

Marine (1896) Department.

G.O., No. 579-80 Marine

DATED 26th August 1896

vide B939
6.8.96
William

Removal of ...
8/11/96
W. C. 37

[Despatch Abstract.]

Storm Signals - Furnishing the Government
of India with the opinion of this Government
on the proposals made by the Meteorological
Reporter to treat ^{the} on the subject of the system of —
in force in India.

4/9 2nd

12th August 1896, from which it will be seen that Commander Street sees no objection to the adoption of the proposed change in the Cyclone Day Signals, and that as regards the Night Signals he prefers the "First Proposed System", as fewer lamps -- have to be used.

3. His Excellency the Governor in Council concurs in Commander Street's views.

I have &c.,

[Signature]
20/8/96

M.

*Recd
3/9/96*

Marine (1896) Department.

CURRENT No. 886

Order

From

*The Presidency Post Office,
Madras.*

No. $\frac{334}{264}$ G

Dated 12 August 1896

Received

Enclosures ~~one~~ Three

Spare copies

SUBJECT.

*Returning with remarks
Government Reference
respecting the proposed
changes in the system
of storm signals.*

BACK PAPERS.

FURTHER PAPERS.

Heading.

Storm Signals.

No. 334/ 264 g

Presidency Port Office,
Madras, 12th August, 1896.

From

Commander H. A. Street, R.I.M.,
Presidency Port Officer,
Madras

TO

The Secretary to Government,
Marine Department,
Chepak.

Sir,

In reply to Reference No. 393, E, dated the 6th August 1896 on Marine Department Current No. 835, herewith returned, I have the honour to acquaint you, for the information of Government, that I see no objection to the adoption of the change in the Cyclone Day Signals, as proposed by the Meteorological Reporter to the Government of India; and that in regard to the alteration in the Night Signals, I prefer the "First Proposed System" to the "Second", as fewer lamps have to be used, (a great advantage on a stormy night), and consequently there is less likelihood of any mistake being made as to the information the signal is intended to convey.

2. The object of the second proposed system is, I understand, to give the same extent of warning by night as by day, but this, in my opinion, is unnecessary, for, if the day signals have been shewn previously, Mariners will probably have taken all due precautions, and will look on the ^{exhibition of the} night signal as simply affording information that the storm is still in existence. Should no day warning have been given, the night "Warning" or "Danger"

"Danger" signals of the first proposed system seem to me to be amply sufficient for the purposes for which they are intended during the few hours between sunset and daylight.

I have the honour to be,

Sir,

Your Obedient Servant,

H. A. Theet

Commdr., R.I.M.,
Presidency Port Officer.



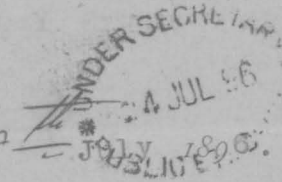
No. *1719*
45-7

GOVERNMENT OF INDIA.

REVENUE AND AGRICULTURAL DEPARTMENT.

(Meteorology)

Simla, dated the *18*



Forwarded to the Government of Madras with a request that the Government of India may be favoured with the opinion of the Local Government on the proposals of the Meteorological Reporter.

By order,

45th

Under-Secretary to the Government of India.

List of Papers forwarded.

Letter from the Meteorological Reporter to the Government of India No. 456/S dated the 11th June 1896.

exhibition of the

B.B.D.

No. 456-S., dated Simla, the 11th June 1896.

From—The Meteorological Reporter to the Government of India,
To—The Secretary to the Government of India, Revenue and Agricultural Department.

I have the honour to inform you that I have received a letter from the Director of Marine, forwarding a letter from Commander C. F. Oldham, R. N., in charge Marine Survey of India, in which he calls attention to a defect in the system of storm signals at present in force in India. He points out that the same storm signal has different meanings in different ports of the coast of India, and suggests that it is extremely desirable to have one uniform system for the whole of India so that there may be no confusion.

2. There are at present three systems of signals in force in India.

The first is a complicated system for the river Hoogly and which is necessary for the full protection of vessels proceeding from Calcutta down the river to sea immediately before or during the prevalence of stormy weather in the Bay. It is a special system of signals devised and gradually improved to meet special conditions, and it would not be desirable to make any change in it, more especially as I believe the Port Officer and the whole body of the Hoogly pilots who have to use the signals are satisfied with them.

