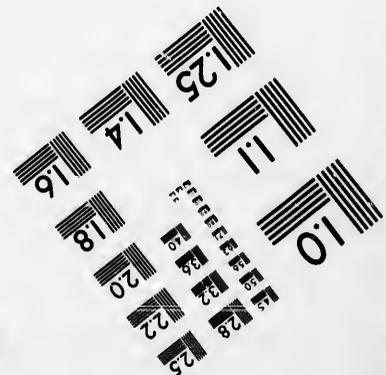
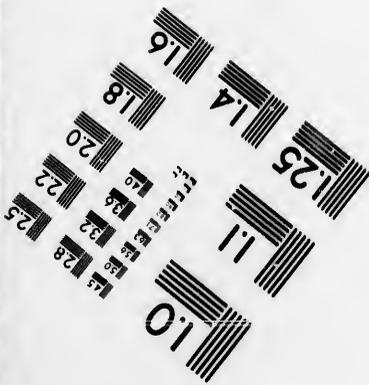
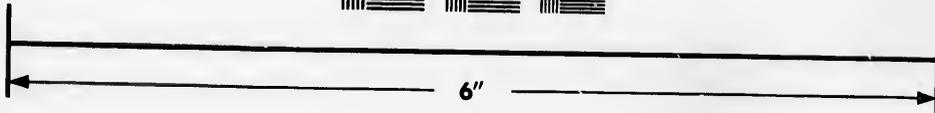
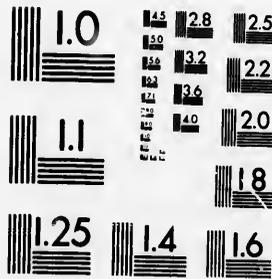


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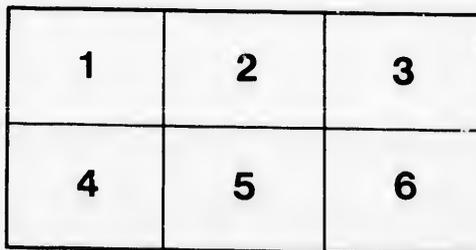
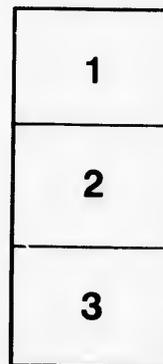
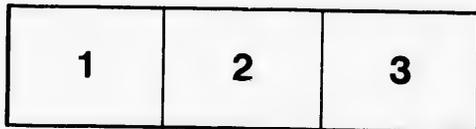
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INSTRUCTIONS TO AGENTS

FOR THE

PUBLICATION OF STORM WARNINGS

ISSUED FROM THE

METEOROLOGICAL OFFICE,

TORONTO.

