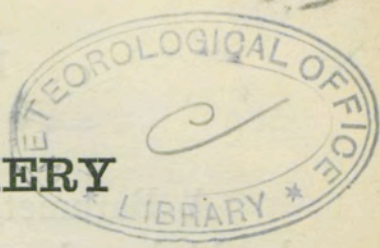


10



COAST OR FISHERY
B A R O M E T E R
M A N U A L.

BOARD OF TRADE,
1864.

COMPILED BY VICE-ADMIRAL FITZROY, F.R.S., M.I.F.

FIFTH EDITION.

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DIRECTIONS.

A Barometer, for a coast Weather-glass, should be placed where it may be seen at any time, in a good light, by Seafaring persons, Fishermen, Boatmen, or others.

These pages may be useful to Farmers and Gardeners also; though, in general, wind affects them less than rain, or snow, or frost.

It should be set regularly—by a duly authorized person—two or three times daily.

An explanatory Card (as follows,) should be accessible, near the Barometer. and this Manual should be liberally circulated.

In an Aneroid, or a metallic, or a wheel barometer, the motion of the hand should correspond to that of the mercury in an *independent* instrument.

EXPLANATORY CARD. (In South Latitude read South for North.)

WEATHER GLASSES.

THE BAROMETER RISES
for Northerly wind
(including from North-west, by the
North, to the Eastward),

for dry, or less wet weather,—for
less wind,—or for more than one
of these changes:—

EXCEPT on a few occasions when
rain, hail, or snow comes from the
Northward with *strong* wind.

THE BAROMETER FALLS
for Southerly wind
(including from South-east, by the
South, to the Westward),

for wet weather,—for stronger
wind,—or for more than one of
these changes:—

EXCEPT on a few occasions when
moderate wind with rain (or snow)
comes from the Northward.

For change of wind toward
Northerly directions:—

A THERMOMETER FALLS.

For change of wind toward
Southerly directions:—

A THERMOMETER RISES.

Moisture, or dampness, in the air (shown by a hygrometer),
increases BEFORE rain, fog, or dew.

On barometer scales the following con-
tractions may be useful:—

RISE	FALL
FOR	FOR
NORTH	SOUTH
NW.-N.-E.	SE.-S.-W.
DRY	WET
OR	OR
LESS	MORE
WIND.	WIND.
EXCEPT	EXCEPT
WET FROM	WET FROM
NORTH.	NORTH.

Add one tenth of an inch, to the ob-
served height, for each hundred feet the
barometer is above the half-tide level.

The *average* height of the barometer,
in England, at the sea level, is about
29.95 inches; and the *average* tempera-
ture of air is nearly 50 degrees (London
latitude).

The thermometer falls about one degree
for each three hundred feet of elevation
from the ground, but varies with wind.

“When the wind shifts against the sun,
Trust it not, for back it will run.”

First rise after very low,
Indicates a stronger blow.

Long foretold—long last.
Short notice—soon past.

TO FORETELL WEATHER.

1. FAMILIAR as the practical use of weather-glasses is, at sea as well as on land, only those who have watched their indications, and compared them carefully, are able to conclude more than that the rising glass* USUALLY foretells less wind or rain, a falling barometer more rain or wind, or both; a high one fine weather, and a low, the contrary. But useful as these general conclusions are *in most cases*, they are *sometimes* erroneous, and then remarks may be rather hastily made, tending to discourage the inexperienced, by disparaging really valuable information.

2. By attention to the following observations (the results of many years' practice and experience) a person not accustomed to use a barometer may soon do so without difficulty.

* Glass, barometer, column, mercury, quicksilver, or hand.

3. The barometer shows whether the air is getting heavier or lighter, or is remaining in the same state. The quicksilver falls as the air becomes lighter, rises as it becomes heavier, and remains at rest in the glass tube while the air is unchanged in weight. Air presses on everything within a few miles of the world's surface, like a *much* lighter ocean, at the bottom of which we live—not feeling its weight, because our bodies are full of air,* but feeling its currents, the winds. Toward any place from which the air has been drawn by suction,† air presses with a force or weight of nearly fifteen pounds on a square inch of surface. Such a pressure holds the limpet to a rock when, by contracting itself, the fish has made a place without air‡ under its shell. Another familiar instance is that of a fly which walks on the ceiling with feet that stick. The barometer tube, emptied of air, and filled with pure mercury, is turned down into a cup or cistern containing the same fluid, which, feeling the weight of air, is so pressed by it as to balance a column of about thirty inches (more or less) in the tube, where no air presses on the top of the column.

