	75 21 45	1	Red..	Do.	..	6 to 8
Mangalore ..	On a hill above the town, and near some high trees.	12 52 17	74 50 8	1	White.	Do.	..	14
Malpe	Malpe beach ..	13 20 40	74 42 0	1	White.	Do.	..	5
Kandapur ..	Kandapur beach ..	13 38 20	74 39 40	1	Red..	Do.	..	3

MADRAS PRESIDENCY—cont.

Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Arc of illumination (bearings are magnetic and from seaward).	Nature of construction, color, or any peculiarity of lighthouse.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
FEET.	FEET.					
85	91	All round the compass.	Sandstone column, colored brown lantern white.	Dioptric, 4th order.	15th May 1845; improved 1874.	As a guide for vessels to the anchorage.
132	72	All round ..	Dark grey granite column.	First order, dioptric.	1st January 1883.	This light, in the territory of Travancore, is intended to mark the vicinity of the Crocodile rock
100	91	270°	White laterite column.	Catadioptric, 4th order.	1st April 1839; improved 1868.	Harbour light. During the S.W. monsoon, when Cochin port is avoided by shipping, a small light is exhibited from a flagstaff at Narkal, about five miles to the northward of Cochin.
102	98	180° seaward ..	White column..	Dioptric, 4th order.	1847; improved 1881.	To guide vessels to the anchorage clear of the reef, which lies about one 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 port.
60	..	180°	Flagstaff ..	Globular lantern	17th February 1883.	As a guide for vessels to the anchorage.
70	..	158°, or between the bearings of S.E. by E. and N.W. by N.	Small masonry tower.	Dioptric, 6th order; Chance's port or signal light.	1835; improved 1870; transferred to tower 1881.	Harbour light.
64	25 from the rampart.	180°	Small masonry tower of a light yellow color.	Dioptric, 6th order.	17th October 1843; improved 1870; transferred to tower 1880.	Do.
240	65	180°	Small white masonry tower.	Dioptric, 4th order.	1st October 1842; improved 1870.	As a guide for vessels to the anchorage.
35	..	..	Hoisted on a pole.	Ship's mast-head, light.	1st March 1888.	Guide to coasting vessels passing the rocks in the vicinity of the South Canara coast.
28	..	..	Do.	Red square lantern	Do.	Do. do.

ORDER—dated 23rd July 1888, No. 344, Marine.

Recorded.

(True Extract.)

W. B. Boddie
Under Secretary P. W. D.
Ag. Chief Secretary.

To the Port Officer, Madras.
,, Public Works Department. ✓

ENDORSEMENT—dated 23rd July 1888, No. 345, Marine.

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

J. F. PRICE,
Ag. Chief Secretary.

ENDORSEMENT—dated 23rd July 1888, No. 346, Marine.

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

J. F. PRICE,
Ag. Chief Secretary.

ENDORSEMENT—dated 23rd July 1888, No. 347, 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,
Ag. Chief Secretary.

ENDORSEMENT—dated 23rd July 1888, No. 348, Marine.

Ten copies forwarded to the Chief Commissioner of Burma.

J. F. PRICE,
Ag. Chief Secretary.

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Govt. of 1888 Madras.

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Supply Engrs
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(b) *Lightkeepers' Quarters*.—In addition to petty repairs to lightkeepers' quarters, the following may be noticed,—*Vakalapudi*,—Superintendent's quarters repaired; *Hope Island*,—godowns and Superintendent's quarters repaired; *Arneghon*,—repairs to Superintendent's quarters and lascars' lines commenced in the previous year completed; and *Seven Pagodas*,—lascars' lines fully completed and Superintendent's quarters very nearly finished at the end of the year.

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East Coast.