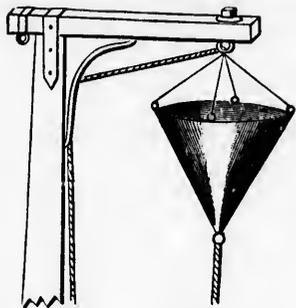


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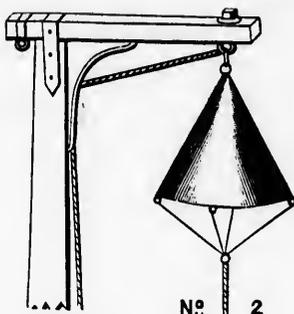
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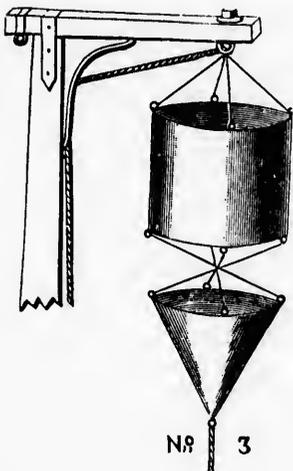
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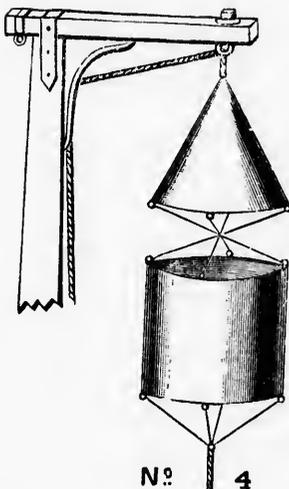
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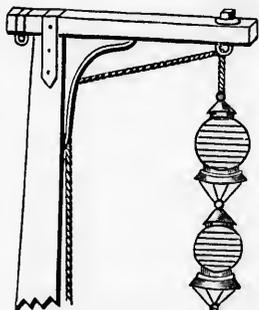
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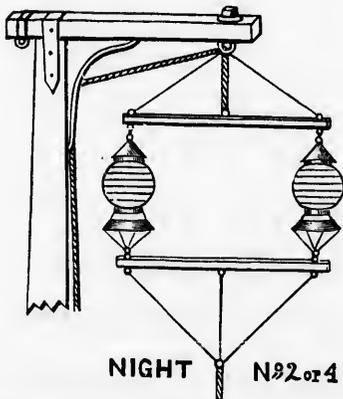
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NIGHT Nº 1 or 3



NIGHT Nº 2 or 4

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INSTRUCTIONS TO AGENTS  
FOR THE  
PUBLICATION OF STORM WARNINGS  
ISSUED FROM THE  
METEOROLOGICAL OFFICE, TORONTO.

ABSTRACT.

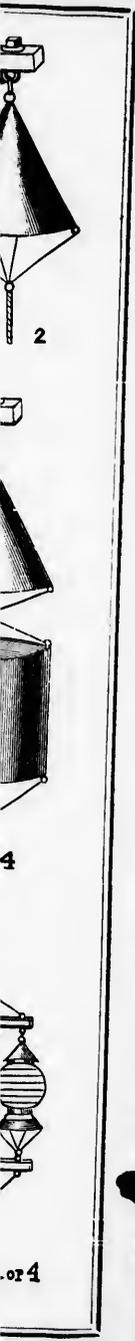
ON RECEIPT OF A WARNING.

- (1) Acknowledge immediately by *telegraph*.....(1) Art. III.
- (2) Hoist Storm Signal and Post Notices.....(2) “
- (3) Send by next mail a postal card of acknowledgment .....(3) “

*When the Storm Signal is hoisted, keep it up until ordered down by telegraph, except in cases explained in* .....(3) Art. VI.

ON RECEIPT OF A SAFETY TELEGRAM.

- (1) Acknowledge immediately by *Telegraph*.....(1) Art. IV.
  - (2) Lower Storm Signal and take down notice, except in cases named in .....(2) “ VI.
  - (3) Send by next mail a postal card of acknowledgment(3) “ V.
- Written Report to be made up to 24 hours after the order to lower the signal was issued, or 24 hours after the storm was over, should it continue after the issue of said order ..... Art. VII.



INSTRUCTIONS TO AGENTS  
FOR THE  
PUBLICATION OF STORM WARNINGS

ISSUED FROM THE  
METEOROLOGICAL OFFICE, TORONTO.

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ART. I.

The telegrams commonly issued to agents are of two kinds :  
(1) *Cautionary telegrams*, or those giving warning of expected storms.

(2) *Safety telegrams*, indicating that the danger before notified is, or probably soon will be, over.

ART. II.

The wording of a cautionary telegram, for the most part, will be as follows :

- (a) Two date words, or cypher words\* to denote the day of the month, and the Toronto civil time, to the nearest hour, when the telegram left the Meteorological office.
- (b) The word "Hoist" to denote that the drum or cone, as indicated by the following word, is to be hoisted, and the notices posted.
- (c) One of the words, One, Two, Three, or Four, indicating how cone or drum is to be hoisted, as shown on the diagram.

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\*The date words are given in cypher Table I., p. 14.