* Or atmosphere—the atmospheric fluid which we breathe.

† Or exhaustion.

‡ A vacuum.

4. If a long pipe, closed at one end only, were emptied of air, filled with water, the open end kept in water and the pipe held upright, the water would rise in it nearly thirty feet. In this way water barometers have been made. A proof of this effect is shown by any well with a sucking pump—up which, as is commonly known, the water will rise toward thirty feet,* by what is called suction, which is, in fact, the pressure of air toward an empty place.

5. The words on scales of barometers should not be so much regarded for weather indications, as the rising or falling of the mercury; for if it stand at *Changeable*, and then rise toward *Fair*, it presages a change of wind or weather, though not so great as if the mercury had risen higher; and, on the contrary, if the mercury stand above *Fair* and then fall, it presages a change, though not to so great a degree as if it had stood lower; besides which, the direction, and force of wind, are not in any way noticed. It is not from the point at which the mercury may stand that we are alone to form a judgment of the state of the weather, but from its *rising* or *falling*; and from the movements of immediately preceding days as well as hours, keeping in mind effects of change

* Practically, about twenty-eight.

of *direction*, and dryness, or moisture, as well as alteration of force or strength of wind.

6. The barometer is said to be *falling*, when the mercury in the tube is sinking, at which time its upper surface is sometimes concave or hollow; or when the hand (see note in page 2) moves to the left. The barometer is *rising*, when the mercurial column is lengthening; its upper surface being convex or rounded, or when the hand moves to the right (see page 2).

7. In this part of the world, toward the higher latitudes, the quicksilver ranges, or rises and falls, nearly three inches—namely, between about thirty inches and nine-tenths (30·9), and less than twenty-eight inches (28·0) on *extraordinary* occasions; but the *usual* range is from about thirty inches and a half (30·5), to about twenty-nine inches. Near the Line, or in equatorial places, the range is but a few tenths, except in storms, when it *sometimes* falls even to twenty-seven inches.

8. The sliding scale (vernier) divides the tenths into ten parts each, or hundredths of an inch. The number of divisions on the vernier exceeds that in an equal space of the fixed scale by one.

9. By a thermometer the *weight* of air is *not* shown. No air is within the tube. None can

get in. But the bulb of the tube is full of mercury, which contracts from cold, or swells by heat—according to which effect the thread of metal in the small tube is drawn down or pushed up so many degrees; and thus shows the temperature.*

10. If a thermometer have a piece of linen tied round the bulb, wetted enough to keep it *damp* by a thread or wick dipping into a cup of water, it will show less heat than a dry one, in proportion to the dryness of the air, and quickness of drying.† In very damp weather, with or *before* rain, fog, or dew, two such thermometers will be nearly alike.

11. For ascertaining the dryness or moisture of air, the readiest, and surest method is the comparison of two thermometers; one dry, the other *just* moistened and *kept so*. Cooled by evaporation as much as the state of the air admits—the moist (or wet) bulb thermometer shows a temperature nearly equal to that of the other one when the atmosphere is extremely damp or moist; but lower at other times,—in proportion to the dryness of air, and consequent evaporation,—as

* Thirty-two degrees is the point at which water begins to freeze, or ice to thaw.

† Evaporation.

far as twelve or fifteen degrees in this climate; twenty or even more elsewhere. From four to eight degrees of difference is usual in England; and about seven is considered healthy for inhabited rooms.

12. The thermometer fixed to a barometer intended to be used only as a weather-glass shows the temperature of air about it, nearly—but does not show the temperature of mercury within, exactly. It does so, however, near enough for ordinary practical purposes—provided that no sun, nor fire, nor lamp heat is allowed to act on the instrument partially.

13. The mercury in the cistern and tube being affected by cold or heat, makes it advisable to consider this when endeavouring to foretell coming weather by the length of the column.

14. Briefly, the barometer shows weight or pressure (or tension) of the air; the thermometer—heat and cold, or temperature; and the wet thermometer, compared with a dry one, the degree of moisture or dampness.*

* The two thus combined making a hygrometer: for which some kinds of hair, grass, or seaweed may be a make-shift.

15. It should always be remembered that the state of the air *foretells coming* weather, rather than shows the weather that is *present*—(an invaluable fact too often overlooked)—that the longer the time between the signs and the change foretold by them, the longer such altered weather will last; and, on the contrary, the less the time between a warning and a change, the shorter will be the continuance of such foretold weather.

16. To know the state of the air, not only barometers and thermometers should be noticed, but the appearances of the sky should be vigilantly watched.