1. Gopálpur	..	Flagstaff	..	3rd Order	..	Country	..	Fixed	..	White.
2. Gopálpur	..	Pier	..	Country lantern.	..	..	..	Do.	..	Red.
3. Calingapatam	..	Lighthouse	..	3rd Order	..	Country	..	Do.	..	White.
4. Santopilly	..	Do.	..	2nd Do.	..	Dioptric	..	Do.	..	Do.
5. Vakalapudi	..	Do.	..	4th Do.	..	Catoptric	..	Revolving	..	Do.
6. Cocanada	..	North	..	Globular	..	..	..	Fixed	..	Red.
7. Do.	..	Groyne end.	..	lantern ships.	..	..	..	Do.	..	Red.
8. Hope Island	..	South	..	Globular	..	..	..	Do.	..	Red.
9. Masulipatam	..	Groyne end.	..	lantern ships.	..	..	..	Do.	..	White.
10. Point Divi	..	Lighthouse	..	4th Order	..	Dioptric	..	Do.	..	Do.
11. Arneghon	..	Flagstaff	..	6th Do.	..	Do.	..	Do.	..	Do.
12. Pulicat	..	Lighthouse	..	4th Do.	..	Do.	..	Do.	..	Do.
13. Madras	..	Do.	..	4th Do.	..	Do.	..	Revolving	..	Do.
14. Seven Pagodas	..	Do.	..	4th Order	..	Dioptric	..	Fixed	..	Red.
15. Negapatam	..	(Grey Turret).	..	4th Do.	..	Do.	..	Do.	..	White.
16. Pámban	..	Lighthouse	..	4th Do.	..	Catadioptric	..	Do.	..	Do.
17. Tuticorin	..	Do.	..	4th Do.	..	Dioptric	..	Do.	..	Do.

West Coast.

18. Muttum (Cadiapatam.)	..	Lighthouse	..	1st Order	..	Dioptric	..	Fixed	..	White.
19. Cochin	..	Do.	..	4th Do.	..	Catadioptric	..	Do.	..	Do.
20. Beypore	..	Flagstaff	..	Lantern	..	..	..	..	..	Red.
21. Calicut	..	Lighthouse	..	4th Order	..	Dioptric	..	Fixed	..	White.
22. Tellicherry	..	Do.	..	6th Do.	..	Do.	..	Do.	..	Do.
23. Cannanore	..	Do.	..	6th Do.	..	Do.	..	Do.	..	Red.
24. Mangalore	..	Do.	..	4th Do.	..	Do.	..	Do.	..	White.
25. Malpe	..	Mast-head light	..	on staff (a harbour light)	..	..	..	..	..	Do.
26. Kundapur	..	Do.	..	do. (do.)	..	..	..	..	..	Red.

EXPENDITURE.

The detailed statement of actual expenditure for the year on account of salaries of establishment, contingencies and other charges, is not submitted with this report, as the same cannot be completed till the books of the Accountant-General and of the Examiner of Public Works accounts for the past official year have been closed. It will, however, be forwarded to Government separately as soon as practicable.

INSPECTION.

The joint inspection of lighthouses by the Chief Engineer to Government and the Port Officer, Madras (ordered in G.O., Marine, of 3rd December 1884, No. 529), was not carried out during the official year under notice, partly owing to the absence in England, during the early part of the year of Captain Taylor, late Port Officer, on special deputation in connection with the Madras Harbour and his continued illness and lamented death not long after his return to India, and partly because the present Port Officer, Captain Street, could not, in the interval of his taking charge and the closing of the official year, conveniently leave head-quarters for any long period. The earliest favorable opportunity will, however, be availed of in carrying out this inspection during the next official year.

Several lighthouses, it may be added, were casually inspected by the Superintending Engineers and Executive Engineers of the divisions in which they are situated, and due action taken on the various recommendations of those officers.

GENERAL REMARKS.

All the lights were, on the whole, maintained in an efficient state, and the exhibition of the same has been regular and uninterrupted, excepting the temporary non-exhibition of the Madras light to which reference has already been made.

With the exception of the Madras light, which burns cocoanut oil, 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.