- (d) Words shewing places, or districts,\* warned.
- (e) Some additional words will occasionally be added,† giving further particulars to be included in notices.

The notice to be posted on receipt of a warning, is to be filled in as follows :

The date and time of issue by the Central office.

The name of the station at which the telegram is received, with the local time of receipt, and the name of the agent.

The name of every station at which cautionary signals are ordered up, either as separately named or included in the district or districts specified in the telegram.

Example of a warning supposed to be addressed to Port Stanley in the month of May :

“ Incase, effect, hoist, one, Scotia, Fundy,— Danger.”

Translation of the above to be filled in the notice paper.

METEOROLOGICAL SERVICE OF THE DOMINION OF CANADA

**STORM WARNING.**

Issued at the Central Office, Toronto, at 4 p.m., May 17, 1881.

*Received by Telegraph at Liverpool, N.S., at 4.20 p.m., local time,*

*J. L. Hemmeon, Agent.*

CAUTIONARY STORM SIGNALS ARE ORDERED UP AT.—

*Halifax, Liverpool, Yarmouth, Digby, Point Lepreau,  
St. John, St. Andrews.*

*Moderate gale is expected from East, shifting through N. to N.W.*

The Ordering Up of the Cautionary Storm Signals is intended to warn those connected with Shipping that a storm will probably occur, either at the place at which the signal is displayed, or within such distance that ships leaving port might be affected by it.

\*The words employed to express the various districts and combinations of districts are given in Table II., p. 15.

†See Table III.

## ART. III.

On receipt of a warning telegram :

- (1) Acknowledge the warning immediately by *telegraph*.
- (2) Hoist the drum or cone and post notices.
- (8) Fill up and send by *next* mail to Toronto, a special postal card acknowledgment.

If, after the cone or drum and cone has been hoisted for some time, the direction of the wind is expected to change, a second message will be sent similar to the first, containing the word, two, three or four, as the case may be, indicating the signal to be exposed as shewn on the diagram.

Agents will acknowledge second telegram in precisely the same manner as the first.

## Remarks on (1) of Art. III.

The words of the telegraphic acknowledgment are to be arranged in the following order :

- (a) The local civil time, to be the nearest ten minutes, at which the message was received, according to Cypher Table No. 1.
- (b) The second, third and fourth words of the warning.
- (c) Description of recent weather up to the time when the warning was received, the description being in ordinary language, such as "fine," "north-east gale since sunrise," &c., &c.\*
- (d) If a gale had blown during any part of the twelve hours preceding the receipt of the warning, and had *since ceased*, omit description of present weather, if necessary, in order to reduce the number of words as much as possible, and give the *direction* of gale, and, roughly, the times between which it raged, thus :  
"North-east gale, sunsise, noon."

The agent should take care to use no more words than are absolutely necessary in the telegraphic acknowledgment.

\* In giving a description of the force of the wind, the following terms should be employed : calm, light air, light breeze, moderate breeze, fresh breeze, strong breeze, moderate gale, fresh gale, heavy gale, hurricane.

## EXAMPLE 1.

Suppose the warning in Art. II., in which the telegram commences with the words "incase, effect, hoist, one," was received at 4.20 p. m., on May 17th, and that the weather had been fine all day, with a light breeze from the west, the telegraphic acknowledgment should be :

"Inch effect hoist one fine light west all day."

## EXAMPLE 2.

Suppose the same telegram was received at 7.10 on May 17th, and that at the time there was a fresh breeze from the north-east, and the weather was threatening, the telegraphic acknowledgment should be :

"Incorrupt effect hoist one north-east fresh threatening."

Remarks on (3) Art III.

In the postal card of acknowledgment, write the following :

Time when warning was received, by agent, and at telegraph office.

Exact words of warning.

Time when telegraphic acknowledgment was despatched.

Exact words of telegraphic acknowledgment.

Time when storm signal was hoisted.

Cause of delay of telegram (if any).

Time when card was finished.

The times are to be expressed by the month, day of month, and the hour and minute, a. m. and p. m. local time.