17. If the barometer has been about its ordinary height, say near thirty inches, at the sea level,* and is steady, or rising—while the thermometer falls, and dampness becomes less—North-westerly, Northerly, or North-easterly wind—or less wind—less rain or snow—may be expected.

18. On the contrary—if a fall takes place, with a rising thermometer and increased dampness, wind and rain may be expected from the South-eastward, Southward, or South-westward.

* It differs, or stands lower, about a tenth of an inch for each hundred feet of height directly upwards, or vertically, above the sea; its *average* height being 29.95 inches at the mean sea level in England (London latitude).

Allowances must, therefore, be made for barometers on high land, or in buildings.

19. A fall, with the thermometer low, for the season and place, foretells snow.

20. Exceptions to these rules occur when a North-easterly wind, with wet (rain, hail, or snow) is impending, before which the barometer often rises (on account of the *direction* of the coming wind) and deceives persons who, from that sign only (the rising), expect fair weather.

21. When the barometer is rather below its ordinary height, say down to near twenty-nine inches and a half (at the sea level), a rise foretells less wind, or a change in its direction toward the North,—or less wet; but when it has been very low, about twenty-nine inches—the first rising usually precedes, or indicates, strong wind—at times heavy squalls—from the North-westward—Northward—or North-eastward—*after* which violence a gradually rising glass foretells improving weather—if the thermometer falls. But, if the warmth continue, probably the wind will back (shift against the sun's course), and more Southerly, or South-westerly wind will follow; especially if the barometer rise is sudden.

22. The most dangerous shifts of wind, or the *heaviest* Northerly gales, happen *soon* after the barometer *first* rises from a very low point; or,

if the wind veers *gradually*, at some time afterwards.

23. Indications of approaching changes of weather, and the direction and force of winds, are shown less by the *height* of the barometer, than by its falling or rising. Nevertheless, a *steady* height of more than thirty (30·0) inches, at the level of the sea, is indicative of fine weather and *moderate* winds; *except occasionally* those from East to North.

24. A rapid rise of the barometer indicates unsettled weather. A slow movement the contrary; as likewise a *steady* barometer, which, when continued, and with dryness, foretells very fine weather.

25. A rapid and considerable fall, is a sign of stormy weather, with thunder and lightning and rain, hail, or snow. Alternate rising and sinking indicates unsettled and threatening weather.

26. The greatest depressions of the barometer are with gales from SE., S., or SW.; the greatest elevations, with wind from NW., N., or NE.,—or with calm.

27. Though the barometer generally falls with a Southerly, and rises with a Northerly wind, the

contrary *sometimes* occurs ; in which cases, the Southerly wind is usually dry with fine weather, or the Northerly wind is violent and accompanied by rain, snow, or hail ; perhaps with lightning.

28. When the barometer sinks considerably, much wind, rain, (perhaps hail) or snow will follow ; with or without lightning. The wind will be from the Northward, if the thermometer is low (for the season) — from the Southward, if the thermometer is high. Occasionally a low glass is followed or attended by lightning *only* ; while a storm is beyond the horizon.

29. A sudden fall of the barometer, with a Westerly wind, is sometimes followed by a violent storm from NW., or North, or NE.

30. If a gale sets in from the E. or SE., and the wind veers by the South, the barometer will continue falling until the wind is near a marked change, when a lull *may* occur ; after which, the gale will soon be renewed, perhaps suddenly and violently, and the veering of the wind toward the NW., North or NE. will be indicated by a rising of the barometer with a fall of the thermometer.

31. Three causes (at least) * appear to affect a barometer :—

32. i. The direction of the wind—the North-east wind tending to raise it most—the South-west to lower it the most, and wind from points of the compass between them proportionally as they are nearer one or the other extreme point.

33. NE. and SW. may appropriately be called the wind *poles* (as Dove showed).

34. The range, or difference of height shown, due to change of direction *only*, from one of these bearings to the other (supposing force, and moisture, to remain the same), amounts in these latitudes to about half an inch (as read off).

35. ii. The quantity—taken by itself—of vapour, moisture, rain, or snow, in the wind, or current of air (direction and strength remaining the same), seems to cause a change amounting in an extreme case to about half an inch.

36. iii. The force alone of wind, from any quarter (moisture and direction being unchanged), is preceded, or foretold, by a fall or rise, according as the strength will be greater or less,

* Electrical effects are yet uncertain.

ranging in an extreme case to more than two inches.

37. Hence, supposing the three causes to act together—in extreme cases—the height would vary from near thirty-one inches (30.9) to about twenty-seven inches (27.0), which has happened, though rarely ; (and even in *tropical* latitudes).

