

**BAROMETER AND  
WEATHER GUIDE;  
BOARD OF TRADE; 1859**

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Barometer and weather guide; Board of Trade; 1859 by Bear-Admiral Fitzroy

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**BEAR-ADMIRAL FITZROY**

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**BAROMETER AND WEATHER  
GUIDE.**

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Gt. Brit.

BOARD OF TRADE.

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1859.

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COMPILED BY REAR-ADMIRAL FITZROY, F.R.S.

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*B*

A contraction of rules for foretelling weather—in accordance with the following pages—is submitted, for scales of common barometers.

**RISE**

FOR  
N. ELY.  
NW.-N.-E.

DRY

OR

LESS  
WIND.

---

EXCEPT  
WET FROM  
N. E.D.

**FALL**

FOR  
S. WLY.  
SE.-S.-W.

WET

OR

MORE  
WIND.

---

EXCEPT  
WET FROM  
N. E.D.

---

Add one tenth for each hundred feet above the Sea.

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LONG FORETOLD - LONG LAST,  
SHORT NOTICE - SOON FAST.

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FIRST RISE AFTER LOW,  
FORETELLS STRONGER BLOW.

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B995  
G77  
1859

## P R E F A C E.

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MANY persons have advocated placing barometers at exposed fishing villages; and the Board of Trade has sanctioned the principle of some assistance by Government to a limited extent, depending on the necessity of each case, and other contingencies, such as the care, publicity, and setting of the barometers.

It was thought advisable to substitute a few words on the scales of these instruments in place of those usually engraved (which are not the most suitable), and to compile brief and plain information respecting the use of weather-glasses.

The following pages were prepared; but only the first few were intended particularly for this purpose.

After writing these, it was suggested that some remarks might be added for the benefit of many persons, especially young officers at sea, and the suggestion was complied with; yet not so as to diminish the portability of this compilation, or increase its price.

These remarks, derived from the combined observation, study, and personal experience of various individuals, are in accordance, generally, with the results obtained by eminent philosophers.

The works of Humboldt, Herschel, Dové, Sabine, Reid, Redfield, Espy, and others, are appealed to in confirmation of this statement.

To obviate any charge of undue haste, or an insufficiently considered plan—which may be fairly brought against many novelties—the following testimony to the first published suggestion of such a measure is submitted.

In the First Report of the Committee on Shipwrecks (1843), at pages 1, 2, 3, the following evidence was printed by order of the House of Commons.

“ I think that the neglect of the use of the barometer has led to the loss of many ships. From a want of attention to the barometer, they have either closed the land (if at sea), or have put to sea (being in

harbour in safety) at improper times ; and in consequence of such want of precaution the ships have been lost, owing to bad weather coming on suddenly, which might have been avoided had proper attention been paid to that very simple instrument. While alluding to the use of barometers, I may remark, that if such weather-glasses were put in charge of the Coast-guard, at the principal stations round the coast, so placed as to allow any one passing by to look at them, they might be the means, not only of preventing ships from going to sea just before bad weather was coming on, but of preventing the great losses of life which take place every year on our coasts (particularly in the Orkney Islands and on the coasts of Scotland and Ireland), owing to fishing vessels and boats going to sea when bad weather is impending. No bad weather ever comes on our coasts without timely warning being given by the barometer. The oldest seaman are often deceived by the look of the weather, but there is no instance on record of very bad weather, such as would have involved loss of life to the extent we have heard of in several years, having come on without the barometer having given timely warning. By the very small expense of an establishment of barometers, so placed as to be accessible to any fishermen, boatmen, or others on the coasts, much loss of life, as well as loss of boats, and even shipping, might be prevented.

“ What state of the barometer indicates danger ?—It varies in different climates according to the range. The range is small between the tropics, but very large in the higher latitudes. In our climate the range is usually about two inches. The barometer falling considerably below its average height is at once an indication that some considerable change is going to take place, and when it falls low, as for instance (in our climate) to near 29 inches, or below 29 inches, a gale is certain to follow.

“ Are the Committee to understand that you are of opinion that every ship ought to have a barometer on board ?—I think that every ship ought to have either a barometer or sympiesometer, which is an efficient substitute for a barometer.

“ Does the barometer show a sudden change of wind as well as the coming on of bad weather ? Supposing a gale of wind is blowing, and you are sailing with a fair wind, does the barometer show any change of wind ?—Decidedly.