## SAFETY TELEGRAMS.

## ART. IV.

The words of a safety telegram will be arranged in the same manner as in a warning telegram, substituting the word "down" for "hoist one" or "hoist two," &c.

## ART. V.

When a safety message is received, the agent will proceed as follows :

(1) Acknowledge immediately by telegraph the safety message.

(2) Lower the storm signal and take down the notice.

- (3) Fill up, and send by *next* mail, a postal card of acknowledgment to Toronto.

Remarks on (1).

The telegraphic acknowledgment of a safety message will be as follows :

- (a) Local time of delivery, see (a), Art. III.
- (b) Second word of safety telegram.
- (c) The word "down."
- (d) Description of weather at time of receiving safety telegram.
- (e) Either the words "no storm," or, if a storm occurred, the times between which it prevailed, and the direction of the wind.

Remarks on (3) Art. V.

In filling up the postal card of acknowledgment to a safety message, follow the same rule as in acknowledging a warning ; but the time when the signal was lowered must be given, instead of the time when hoisted.

SPECIAL DIRECTIONS REGARDING STORM SIGNALS  
AND NOTICES.

ART. VI.

- (1) If from *any* cause a warning does not arrive until 24 hours after issue, and a storm be raging, the signal is to be hoisted, to shew that the storm is not a local one but if the storm is over, the signal need not be hoisted.
- (2) In any case, when a warning, though issued in time, does not arrive before the commencement of a storm, a notice to that effect should be published in the local papers, and the cause of delay stated on the notice posted.

Signals are to be kept up until ordered down, excepting only in the following case :

- (3) If 30 hours or more after the issue of the warning, the storm is apparently over, and no safety telegram has been received, and it be ascertained that there is a

stoppage of telegraphic communication between Toronto and the station, the Agent may exercise his discretion as to lowering the signal, or keeping it up longer; but if the signal is lowered, a telegram stating the fact should be left at the telegraph office to be forwarded immediately on the re-establishment of telegraphic communication.

- (4) If, when a safety message arrives, the gale be still blowing, the Agent may, at his discretion, keep up the signal until the gale appears to be abating, in which case, in the telegraphic acknowledgment, the words "gale blowing, signal continued," must be added.

#### WRITTEN STORM REPORTS BY MAIL.

##### ART. VII.

- (1) At every station to which notices of expected storms are habitually sent by telegraph, a record of weather during and about the time of every storm, actual or expected, is to be kept in a storm register book provided for that purpose. In the same book are to be entered copies of telegrams received, and their telegraphic answers, copies of notices posted, times at which telegrams were received and despatched, times of hoisting and lowering signal, and times of mailing receipt cards and written reports.

Stations provided with instruments will be furnished with a larger register book, form 14, which is to be used in addition to the storm register book.

- (2) As soon as possible, after 24 hours from the time of storm ceasing (if it should have continued after despatch of safety telegram), the agent should send to the Meteorological Office by mail, a written storm report, on Form No. 10, at the back of the storm notice, or on the larger Form No. 9. It must be put in an *unsealed* wrapper or envelope, and stamped with 1 cent. If No. 9 is used, the original storm notice is to be enclosed with it.

- (3) General directions for making storm reports.
- (a) *State plainly in words whether or not there was a strong breeze or moderate gale, fresh gale, &c.\**
  - (b) If there was a strong breeze, &c., give directions, when it began and ended, and when it blew strongest.
  - (c) If it did not blow from one direction all the time, name the points from which it blew, when it shifted, and whether it veered with the hands of a watch, or in the contrary direction.
  - (d) Give a brief account of the weather, stating whether rain or snow fell, and the amount (if any).
  - (e) If there was no storm, state so distinctly, and give a brief description of the weather.

The report should commence with the receipt of the warning, or with the beginning of the storm, (if it began before the warning arrived) or even earlier, should appearances have led the Agent to anticipate a storm, and a record of the weather had been kept; and the report should end about 24 hours after issue of the safety message, or 24 hours after the storm was over (if it should have continued after issue of the safety message.)