38. In general, the three causes act much less strongly, and are less in accord ; so that ordinary varieties of weather occur much more frequently than extreme changes.

39. Another general rule requires attention ; which is,—that the wind usually *appears* to veer, shift, or go round *with the sun* (right-handed, or from left to right),* and that when it does not do so, or backs, more wind or bad weather may be expected instead of improvement.

40. It is not by any means intended to discourage attention to what is called “weather wisdom.” On the contrary, every prudent person will combine actual observation of the elements with such indications as he may obtain from instruments : and will find that the more

* With watch-hands in the Northern hemisphere : but the contrary in *South latitude*. This, however, is only *apparent*, the wind is actually circulating in the *contrary* direction.

accurately the two sources of foreknowledge are compared and combined, the more satisfactory their results will prove.

41. A barometer begins to rise considerably before the conclusion of a gale, sometimes even at its commencement. Although it falls lowest before very high winds, it frequently sinks much before heavy rain. The barometer falls, but *not always*, on the approach of thunder and lightning.* Before and during the *earlier* part of settled weather, it usually stands high, and is stationary ; the air being dry, and comparatively quiet.

42. Instances of fine weather, with a low glass, occur, however rarely, but they are always precludes to a duration of wind or rain, *if not both*,—or they indicate bad weather in the vicinity.

43. After very warm and calm weather, a storm or squall, with rain, may follow ; as likewise *locally* at any time when the atmosphere is *heated* much above the *usual* temperature of the season.

44. Allowance should *invariably* be made for the previous state of the glasses during *some days*, as well as *some hours*, because their indications may be affected by distant causes, or by changes close at hand. Some of these changes may occur at a

* Thunder clouds rising from *northeastward*, against, or above the lower wind, do not usually cause a fall of the barometer.

greater or less distance, influencing neighbouring regions, but not visible to each observer whose barometer feels their effect.

45. There may be heavy rains or violent winds beyond the horizon, and the view of an observer, by which his instruments may be affected considerably, though no particular change of weather occurs in his immediate locality.

46. It may be repeated, that the longer a change of wind or weather is foretold before it takes place, the longer the presaged weather will last; and, conversely, the shorter the warning, the less time whatever causes the warning, whether wind or a fall of rain or snow, will continue.

47. Sometimes severe weather from the Southward, *not lasting long*, may cause no great fall, because followed by a *duration* of wind from the Northward,—and at times the barometer may fall with Northerly winds and fine weather, apparently against these rules, because a *continuance* of Southerly wind is about to follow. By such changes as these one may be misled, and calamity may be the consequence; if not duly forewarned.

48. A few of the more marked signs of weather—useful alike to Seaman, Farmer, and Gardener, are the following :

49. Whether clear or cloudy—a rosy sky at sunset presages fine weather:—a sickly, greenish hue, wind and rain; tawny, or coppery clouds—wind: a dark (or *Indian*) red, rain; a red sky in the morning bad weather, or much wind (perhaps also rain):—a grey sky in the morning, fine weather,—a high dawn, wind:—a low dawn, fair weather.*

50. Soft-looking or delicate clouds foretell fine weather, with moderate or light breezes:—hard edged oily-looking clouds,—wind. A dark, gloomy blue sky is windy;—but a light, bright blue sky indicates fine weather. Generally, the *softer* clouds look, the less wind (but perhaps more rain) may be expected;—and the harder, more “greasy,” rolled, tufted, or ragged,—the stronger the coming wind will prove. Also—a bright yellow sky at sunset presages wind: a pale yellow, wet: orange or copper coloured, wind and rain—and thus by the prevalence of red, yellow, green, grey, or other tints, the coming weather may be foretold very nearly:—indeed, if aided by instruments, almost exactly.

51. Light, delicate, quiet tints or colours, with soft, indefinite forms of clouds, indicate and

* A “high dawn” is when the first indications of daylight are seen above a bank of clouds. A “low dawn” is when the day breaks on or near the horizon, the first streaks of light being very low down.

accompany fine weather: but gaudy, or unusual hues, with hard, definitely outlined clouds, foretell rain, and probably strong wind.

52. Small inky-looking clouds foretell rain:—light scud clouds driving across heavy masses show wind and rain; but, if alone, may indicate wind only—proportionate to their motion.