The second is the system worked by the Bengal Meteorological Office for giving storm signals to all the ports on the Bay of Bengal, including:—

Burma Ports.

Akyab.

Moulmein.

Bassein.

Tavoy.

Rangoon.

Diamond Island.

Bengal Ports.

Balasore.

False Point.

Chandballi.

Narayanganj.

Puri.

Chittagong.

Madras Ports.

Bimlipatam.

✓ Madras.

✓ Gopalpore.

✓ Negapatam.

✓ Vizagapatam.

Tuticorin.

✓ Cocanada.

Pamban.

✓ Masulipatam.

The same system of signals is used to warn the Madras Ports on the Malabar coast, viz.:—

Mangalore.

Tellicherry. *vide 20. 200 Mar 16. 11. 5*

Calicut.

Cochin.

The warnings are given to these four ports by the Simla Meteorological Office.

The third system is worked by the Simla Meteorological Office for giving storm warnings to ports on the Bombay Coast of the Arabian Sea from Kurrachee to Honavar, viz:—

Kurrachee.	Alibag.
Cutch Mandvi.	Ratnagiri.
Veraval.	Vengurla.
Porbandar.	Goa.
Bhavnagar.	Mormugao.
Daman.	Karwar.
Bombay.	Kumta.
Murud-Janjira.	Honavar.

The present system for these ports was introduced in 1888, and no change has been made or suggested during the past eight years.

The last two systems may perhaps be defined as the Bay system and the Bombay system. Captain C. E. Oldham's suggestion is that these two systems should be modified into one uniform system for the whole of India (with the exception of the River Hoogly as stated above).

3. The following gives the storm signals as sanctioned at the present time for these two systems.

BAY OF BENGAL AND MALABAR COAST.

CAUTIONARY SIGNAL.

None.

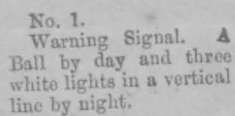
WEST COAST, (BOMBAY PORTS.)

CAUTIONARY SIGNAL.

"The square flag *W* of the International Code hoisted on the storm signal staff. It indicates the existence of disturbed weather off some part of the West Coast of India in the neighbourhood of the port or ports at which the signal is hoisted; or the advance of a cyclonic storm across the Peninsula from the Bay of Bengal which may hence shortly cross the Western Ghats and give squally or stormy weather in the Arabian Sea. The disturbed conditions may in either case pass away without giving stormy cyclonic weather to the West Coast ports or to the adjacent parts of the Arabian Sea, in which case the cautionary signal will be taken down as soon as it is certain that stormy weather will not shortly follow. If, however, the disturbed weather be the first indication of the probable formation or approach of a cyclonic storm, this cautionary signal will be followed by one of the ordinary storm signals, indicating the probable position, character and track of the approaching storm."

WARNING SIGNAL.

Indicates that a cyclone or cyclonic storm has formed in the centre or north of the Bay of Bengal, and that it is advancing towards the coast or port at which the signal is hoisted.

No. 1.
Warning Signal. 

the signal is hoisted.

WARNING SIGNAL.

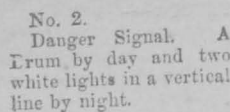
Indicates that a storm is in existence in the Arabian Sea which may either approach the port or which may shortly cross one of the usual tracks of vessels leaving the port.

There is no night signal corresponding to this day signal.

BAY OF BENGAL.

DANGER SIGNAL.

Indicates that a cyclone or cyclonic storm is approaching the coast or port in question.

No. 2.
Danger Signal. 



WEST COAST.

DANGER SIGNALS.

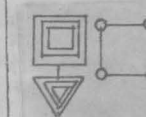
(a) Indicates that a cyclonic storm is likely to affect the port and give it strong winds, at first from southwards. The shift of wind will depend on the track of the storm (i.e., whether from east or west, &c.)



(b) Indicates that a cyclonic storm is likely to affect the port and give it strong winds, at first from northwards. The shift of wind will depend upon the track of the storm (i.e., whether from east or west, &c.)



(c) Indicates that a heavy cyclone is approaching the port and that the centre will probably pass over or very near to the port; and hence that the shift of wind is likely to be rapid and the strength of the wind to be great.