- (4) Form No. 9 is intended for the use of Agents provided with instruments, and who keep a record of storms in Form 14.

The manner in which the first part of page 1 of Form (9) should be filled, is sufficiently evident from the headings. In the second part of page 1, will be entered, as fully as convenient events and conditions of the following kind, in the order of their occurrence, with the local civil times, a. m. or p. m. The description of the winds should, of course, give their directions; and if the velocity in *miles* be known, the number which expresses the velocity, should be followed by the word "*miles*;" but it will be sufficient if the velocity be described by the general terms used below. See (a).

\* A statement as to whether there was a strong breeze, &c., or not, is of primary importance in a report. The words "strong breeze," "moderate gale," "fresh gale," &c., are preferred to the velocity as shown by an anemometer, on account of the difficulty of obtaining suitable exposure for the instrument, but it is better, if possible, to give both the recorded velocity and the words "strong breeze," &c.

Some of the events or conditions to be described are as follows:—

- (a) Wind calm, light, moderate, strong, very strong, heavy gale.
- (b) Wind suddenly increased or lulled.
- (c) Wind's direction rapidly changed from \* through \* to \*
- (d) Rain light, moderate, heavy, time when it began and ended.
- (e) Snow light, moderate, heavy, time when it began and ended.
- (f) Hail, thunder, lightning.
- (g) Remarkable bursts of heat and cold.

Observers who send records of the barometer, are requested to send the *uncorrected* readings of their barometer, the readings of the attached thermometer, and the reading of the ordinary thermometer.

Page (2) should contain records of any observations that have been made before receipt of the telegram, see (3), Art. VII., and up to the time of making the report. To aid observers in selecting times suitable for these observations, the following occasions are suggested:—

- (h) Occasionally, at equal short intervals, when it is noticed that the barometer rises or falls rapidly.
- (i) When the barometer reaches its highest or lowest point.
- (j) When the velocity of the wind suddenly rises or falls.
- (k) Occasionally, when the velocity is very great.
- (l) When a considerable and rapid change occurs in the direction.
- (m) Occasionally, when the wind changes *steadily* in one direction.
- (n) Sudden bursts of heat or cold.
- (5) If Form No. 10 only is used, the general directions in (3) Art. VII. will suffice for filling up the report; but any information of the kind referred to in (4) Art. VII. will be valuable.

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(c) Directions of wind to be inserted in the blanks \*.

- (6) If at any storm signal station a gale should occur without its approach being notified by telegraph, a report of it should be transmitted to Toronto by mail.\* For such a case, the words "no warning" are to be written in the place of first word of telegram.
- (7) If Form 10 be insufficient to contain the whole report, and the agent is not provided with Form 9, he should send a second sheet, marking it "No. 2."
- (8) A copy of every written report, or a memorandum of its contents should be kept at the station, to enable the agent to furnish a duplicate in case of miscarriage by mail.

## ART. VIII.

Agents should endeavor to procure and forward information of storms occurring in neighbouring places, also of damage done to ships, buildings, etc. Local newspapers, or clippings, referring to the same subject would be very useful. The name of the paper and its date should be sent with any clippings.

## ART. IX.

It is the duty of the agent to examine, from time to time, the state of the hoisting gear, and give early notice if repairs or paint be required for the mast or signal, and if new halliards are necessary. If the halliards appear chaffed, he should freshen the nip near the halliard block, or shift the halliards end for end.

At the close of navigation, the halliards are to be unrove, dried, and stowed away in a dry place for the winter.

When the halliards consist of a *single* whip, the need of going aloft to reeve them again in the spring may be avoided by employing a light *reeving* line when the halliards are unrove in the autumn. The reeving line should be made fast to the hoisting end of the halliards, so that on unreeving the latter by rounding down on the part next the signal, the reeving line may take its place. To diminish the risk of jamming at the block aloft, the hoisting end of the halliard should be pointed, and be finished with a small eye.