53. High *upper* clouds crossing the sun, moon, or stars, in a direction different from that of the lower clouds, or the wind then felt below,—foretell a change of wind toward *their* direction.*

54. After fine clear weather, the first signs, in the sky, of a coming change, are usually light streaks, curls, wisps, or mottled patches of white distant cloud, which increase, and are followed by an overcasting of murky vapour that grows into cloudiness. This appearance, more or less oily, or watery, as wind or rain will prevail, is an infallible sign.

55 Usually the higher and more distant such clouds seem to be,—the more gradual, but general, the coming change of weather will prove.

* In the tropics, or regions of trade winds, there is generally an upper and counter current of air, with very light clouds, which is not an indication of any approaching change. In middle latitudes such upper currents are not so frequent (*or evident?*) except before a change of weather.

56. Misty clouds forming, or hanging on heights, show wind and rain coming—if they remain, increase or descend. If they rise, or disperse—the weather will improve, or become fine.

57. When sea birds fly out early, and far to seaward, moderate wind and fair weather may be expected. When they hang about the land, or over it, sometimes flying inland, strong winds with stormy weather are probable. As, besides birds, many creatures are affected by the approach of rain or wind: their indications should not be slighted by an observer who wishes to foresee changes.

58. There are other signs of coming change in the weather known less generally than is desirable; and therefore worth notice: such as,—when birds of long flight, rooks, swallows, or others, hang about home, and fly up and down or low—rain or wind may be expected. Also when animals seek sheltered places, instead of spreading over their usual range;—when pigs carry straw to their styes; when smoke from chimneys does not ascend readily (straight upwards during calm), unfavourable change is probable.

59. Dew is an indication of coming fine weather; so is fog. Neither of these two formations *begins* under an overcast sky, or when there

is much wind. One occasionally sees fog rolled away, as it were, by wind—but seldom or never *formed* while it is blowing with any considerable force;—though it exists with wind.

60. Remarkable clearness of atmosphere, especially near the horizon: distant objects, such as hills, unusually visible, or well defined; or raised (by refraction)*—and what is called “a good *hearing* day,” may be mentioned among signs of wet, if not wind, to be expected, in a short time.

61. More than usual twinkling, or apparent size of the stars; indistinctness or apparent multiplication of the moon’s horns; haloes; “wind-dogs,”†—and the rainbow; are more or less significant of increasing wind, if not approaching rain, with or without wind.

62. Near land, in sheltered harbours, in valleys, or over low ground, there is usually a marked diminution of wind and a dispersion of clouds during the early part of the night. At such times an eye on an overlooking height may see a body of vapour extending below (rendered visible by the cooling of night) which *seems* to check the wind.

* Much refraction is a sign of easterly wind.

† Fragments or pieces (as it were) of rainbows (sometimes called “wind-galls”) seen on detached clouds.

63. The dryness, or dampness of the air, and its temperature (for the season), should *always* be considered—with *other* indications of change, or continuance of wind and weather.

64. The average temperatures at Greenwich; in the shade and open air, between eight and nine A.M., are *nearly the mean temperatures of each twenty-four hours*, taking the year through, around London; and with allowance for the *differences* between the *means* of Greenwich temperatures, and those of other places, may be taken (from Glaisher’s tables) for the British Islands, generally, as follows: For about the middle of—

January . . .	37°	July . . .	62°
February . . .	39°	August . . .	61°
March . . .	41°	September . . .	57°
April . . .	46°	October . . .	50°
May . . .	53°	November . . .	43°
June . . .	59°	December . . .	39°

and proportionally between each middle period.

CAUTIONARY OR STORM-WARNING SIGNALS.

65. A staff and two canvas shapes being provided, the following use may be made of them occasionally; perhaps twice or more in a month, on a yearly average.

One shape, that of a drum (or cylinder) has the appearance of a black square of (not less than) three feet (seen from *any* point of view) when suspended.

The other shape, a cone (not less than) three feet high, appears triangular (from *any* point of view) when suspended.

A cone, with the point upwards, shows that a gale is *probable*; at first from the *northward*.
NORTH CONE.

A cone, with the point downwards, shows that a gale is *probable*; at first from the *southward*.
SOUTH CONE.

A DRUM, alone, shows that stormy winds may be expected, from more than one quarter, successively.

A cone *and* drum give warning of *dangerous* winds, the probable *first* direction being shown by the position of the cone—point up, above the drum, for northerly (or polar) wind, W.N.W. by the north, to E.S.E.; point down, and below the drum, for southerly (or tropical) E.S.E. by the south, to W.N.W.

66. A conspicuous place should be selected for signalling; near the telegraph station; whence other places may repeat the signal, or be warned; and if practicable, the signal staff or pole should be in view of seafaring persons, besides the nearest Coast-guard Station.