4. It will thus be seen that a drum in one part of the Indian Coast is a warning signal and in another is a danger signal, and hence a steamer in passing from say Mangalore to Karwar might find the same storm signal hoisted at neighbouring stations, but with a very different signification. This might evidently lead to serious mistakes on the part of the Captains of coasting steamers if they were not aware of or forget the change of system in passing from one port to the other.

5. I fully agree with Captain Oldham that it is extremely desirable the present dual system should be replaced by a single and uniform system of storm signals for warning the ports of the Arabian Sea and Bay of Bengal (excepting those on the Hoogly river).

6. It appears to me that in the present stage of meteorological knowledge and science in India, the warning of storms by signals hoisted at any port on the coast of India should indicate—

- (1) Whether the approaching storm is of moderate or great intensity.
- (2) Whether the storm centre is likely to pass—
 - (a) Considerably to the northward;
 - (b) Considerably to the southward;
 - (c) Inland at or near the port.

This extent of information is desirable in order to enable the Captains of vessels to decide what will be the probable shift of wind and the best course to pursue if they have to leave the port for the open, as is the case at the great majority of ports on the east and west coasts of the Peninsula when the danger signal is hoisted.

vide para 5 of
Cyclone Code
(1880) 108 mar
11-4-95



7. I have the honour to propose for the consideration of the Government of India and the various authorities concerned the following uniform system which will enable the warning officers at Simla and Calcutta to give as ample and full warning as is at present possible on the lines laid down in the preceding paragraph for the whole coast of India except the Hooghly river:—

DAY SIGNALS.

I.—CAUTIONARY SIGNAL.

Bay of Bengal.

The square flag *W* of the International Code hoisted on the storm signal staff as a cautionary signal indicates the existence of disturbed squally weather in the Bay of Bengal which may be the first stage in the formation of a cyclonic storm and which if it develops is likely to affect that part of the coast on which the port is situated.

The disturbed conditions may pass away without developing into a cyclonic storm, in which case the cautionary signal will be taken down as soon as it is certain that stormy weather will not shortly follow. If, however, the disturbed weather be the first indication of the probable formation or approach of a cyclonic storm, the cautionary signal will be followed by one of the ordinary storm signals, indicating the probable position, character and track of the approaching storm.

Arabian Sea.

The square flag *W* of the International Code hoisted on the storm signal staff as a cautionary signal indicates the existence of disturbed weather off some part of the West Coast of India in the neighbourhood of the port or ports at which the signal is hoisted; or the advance of a cyclonic storm across the Peninsula from the Bay of Bengal which may hence shortly cross the Western Ghats and give squally or stormy weather in the Arabian Sea.

The disturbed conditions may in either case pass away without giving stormy cyclonic weather to the West Coast ports or to the adjacent parts of the Arabian Sea, in which case the cautionary signal will be taken down as soon as it is certain that stormy weather will not shortly follow. If, however, the disturbed weather be the first indication of the probable formation or approach of a cyclonic storm, this cautionary signal will be followed by one of the ordinary storm signals, indicating the probable position, character and track of the approaching storm.

II.—WARNING SIGNAL.

A ball indicates that a cyclonic storm has formed, which will probably advance to that part of the coast on which the port is situated, but is still at a considerable distance from it.



III.—DANGER SIGNALS.

(1) A cone apex downwards indicates that a cyclonic storm (probably of slight to moderate intensity) is affecting the port and that its centre will probably cross the coast considerably to the south of the port.



(2) A cone apex upwards indicates that a cyclonic storm (probably of slight to moderate intensity) is affecting the port, and that its centre will probably cross the coast considerably to the north of the port.



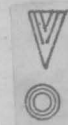
(3) A drum indicates that a cyclonic storm (probably of slight to moderate intensity) is affecting the port and that its centre will probably cross the coast over or near to the port.



In order to indicate that a cyclonic storm in the sea area near a port is of great intensity, a ball is added to (and placed under-neath) the corresponding danger signal. The following shows the proposed great danger signals and their significance:—

IV.—GREAT DANGER SIGNALS.

(1) A cone apex downwards and ball below indicate that a cyclonic storm of great intensity is affecting the port and that its centre will probably cross the coast considerably to the south of the port.



(2) A cone apex upwards and ball below indicate that a cyclonic storm of great intensity is affecting the port and that its centre will probably cross the coast considerably to the north of the port.