\* If the agent is furnished with an anemometer, and the instrument shews an average velocity of 25 miles for one or more hours, or a velocity of 30 miles for a shorter time, he should consider this sufficient to require a report; but if the anemometer does not shew so great a velocity as the above, and the agent has reason to believe that the instrument, through imperfect exposure, does not give the full velocity, but that a gale is actually blowing, he should report that such is his opinion, stating at the same time what has led him to that conclusion.

## CYPHER TABLE No 1.

*Cypher words used in storm and other special telegrams to denote the day of the month and time.*

DAY OF THE MONTH.	TIME.			
	MORNINO.		EVENING.	
	A.M. h.m.	A. M. h. m.	h. m.	P. M. h. m.
1 Each.	0 00 Ice.	6 00 Immodest.	noon Inn.	6 00 Incommode.
2 Eager.	10 Icicle.	10 Immoderate.	12 10 Inability.	10 Incomplex.
3 Eagle.	20 Idea.	20 Immolate.	20 Inaccurate.	20 Inconceivable
4 Earl.	30 Idiomi.	30 Immoral.	30 Inaction.	30 Inconclusive.
5 Early.	40 Idle.	40 Immortality.	40 Inadequate.	40 Incongruent.
6 Earnest.	50 Ignite.	50 Immovable.	50 Inadmissable.	50 Incorporate.
7 Easy.	1 00 Ignoble.	7 00 Immunity.	1 00 Inadvertent.	7 00 Incorrect.
8 Eat.	10 Ignorance.	10 Immure.	10 Inalienable.	10 Incorrupt.
9 Ebb.	20 Ignore.	20 Impact.	20 Inane.	20 Intrust
10 Ebony.	30 Iguana.	30 Impair.	30 Inanimate.	20 Incubate.
11 Echo.	40 Ilex.	40 Impale.	40 Inapposite.	40 Inculpate.
12 Eclipse.	50 Iliad.	50 Impanel.	50 Incapt.	50 Incur.
13 Eden.	2 00 Iik.	8 00 Imparity.	2 00 Inarch.	8 00 Indebted.
14 Editor.	10 Ill.	10 Impart.	10 Inattentive.	10 Indeed.
15 Eddy.	20 Illegal.	20 Impartial.	20 Inaudible.	20 Indent.
16 Edge.	30 Illegible.	30 Impassable.	30 Inboard.	30 Index.
17 Effect.	40 Illicit.	40 Impeach.	40 Inhorn.	40 Indian.
18 Egg.	50 Illness.	50 Impede.	50 Inbreathe.	50 Indicate.
19 Elbow.	3 00 Illude.	9 00 Impel.	3 00 Inbreed.	9 00 Indict.
20 Elk.	10 Illusion.	10 Impend.	10 Inca.	10 Indigenous.
21 Elope.	20 Imege.	20 Imperative.	20 Incage.	20 Indigent.
22 Emblem.	30 Imbecile.	30 Imperfect.	30 Incant.	30 Indigo.
23 Embrace.	40 Imbibe.	40 Imperial.	40 Incapably.	40 Indirect.
24 Employ.	50 Imbitter.	50 Impersonal.	50 Incarnate.	50 Indispose.
25 Encamp.	4 00 Imbrue.	10 00 Impetuous.	4 00 Incase.	10 00 Indistinct.
26 Enchant.	10 Imitate.	10 Impiety.	10 Incense.	10 Indolent.
27 End.	20 Immanent.	20 Implore.	20 Inch.	20 Indoor.
28 Enemy.	30 Immaculate.	30 Imply.	30 Incidence.	30 Induct.
29 Energy.	40 Immaterial.	40 Impolite.	40 Incipient.	40 Indult.
30 Engage.	50 Immature.	50 Import.	50 Incision.	50 Industry.
31 Engine.	5 00 Immediate.	11 00 Impound.	5 00 Incite.	11 00 Infant.
	10 Immense.	10 Impress.	10 Inclement.	10 Infect.
	20 Immerge.	20 Imprint.	20 Incline.	20 Infer.
	30 Immerse.	30 Impute.	30 Inclose.	30 Inflict.
	40 Immigrant.	40 Impure.	40 Include.	40 Infuse.
	50 Imminent.	50 Impugn.	50 Income.	50 Ingot.