“ Supposing the wind was at West-north-west and it shifted suddenly to West-south-west, would the barometer indicate that ?—It requires some practice to be able to say *exactly what is likely to take place* after a change in the barometer ; but the principal point for a seaman is, that no violent wind will blow without the barometer giving warning. He may not know exactly from what quarter the wind will come, but no strong wind will come on without warning being given.

“ You recommend that at the Coast-guard stations there should be a barometer, by means of which people would know when a violent wind was coming on ; but as it would not indicate the quarter from



which it was coming, would you have the merchant ship always remain in port till the barometer showed fine weather?—Being accustomed to the barometer on our coast, one could tell from what quarter the wind would probably come by the height of the barometer, taken in connexion with its previous height, and the state of the weather, and the strength of winds that had prevailed before. Taking the state of the barometer in connexion with the appearance of the weather one could make a satisfactory conclusion as to the quarter from which any violent wind would come. And the barometer, after very little practice, can be used by any man. There is no difficulty in using it sufficiently to know that danger is coming on; and if danger is coming on, a man refrains, of course, from exposing himself to it; the quarter from which the wind comes being of minor consequence.

“With a North-easterly wind, in this part of the world, the barometer stands, on an average, about half an inch higher than with the same strength of wind from the South-westward. All over the world there is a similar difference proportionate to the range of the mercury for which allowance should always be made in considering the height of the barometer.”\*

In the first Number of *Meteorological Papers*, published by the Board of Trade, 1857, is the following passage respecting the use of weather-glasses:—

“The variety of interesting and useful, if not always important, subjects included within the range of meteorology, is not perhaps sufficiently realized in the minds of active participators in the world’s stirring work. Irrespective of any scientific object, how much utility is there to all classes in what is commonly called ‘weather wisdom’? In our variable climate, with a maritime population, numbers of small vessels, and especially fishing boats, how much life and property is risked unnecessarily by every unforeseen storm? Even animals, birds, and insects have a presaging instinct, perhaps a bodily feeling, that warns them; but man often neglects his perceptive and reasoning powers; neither himself observes, nor attends to the observations of others, unless special inclination or circumstances stimulate attention to the subject. Agriculturists, it is true, use weather-glasses: the sportsman knows their value for indicating a good or bad scenting day; but the coasting vessel puts to sea, the Shetland fisherman casts his nets, without the benefit of such a monitor, and perhaps without the weather wisdom which only a few possess, and cannot transfer to others.

“Difficult as it is to foretell weather accurately, much useful foresight may be acquired by combining the indications of instruments (such as the barometer, thermometer, and hygrometer) with atmo-

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\* In South latitude the South wind corresponds to our North wind in its nature and effects. The Easterly and Westerly winds retain their respective peculiarities in both hemispheres.

spheric appearances. What is more varying than the aspect of the sky? Colour, tint of clouds, their soft or hard look, their outline, size, height, direction, all vary rapidly, yet each is significant. There is a peculiar aspect of the clouds before and during westerly winds which differs from that which they have previous to and during easterly winds, which is one only of the many curious facts connected with the differing natures of easterly and westerly currents of air throughout the world, which remain unchanged, whether they blow from sea to land, or the reverse.\*

"Perhaps some of those who make much use of instruments rather undervalue popular knowledge, and are reluctant to admit that a 'wise saw' may be valuable as well as a 'modern instance'; while less informed persons who use weather-glasses unskilfully too often draw from them erroneous conclusions, and then blame the barometer.

"Not only are reliable weather-glasses required at the smaller outlying ports and fishing places, but plain, easily intelligible directions for using them should be accessible to the seafaring population, so that the masters of small vessels, and fishermen, might be forewarned of coming changes in time to prepare for them, and thus become instrumental in saving much property and many lives."

*June 1858.*

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\* Exclusive of local land and sea breezes of hot climates.

## HOW TO FORETELL WEATHER.

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FAMILIAR as the practical use of weather-glasses is, at sea as well as on land, only those who have long watched their indications, and compared them carefully, are really 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 attention to the following observations (the results of many years' practice and many persons' experience) any one not accustomed to use a barometer may do so without difficulty.

The barometer shows whether the air is getting lighter or heavier, 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 about forty 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. Towards 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 the rock when, by contracting itself, the fish has made a place without air§ under its shell. Another familiar instance is that of the fly which walks on the ceiling with feet that stick. The barometer tube, emptied of air, and filled with pure mercury, is turned

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

† Or atmosphere, or the atmospheric fluid which we breathe.

‡ Or exhaustion.

§ A vacuum.