LIST OF LIGHTS IN THE

Names of lights.	Location.	Position.		Number and relative position of lights.	Color of lights.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash.	Miles visible in clear weather.
		Latitude.	Longitude.					
		N. DEG. M. S.	E. DEG. M. S.					MILES.
Gopálpur ..	On mainland sixty yards from low watermark.	19 13 0	84 52 0	1	White.	Fixed.	..	10
Gopálpur pier ..	T end of pier ..	19 15 0	84 57 0	1	Red ..	Do. ..	..	3
Calingapatam ..	On the Point ..	18 19 0	84 7 30	1	White.	Do. ..	..	8
Santopilly ..	On Santopilly hill, three-quarters of a mile inland.	18 4 56	83 37 35	1	Do. ..	Do. ..	..	14
Cocanada (Vakalapudi.)	Four-and-three-quarter miles north of Cocanada river, 500 yards from the shore.	17 0 40	82 16 30	1	Do. ..	Revolving.	A flash every 10 seconds.	14
Cocanada river entrance.	Sea ends of north and south groynes.	16 56 0	82 15 0	2	Red ..	Fixed.	..	2½
Coringa or Hope Island.	On the southern part of Hope Island and distant about two-and-a-half miles from the sea.	16 49 5	82 18 58	1	White.	Do. ..	..	14
Masulipatam ..	In the fort ..	16 9 15	81 9 25	1	Do. ..	Do. ..	..	6
Point Divi ..	Two miles N. W. of Point.	15 58 55	81 9 25	1	Do. ..	Do. ..	..	14
Armeghon or Armogham.	Mainland, village of Moona or Moona-pollium.	13 53 8	80 11 47	1	Do. ..	Revolving.	A flash every 20 seconds.	14
Pulicat ..	Near the beach ..	13 25 15	80 19 6	1	Do. ..	Fixed.	..	14
Madras ..	On Esplanade north of the Fort.	13 5 11	80 16 51	1	Do. ..	Flashing.	Light has five faces and every minute one face flashes towards the same spot, but three faces are presented seaward at one time.	20
Seven Pagodas..	On a rock at Mahabalipuram.	12 37 0	80 11 0	1	Red ..	Fixed.	..	10
Negapatam ..	On bastion ..	10 45 30	79 50 20	1	White.	Do.	..	14
Pámban Pass ..	On a sand hill about one mile east of northern channel.	9 17 14	79 12 38	1	Do.	Do.	..	14

MADRAS PRESIDENCY.

Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Arc of illumination (bearings are magnetic and from seaward.)	Nature of construction, color, or any peculiarity of lighthouse.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
FEET.	FEET.					
85	..	180° or the whole sea horizon.	Flagstaff painted white.	Third class country-made.	1871.	Intended as a guide to vessels making the anchorage at night, and exhibited at the special requisition of Commanders of the British India Steam Navigation Company's Mail Steamers.
24-6	..	..	..	Common lantern with single wick, kerosine burner.	1st April 1887.	To mark the extent to seaward of the new iron Pier constructed at Gopálpur.
68	73	..	Obelisk of cut stone, column white, capital dark blue.	Third class country-made.	15th December 1876.	Intended to warn vessels off a small reef, which projects from the Point, and which should not be passed in less than 10 fathoms when making the port at night.
173	32	180°, facing S.E.	On the roof of a house.	Dioptric order.	2nd 1st November 1849; improved 1871; present light 1886.	Exhibited to warn mariners off the Santopilly Rocks, from which this light bears N.W. ½ W., distant 6½ miles.
80	76	In every direction seaward.	White column.	Catoptric order.	4th 15th January 1879.	This light is intended to lead vessels clear of the shoals to the northward of the Point Godáviri, when coming into the Cocanada anchorage from the southward and eastward.
10	..	..	Fitted on wooden posts.	Ship's Globular-red lanterns.	15th September 1886.	Guide to boats entering and leaving Cocanada river.
83	94	180° from north, 20° east to south, 20° west.	Masonry tower, horizontal alternate bands of black and white.	Dioptric order.	4th 1817; improved 1886.	Intended to lead vessels clear of the rocks and shoals off Godáviri Point.
69	112	180°	Flagstaff ..	Dioptric order.	6th 1858; improved 1870.	As guide for vessels to the anchorage.
48½	50	225°, or from north through west to south-west.	Masonry column, white.	Dioptric order.	4th 1st May 1851, improved 1870.	Is intended to point out the position of the danger.
107	111	180°, or the whole sea horizon.	Do. ..	Do. ..	1st January 1853; improved 1870; present light 1881.	Warns vessels off the Armeghon shoal, the shoalest part of which (1½ fathoms) lies six miles off shore.
68	57	180°, or the whole sea horizon.	Masonry column, white, with black bands.	Do.	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.
128	125	310°, facing east.	Granite column.	Catadioptric ..	1st January 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.
116	26	180°, or the whole sea horizon.	Small gray turret.	Dioptric order.	4th 10th July 1887.	To warn vessels off the Tripaloro reef.
79½	83	180°, or the whole sea horizon.	Masonry column, white.	Do.	1st August 1846; improved 1870.	As a guide for vessels to the anchorage.
97	72	All round the compass.	Circular masonry column.	Catadioptric, 4th order.	21st April 1846; improved 1860.	Is a guide to vessels making for the Pámban channel.