CYPHER TABLE No. II.

Stations to which Storm Warnings are occasionally issued from Toronto, with the words employed *t.*, designate the various districts.

GEORGIAN - { Owen Sound. Collingwood. Presqu' Ile. } HURON - - { Saugeen. Kincardine. Goderich. Bayfield. Sarnia. }	OTTAWA.    Ottawa. RIVER - - { Montreal. Quebec. Father Point. } BAY - - - { Gaspe. Perce. Dalhousie. Bathurst. } GULF. - - - { Chatham. Point du Chene. Charlottetown. Port Hastings. Pictou. }	BRETON - { Sydney. Glace Bay. Cow Bay. Louisburg. } SCOTIA - - { Halifax. Liverpool. Yarmouth. } FUNDY - - { Digby. Yarmouth. Point Lepreaux. St. John. St. Andrew's. }
LAKES - { Amherstburg. Fort Stanley. Port Dover. Port Burwell. Port Colborne. } ERIE - - - { Port Dalhousie. Burlington Beach. Port Credit. Oakville. Toronto. Port Hope. Cobourg. Deseronto. } ONTARIO - { } KINGSTON - { Kingston. }	LAWRENCE - { }	OCEAN - - { }

## CYPHER TABLE III.

*Direction and changes of Wind*

Dace.....N	Damp.....N shifting to NW & W	Davit.....S shifting to SE
Dado .....NE	Damsel .....N " " NE & E	Dawn .....SW " W & NW
Dagger.....E	Dance.....NE " " N & NW	Day .....W " NW
Dahlia.....SE	Danger .....E " thro' N to NW	Dead .....NW " N
Daily .....S	Dark .....E " " S to SW	
Daisy .....SW	Darn .....SE " " S to SW	
Damage ..W	Dash .....SE " " E & N to NW	
Dame .....NW	Daub .....S " to SW	

DIRECTIONS TO MARINERS  
WITH REFERENCE TO  
CANADIAN STORM WARNINGS,  
ISSUED FOR  
QUEBEC AND THE MARITIME PROVINCES.

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FIG. No. I.—This signal indicates “*moderate gale* is expected probably *at first* from an easterly direction.”

FIG. No. II.—This signal indicates “*moderate gale* is expected probably *at first* from a westely direction.”

FIG. No. III.—This signal indicates “*Fresh to heavy gale* is expected probably *at first* from an easterly direction.”

FIG. No. IV.—This signal indicates “*Fresh to heavy gale* is expected probably *at first* from a westerly direction.”

The *Cone*, when hoisted by itself, indicates that it is expected that the wind will attain a velocity of 30 miles an hour, but will not exceed 40 miles; and it is not intended that an ordinarily well found vessel should stay in port, but simply as a warning to mariners that strong winds are expected from the quarter indicated.

The *Drum* will always be hoisted when the velocity of the wind is expected to exceed 40 miles an hour.

The night signal, corresponding to Nos. 1 and 3, is two white lanterns *hanging perpendicularly*,

Night signal correspondonding to Nos. 2 and 4 is two white lanterns *hanging horizontally*.

NOTE I.—Mariners will be able to obtain further information from Drum Agents, or by consulting the daily probabilities.

NOTE II.—Mariners must always bear in mind that the storm signals are merely *cautionary* and do not necessarily mean that a storm will occur at the place where the signal is displayed, but that one is expected either there or within such a distance that vessels leaving port would be liable to be caught in it.

NOTE III.—The new signals will be issued and used at all Canadian Storm Signal Stations in Quebec and the Maritime Provinces on and after June 1st next.

C. CARPMAEL.

METEOROLOGICAL OFFICE,  
TORONTO, APRIL 1, 1882.

