

accuracy, but having three, the readings of them cannot be questioned by the most sceptical.

We left Sandy Hook on the forenoon of April 10, with a light north-west wind and pleasant weather. Temperature of the air 46, barometer 29.82. From that date to the 16th the ship steamed 2,210 miles, and the mercury, with the exception of a slight fluctuation which never exceeded $\frac{1}{100}$ of an inch, fell steadily until it reached 29.14 on the latter day. Throughout this period the wind veered and backed between N.N.W. and E.N.E., never exceeding in force a whole sail breeze, and frequently light or calm for hours together. The sky was generally overcast until the meridian of 32° W. was passed; light rain fell once, but no snow or sleet. Temperature of the air ranging between 34° and 57°.

Until the ship was to the eastward of Cape Race (passing 300 miles south of it), as no gale blew I expected a heavy fall of snow; but as it did not come, I assumed that the snow-covered ice on the Grand Bank of Newfoundland caused this unusual depression of the mercury. Great was my surprise, therefore, to see it falling lower as the distance increased from the supposed cause of the depression, while the wind gradually died away, the clouds opened out and assumed softer forms, the horizon cleared, and the long northerly swell subsided. The latter is always a sign of fair weather on this troubled sea. If a storm be advancing towards a ship, the swell usually comes before the wind, so quickly is the motion of the water translated.

While on the subject of waves, I may state that I have been investigating the cause of the greater height of the waves raised by a north-west wind above those raised by a south wind. The observations were made while crossing several offshoots of the Gulf Stream, and I found that in every instance the sea was smoother in the warm water than in the cold. If this view be correct, then the waves in tropical seas should be inferior in height to those of the temperate zone. The question is, Are they so?

Snow has an extraordinary effect on the barometer, but its action is most mysterious, as in this case the ship was several hundred miles from any locality where snow could have fallen.

In March 1872 I witnessed a similar instance of great depression in the barometer, with no wind and a clear sky. On reaching the land it was found to be covered with snow. In that instance there was scarcely a cloud visible during the last 400 miles, and not a single flake fell on the ship. I believe the remarks of an old seaman on the weather of the Atlantic are very true, viz., "The longer one sails on it the less one knows about it."

The presence of heavy field-ice in the month of April, so far south as 41° 40' N., only fifty miles north of the latitude of Naples, has excited considerable astonishment amongst Atlantic navigators, since many steamers were entangled in it as early as the 24th of January.

The Admiralty Chart of 1873 indicates March as the first month of its arrival, and further gives lat. 42° 13' N. as the extreme southern limit of its existence, whereas it has already been met with twenty-seven miles south of that parallel, forming a dangerous barrier to ships on the great highway to America; and the commanders of those vessels, relying implicitly on the correctness of a survey which should be above suspicion, have seriously injured their vessels, thereby jeopardising many lives and valuable property in a locality where every feature of it should be as well known as the waters of the Serpentine or the Thames above bridge. It is, moreover, notorious that this is not the only defect in the chart of 1873. The northern limit of the Gulf Stream is laid down from 100 to 150 miles south of its true position; and the existence of another important current (the Labrador), which plays no mean part in the economy of the globe, is entirely ignored, although its line of demarcation from the adjacent waters is as well defined as that of its great neighbour.

It is stated by the old residents of Canada that such a severe winter as this has not occurred in the Dominion for forty years. During the months of January and February at Montreal the wind only blew from the south for six hours. Not only was the thermometer low, but the northerly gales were incessant, rendering outdoor exercise almost an impossibility. These storms broke the ice of Newfoundland and Labrador from its moorings before the summer sun could soften it, and hence the reason of its floating down south. Being almost as hard as granite, and with the sea water at 30°, it will not readily decompose.

The recent severe winter must affect the fortunes of the polar expedition for good or for evil. Channels into which ice has

drifted will become inaccessible until late in the season, but, on the other hand, the pack-ice will be less inconvenient from its solidity and compactness. It is not probable that many large bergs will reach the Atlantic this season.

Celtic

W. W. KIDDLE, R.N.

The late W. J. Henwood, F.R.S.

MR. G. T. BETTANY is no doubt very nearly, if not quite, correct in saying of Mr. Henwood (*NATURE*, vol. xii. p. 293), "I believe that scarcely one of his cherished objects in this respect [the arrangement of his stores of facts and observations] remains unfulfilled."

In a letter to me, dated July 31, 1875, Mr. Henwood remarked: "I believe all I have done since [I wrote you last] has been to make some preliminary calculations regarding the corrections for temperature of the results of my observations on magnetic intensity, made on the surface and near the bottom of Dolcoath Mine in 1832. I think they hold out promise of something if I have only strength to put them in order." On the fifth day after writing this he died. M. V.

Zoology of the "Erebus" and "Terror"

Palmar qui meruit ferat. Referring to the article on this subject (*NATURE*, vol. xii. p. 289), allow us, as the publishers of the botanical portion, to say that the indefatigable labours of Dr. Hooker, aided by the Government grant, resulted in six vols. 4to.; not two, as stated by the reviewer. This was published in three divisions, viz.: 1. *Flora Antarctica*, 2 vols.; 2. *Flora Novæ Zealandæ*, 2 vols.; 3. *Flora Tasmaniae*, 2 vols.; the whole comprising nearly 600 coloured plates.

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The Rocks at Ilfracombe

COULD any of your readers state in your columns the nature of a curious appearance in the rock near Ilfracombe (North Devon), on the way to Coombe Martin, just where the road begins to descend to the latter place? Here on the right-hand side the bank is considerably excavated, and through the scaly and friable strata, whose cut surface is perpendicular to the road, rock of a harder kind seems to have been pushed, presenting a rounded surface, which gives the appearance of trees laid in the bank and partly uncovered; indeed, I first heard of them as "petrified trees," and from the road they look very much like the trunks of silver birches. Our Ilfracombe driver told me that a great many people came to look at them, some saying they were trees, others that they were not.

There are several of them, and various lengths are visible, from about a yard to twenty feet, I should think.

WILLIAM S. TUKE

OUR ASTRONOMICAL COLUMN

BINARY STARS.—(1) η CASSIOPEÆ.—Dr. Duner, of the Observatory of Lund, Sweden, has calculated elements of this binary from measures 1782-1874; the orbit is as follows:—

Peri-astron passage, 1748.413	
Angle between the lines of nodes and apses 245° 91'	} Meridian of 1850
Node 50° 83'	
Inclination 68° 46'	
Angle of excentricity (= $\sin^{-1} e$) 38° 812	
Mean annual motion + 2° 04112	
Semi-axis major 10" 681	
Period of revolution 176.374 years.	

The comparison with measures used by Dr. Duner in his calculation shows very small residual errors, but the elements here transferred from Leverrier's "Bulletin International" of the 12th inst., though representing the angles of Struve, Dawes, Jacobs, and Dembowski, with small negative errors give the distances measured since 1827, very sensibly in defect of the observations. Thus for Dembowski's measures we have—

1863.26	Error in position	- 0".72	Error in distance	- 0".69
1867.16	" "	- 0".71	" "	- 0".63
1871.05	" "	- 0".18	" "	- 0".46

For a normal founded upon measures by Jacobs, Dawes, and Dembowski, for 1854.20, the error in position