

mounting birds and mammals, given very briefly, but probably with sufficient detail to serve as a guide to beginners. The author appears to be a dealer in natural history accessories, and the book has rather the aspect of a trade advertisement from its recommending the almost exclusive use of a "preservative" prepared and sold by the author, the composition of which he keeps secret. As a practical guide to English collectors in foreign countries it is very inferior to Mr. Ward's "Sportsman's Handbook," which was reviewed in NATURE last year (vol. xxviii. p. 146).

A. R. W.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

The Meteorological Council and Falmouth Observatory

THE Meteorological Council contemplate closing on December 31 next the Primary Observatories at Glasgow, Armagh, Stonyhurst, and Falmouth, which have been in full operation since 1868, and continuing only those at Kew, Aberdeen, and Valentia.

The Falmouth Observatory has a geographical position which insures it the first record from the south, and the position of the instruments is considered satisfactory by scientific men. It is superintended and managed by the Royal Cornwall Polytechnic Society, who for the small sum of 250*l.* per annum provide suitable buildings, an observer, assistant observer, gas, and the other necessary outgoings, thus supplementing by local effort the Treasury grant.

The Meteorological Office have been satisfied with the manner in which the Observatory has been managed. The accompanying report, which Prof. J. Couch Adams of Cambridge sent to the Meteorological Council at their own request, denounces, on scientific grounds, the retrograde step contemplated by the Council, and I am requested by my Committee to invite through you the assistance of scientific men generally to prevent the discontinuance of so important an observatory as the one at Falmouth.

EDWARD KITTO,

Secretary to the Royal Cornwall Polytechnic Society
Falmouth, July 30

Copy of the Document submitted to the Meteorological Council by
Prof. J. Couch Adams, F.R.S., on July 5, 1883.

To the Members of the Meteorological Council.

In compliance with the wish expressed by some members of the Council at the interview of June 27, I have great pleasure in explaining my view on the matter then discussed more fully and clearly than I was able to do *vis à voce*.

1. First I will say a few words about the relative value from a scientific point of view of a continuous record of meteorological phenomena when compared with occasional observations of the same phenomena.

In my opinion the continuous record would be in this case incomparably the more valuable. When we know the laws of variation of an observed quantity, occasional observations at intervals which may be settled beforehand are sufficient to determine all the constant quantities which enter into the expression of the law. On the other hand, when the law of variation is in a great measure or altogether unknown, as is the case with most meteorological phenomena, a continuous record may throw more light on the law or laws of variation than would be afforded by any amount of occasional observations.

I have no hesitation in expressing my belief that if we ever attain to a knowledge of the principal laws which regulate the weather, it will be as a result from continuous records, and not from occasional observations.

2. In the second place, in order to study the laws of variation of any particular phenomena, it is important to have continuous observations at different places which are not so far distant from each other as to make the circumstances of the phenomena at the different stations differ too widely from one another.

In this way only will it be practicable to study and trace the progress of a wave of disturbance of any kind across a given country. From this point of view I do not think that seven stations judiciously distributed over the surface of the British Isles are at all too many. Hence I should regard the proposed abandonment of four out of these seven stations as a retrograde step which is greatly to be deprecated.

3. In the first place I come to the circumstances which relate to the Falmouth Observatory in particular. The unique situation of Falmouth, nearly at the mouth of the English Channel, and considerably to the south-west of any of the other meteorological stations will render continuous observations made there peculiarly valuable. Most of our storms and other atmospheric disturbances come from the south-west, and therefore they would first affect and be recorded by the instruments at Falmouth. Valentia is the only other station which can compare with Falmouth in this respect, and I should consider the observations at Falmouth more valuable, as its more southerly situation enables us better to trace the progress of any disturbance across the southern and the central parts of England by comparison with other observations in those parts, while Valentia is too much to the north to answer this purpose.

4. Next I will consider the objection which has been brought against further continuing these observations, viz. that they have already been continued for twelve years, and nothing of importance has been deduced from them. Considering the complicated nature of the phenomena we are concerned with, it is not to be wondered at that little or no progress has been made in twelve years in unravelling their laws. Even in astronomy, if the fate of the Greenwich Observatory had depended on the results deduced during the first twelve years of its existence from the observations made there, the consequences to the progress of the science might have been disastrous. The fact that we already have twelve years' continuous observations at a given place makes any additional observations at the same place much more valuable. Thus twenty-four years' continuous observations at the same place would be much more valuable for any theoretical deductions than twelve years' observations at one place and other twelve years' observations at a different place.

5. There can be no doubt that one of the principal astronomical conditions by which meteorological phenomena are affected consists in the varying motion of the moon in declination, and this again depends on the position of the moon's node, which takes between eighteen and nineteen years to perform a complete revolution.

Hence it would be desirable that meteorological observations should be continued at the same place during one or more revolutions of the moon's node.

This is already well recognised to be necessary in the case of tidal observations. And here I may incidentally remark, though it does not directly affect the Meteorological Council, that Falmouth would be a very important station for making continuous observations of the tides.

6. If the present grant were withdrawn from the Falmouth Observatory, the Cornwall Polytechnic Society have not the means of keeping it up, and the abandonment of the Observatory would be a heavy blow to the cultivation of meteorological science in Cornwall and the West of England generally, where there are many local stations which regard Falmouth as their scientific centre. This is a matter which ought not to be indifferent to the Meteorological Council. No doubt it is no part of the duty of the Council to subsidise local efforts, unless indeed by means of such efforts the objects of the Council can be better and more economically carried out than would otherwise be done. I submit that this is the case in the present instance. The difference between the expenditure at Valentia, where the Meteorological Office has to defray the whole cost of the establishment, and the expenditure at Falmouth affords some indication of the advantages to be derived from local efforts.

7. Lastly, if it is absolutely necessary to reduce the expenditure on some branches of the work undertaken by the Meteorological Office, it may be inferred from what I have already said that in my opinion the continuous records are almost the last branch in which any reduction should take place.

(Signed) J. C. ADAMS

Determination of "H"

It has occurred to me that the following notes of a rough determination of the value of the horizontal component of the