When both these objects cannot be obtained without too great distance from the telegraph station, one only—that of visibility to some of the seafaring community—should be secured; and in this case a *message* should be sent to the nearest Coast-guard.

67. Whenever such a signal is shown (in consequence of a telegram from London) it should be kept up, distinctly, till dusk of *that day only*, unless otherwise specially directed.

68. These cautionary signals advert to winds during some part of the next night and two or three days; therefore due *vigilance* should prevail (until the weather is again settled), but without deferring *departures*, or any other operations, *unnecessarily*.

69. More extended notice may be given by *local interests and authorities*, as London can only warn principal out-ports. The Coast-guard will

repeat the warning as far as means allow ; and *extension* of such cautionary notices can be effected by *private* assistance along the most *frequented* shores, where alone they are required.

70. When a cautionary telegram is *received* at any place *after* three o'clock p.m., it should be followed by a NIGHT SIGNAL, which should be hoisted at dusk, and kept up till about nine o'clock, or even later, till toward midnight.

NIGHT SIGNALS.

71. Three, or four, signal lanterns are intended to be hoisted as shown in the following diagram.

72. They should be kept up from dusk, or the time of receiving a warning telegram, until late the same evening ; even till near *midnight*, if thought advisable on the spot, but not after that time.

73. A person should be employed to clean, trim, hoist, keep alight, take care of, and return these signal lanterns, for which service payment for each night of actual use will be made. This payment is intended to be an *average*, whether three or four lanterns are hoisted, and for whatever time shown lighted.

74. Spreaders, or yards, not less than four or five feet long, should be provided at each station, with good durable rope fittings.

75. Larger signal shapes, and better lanterns ; masts *with yards* ; and greater distances between the lights of a signal, would be desirable—though, at present, too expensive for general establishment.

76. Telegrams will not be sent on Sundays, except on *emergencies* (seldom occurring), and then, of course, only to those stations open at the time ; but as vigilance will always prevail, by night as well as by day, on the part of the Meteorologic Office, no *extensive* change of weather, or *generally* dangerous atmospheric commotion, ought to be unforeseen, nor should delay occur *at any time* in telegraphing to the coasts threatened, since attempting to prevent unnecessary risk of human life is the important object of these measures.

77. It should be remembered that only the greater and more *general* disturbances of the atmosphere can be made known by this method, not *merely local* or sudden changes which are unfelt at a certain distance, and do not therefore affect other localities. Local changes should be indicated to observers at such places, by their

own instruments,—by signs of the weather,—and by due attention to the Weather Reports published daily in newspapers.

78. Much *inequality* of electricity, atmospheric pressure (*tension*), or temperature; great fall or rise of the barometer; sudden or rapid alterations; great falls of rain or snow, foretell more or less *strong* wind, with its usual accompaniments, either in some places only, or throughout an extensive area of hundreds, if not thousands, of miles: some tracts, however, remaining almost unaffected, unless by rain or squalls.

79. Speaking *generally*, there is less occasion to give warning of *southerly* gales, by signals, than of northerly; because those from the southward are commonly preceded by notable signs in the atmosphere, such as a falling barometer and a temperature higher than usual *at the season*; whereas, on the contrary, dangerous storms from a polar quarter (north-west to north and easterly) are *sometimes* sudden, and preceded by a *rising* barometer, which may mislead persons, especially if accompanied by a temporary lull of a day or two, with a fallacious appearance of fine weather. This fallacy is caused by a circuitous movement of wind following,—influencing

by checking and then overpowering, or uniting with—a preceding similar cyclonic sweep.

80. Occasionally, however, a southerly gale begins with a high barometer, and only as it increases, does the glass fall. This occurs when the mercury has fallen notably in the north, and is still falling there.