(3) A drum with a ball below indicates that a cyclonic storm of great intensity is affecting the port and that its centre will probably cross the coast over or near to the port.



8. For the night storm signals I suggest two arrangements for the consideration of the authorities concerned. The first is a simple system, giving the minimum necessary warning by night, whilst the other gives practically the same extent of warning as the day storm signals proposed above for adoption and hence appears to me to be preferable to the first system:—

FIRST PROPOSED SYSTEM OF NIGHT SIGNALS.

WARNING SIGNAL.

Two white lights. Indicate that a cyclone or cyclonic storm is in existence and is advancing towards the coast on which the port is situated.



DANGER SIGNAL.

Three white lights. Indicate that a cyclonic storm or cyclone is in the immediate neighbourhood of, and is approaching the coast, on which the port is situated.



This is virtually identical with the system of night signals at present in force on the Burma, Bengal and Madras ports.

SECOND PROPOSED SYSTEM OF NIGHT SIGNALS.

CAUTIONARY SIGNAL.

None necessary.

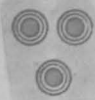
WARNING SIGNAL.

Two red lights in a vertical line (corresponding to day warning signal) indicate that a cyclonic storm has formed, which will probably advance to that part of the coast on which the port is situated, but is still at a considerable distance from it.



DANGER SIGNALS.

(1) Three red lights forming a triangle apex downwards (corresponding to the day danger signal No. 1,) indicate that a cyclonic storm (probably of slight to moderate intensity) is affecting the port and that its centre will probably cross the coast considerably to the south of the port.



(2) Three red lights forming a triangle apex upwards (corresponding to the day danger signal No. 2) indicate that a cyclonic storm (probably of slight to moderate intensity) is affecting the port and that its centre will probably cross the coast considerably to the north of the port.

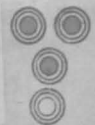


(3) Four red lights forming a square (corresponding to the day danger signal No. 3) indicate that a cyclonic storm (probably of slight to moderate intensity) is affecting the port and that its centre will probably cross the coast over or near to the port.

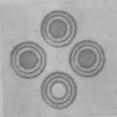


GREAT DANGER SIGNALS.

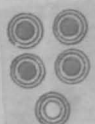
(1) Three red lights with a white light below (corresponding to the day great danger signal No. 1) indicate that a cyclonic storm of great intensity is affecting the port and that its centre will probably cross the coast considerably to the south of the port.



(2) Three red lights with a white light below (corresponding to the day great danger signal No. 2) indicate that a cyclonic storm of great intensity is affecting the port and that its centre will probably cross the coast considerably to the north of the port.



(3) Four red lights with a white light below (corresponding to the day great danger signal No. 3) indicate that a cyclonic storm of great intensity is affecting the port and that its centre will probably cross the coast over or near to the port.



9. If necessary the alternative night signals might be slightly simplified by diminishing the number of red lights by one throughout, but the number of times these signals would have to be hoisted at any station would not exceed two in the year and on the average of all stations not oftener than once in two years. The question of the trouble of hoisting these signals hence appears to be of no importance, and the matter should hence be decided on the ground of whether it is desirable to give the same extent of warning by night as by day.

10. It will be necessary to issue notifications in the Provincial Gazettes, but the preparation of these notifications in their proper form can lie over until the various authorities have been consulted and have agreed to accept the proposed system of signals as they stand or with suitable modifications.

I have the honour to be,

SIR,

Your most obedient servant,

JOHN ELIOT,

Meteorological Reporter to the Government of India.

(1896.)
REVENUE DEPARTMENT.

Current Number. 5337

From

The S of I
(Rev. & Agl)

G. O. Misc. No. 3035

Transferred to the
Marine Dept.

ostacawand } Abundant
30 July 96 } ag. Secretary to

To
The Marine Dept.

Dated 18.7.96

Received 25.7.96

Enclosures

No. 1719
45-1

SUBJECT.

Requesting the fur-
-nished with the opinion
of the madras gvt. on the
proposals of the meteorological
Reporters reg. a uniform
system of storm signals
to be adopted
in India.

P. P. O.

Referred to the
Presidency Sth. office
for report.

J. W. Campbell Comd.
Secretary to the
Marine Dept.

To the Presidency Sth. off.
to be returned.