LIST OF LIGHTS IN THE

Names of lights.	Location.	Position.		Number and relative position of lights.	Color of lights.	Fixed, flashing, intermitting, alternating or revolving.	Interval of revolution or flash.	Miles visible in clear weather.
		Latitude.	Longitude.					
		N. DEG. M. S.	E. DEG. M. S.					MILES.
Tuticorin	North extreme of Hare Island or Paundiantivo, 2½ miles east of Tuticorin.	8 47 10	78 11 20	1	White.	Fixed.	..	14
Muttum (Cadiapatam).	A rocky promontory known as "Muttum Point."	8 7 30	77 18 10	1	Do.	Do.	..	20
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.	..	15
Calicut	On the sandy beach.	11 15 5	75 45 35	1	Do.	Do.	..	14
Beypore	Near the beach ..	11 10 0	75 47 0	1	Red..	Do.	..	5
Tellicherry ..	On the fort wall near the beach.	11 44 50	75 28 30	1	White.	Do.	..	8
Cannanore ..	On the fort rampart near the beach.	11 51 10	75 21 45	1	Red..	Do.	..	6 to 8
Mangalore ..	On a hill above the town, and near some high trees.	12 52 17	74 50 8	1	White.	Do.	..	14
Malpe	Malpe beach ..	13 20 40	74 42 0	1	White.	Do.	..	5
Kandapur ..	Kandapur beach ..	13 38 20	74 39 40	1	Red..	Do.	..	3

MADRAS PRESIDENCY—cont.

Height in feet of centre of lantern above high water.	Height in feet of building from base to vane.	Arc of illumination (bearings are magnetic and from seaward).	Nature of construction, color, or any peculiarity of lighthouse.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
FEET. 85	FEET. 91	All round the compass.	Sandstone column, colored brown lantern white.	Dioptric, 4th order.	15th May 1845; improved 1874.	As a guide for vessels to the anchorage.
132	72	All round ..	Dark grey granite column.	First order, dioptric.	1st January 1883.	This light, in the territory of Travancore, is intended to mark the vicinity of the Crocodile rock.
100	91	270°	White laterite column.	Catadioptric, 4th order.	1st April 1839; improved 1868.	Harbour light. During the S.W. monsoon, when Cochin port is avoided by shipping, a small light is exhibited from a flag-staff at Narkal, about five miles to the northward of Cochin.
102	98	180° seaward ..	White column..	Dioptric, 4th order.	1847; improved 1881.	To guide vessels to the anchorage clear of the reef, which lies about one 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 port.
60	..	180°	Flagstaff ..	Globular lantern	17th February 1883.	As a guide for vessels to the anchorage.
70	..	158°, or between the bearings of S.E. by E. and N.W. by N.	Small masonry tower.	Dioptric, 6th order; Chance's port or signal light.	1835; improved 1870; transferred to tower 1881.	Harbour light.
64	25 from the rampart.	180°	Small masonry tower of a light yellow color.	Dioptric, 6th order.	17th October 1843; improved 1870; transferred to tower 1880.	Do.
240	65	180°	Small white masonry tower.	Dioptric, 4th order.	1st October 1842; improved 1870.	As a guide for vessels to the anchorage.
35	..	..	Hoisted on a pole.	Ship's mast-head, light.	1st March 1888.	Guide to coasting vessels passing the rocks in the vicinity of the South Canara coast.
28	..	..	Do. .	Red square lantern	Do.	Do. do.

ORDER—dated 23rd July 1888, No. 344, Marine.

Recorded.

(True Extract.)

J. F. PRICE,
Ag. Chief Secretary.

To the Port Officer, Madras.
,, Public Works Department.

ENDORSEMENT—dated 23rd July 1888, No. 345, Marine.

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

J. F. PRICE,
Ag. Chief Secretary.

ENDORSEMENT—dated 23rd July 1888, No. 346, Marine.

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

J. F. PRICE,
Ag. Chief Secretary.

ENDORSEMENT—dated 23rd July 1888, No. 347, 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,
Ag. Chief Secretary.

ENDORSEMENT—dated 23rd July 1888, No. 348, Marine.

Ten copies forwarded to the Chief Commissioner of Burma.

J. F. PRICE,
Ag. Chief Secretary.