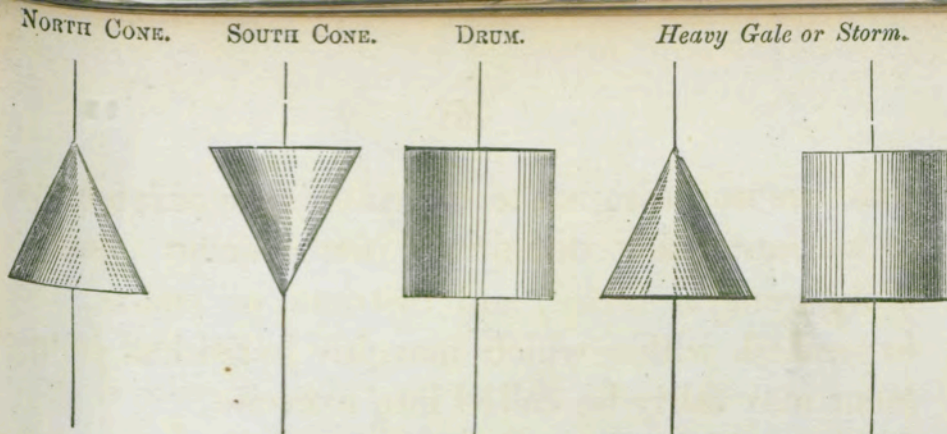
81. Southerly gales in the Channel, and on our south-westerly coasts, are often if not generally accompanied by northerly or easterly winds on the east coasts of Scotland, which at times affect England also on the north-east. Between these opposite winds (which are parts of circuits) more or less space, with variable, light, or squally winds, occurs; and as such areas are uncertain, according to localities, and extents of circuits, they should be included in cautionary notices, although, at times, it may be *seemingly* without occasion.

82. When a gale occurs with a high barometer, which does not fall, but remains steady, or rises, a northerly (polar) wind, or a duration of fine weather, may be expected, and more of either as the delay of approach is greater.

83. These signals are intended to be *cautionary*, however otherwise called. Limits of space and

time are not assignable to winds so accurately as to warrant exact definitions for specific places. Only general terms, and districts, or coasts, are expressed, within which margins individual judgment may fairly be called into exercise.

84. While giving notice of considerable atmospheric disturbance over a part, or the whole, of the British Islands, these signals are not intended to interfere with local knowledge, or to be in any degree compulsory. They imply "Look out"—the atmosphere is considerably disturbed,—bad weather may be expected.



CAUTIONARY SIGNALS.

To be suspended from a Mast and Yard, or a Staff, or even a Pole.

Gale probably from the Northward.

Gale probably from the Southward.

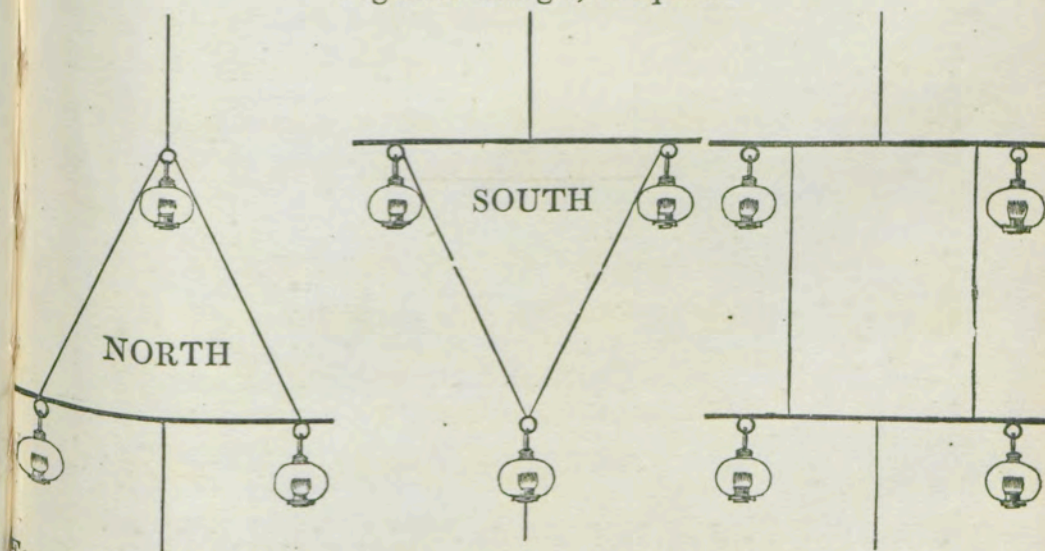
Gales successively.

Dangerous Storm probably at first from the Northward.

Dangerous Storm probably at first from the Southward.

NIGHT SIGNALS.

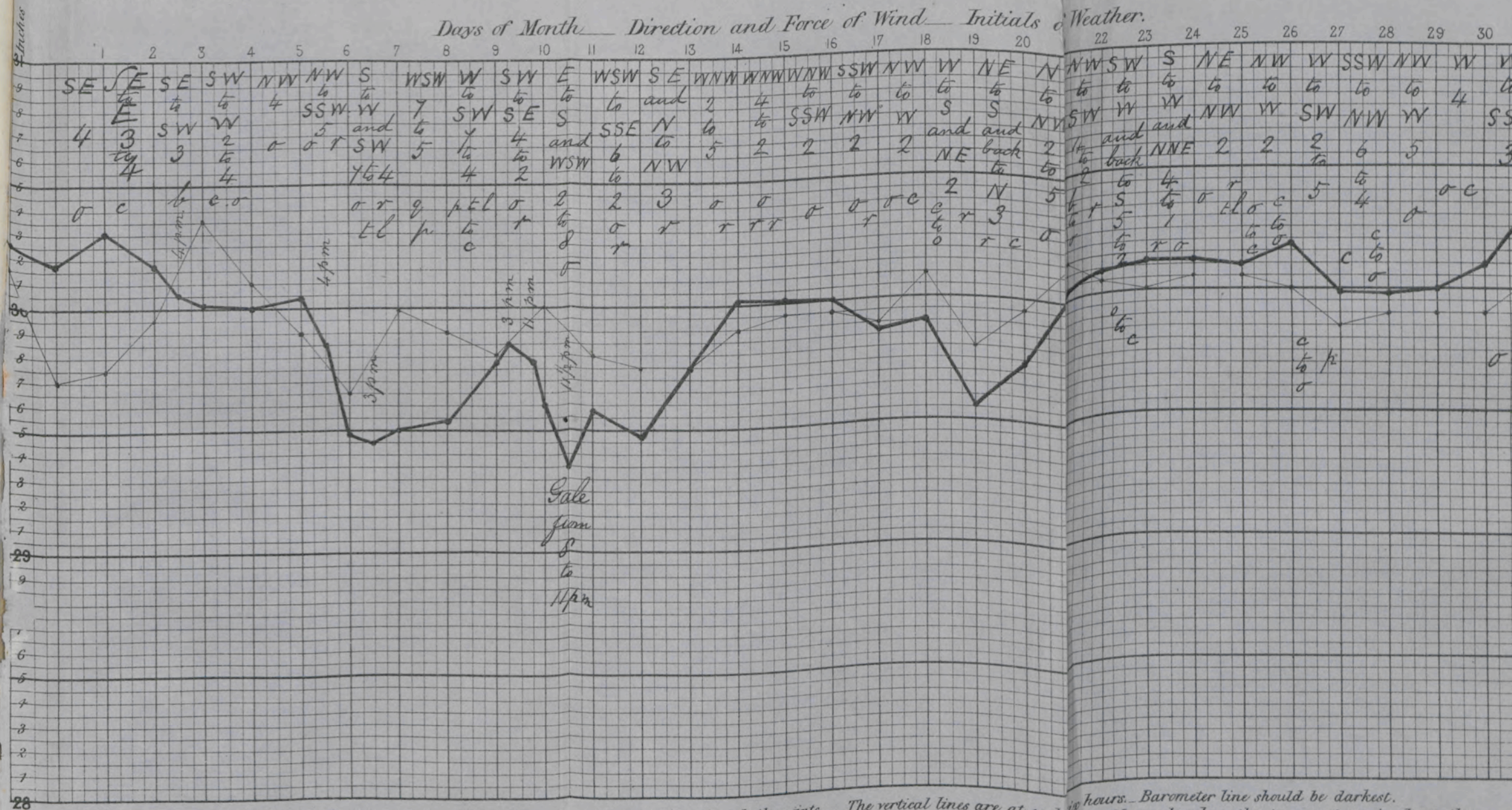
*(instead of the above)
Lights in triangle, or square.*



Four lanterns and two yards, each not less than four feet long, will be sufficient—as only one signal will be used at night. These signals may be made with any lanterns, showing either white, or any colour, but *alike*. Red is most eligible. Lamps are preferable to candles. The halyards should be good rope, and protected from chafing. The lanterns should hang *at least* three feet apart.

FISHERY OR COAST DIAGRAM.

Barometer and Thermometer at London Month June Year 1863



LONDON:
Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty,
For Her Majesty's Stationery Office.
[11,161.—1000.—1/64.]

Notes. Mark the points at which height (by side scale) and time lines cross. Draw a line through the points.
First days are of previous month, for reference, in judging of weather, in order to foretell its character.
Intermediate, or alternate lines are for degrees of thermometer, or half tenths of inches.
The angles made by the drawn lines with those of the form are very useful aids in foretelling weather, especially with exact shading; or to hold while shifting.
N.B. This paper should be held on a board by an edge above and below each end being free for the hands. Barometer line should be darkest.
Time lines or day figures are at 8 A.M. nearly when the temperature is about the mean or average of night and day.
Such as the above, without thermometer lines between.