dark lines were apparent in the preliminary examination. The band at $\lambda 464$ appears double, and is fringed by a band of lower intensity on its less refrangible side. On June 30 the nova was considered to be visually equal to β Scuti, which is of magnitude 4.5. The colour of the star was brick-red.

THE METEOROLOGICAL UNIT OF PRESSURE.

A MEMORANDUM recently circulated by Prof. C. F. Marvin, Chief of the U.S. Weather Bureau, raises the question of an appropriate unit of pressure, especially for meteorological usage. The measure of pressure by a barometric height, in millimetres or inches of mercury, even when reduced to standard temperature, is not an absolute statement at all, for its meaning depends on the local value of gravity. On the other hand, the C.G.S. measure or one megadyne per square centimetre, besides being absolute, happens to express quite closely the mean atmospheric pressure at about 100 metres above sea-level. The advantage that could be taken of this fact has long been obvious; it is referred to in early editions of Everett's "C.G.S. Units," and so long ago as 1888 the adoption of the unit of pressure as one dyne per square centimetre, under the name of a *barad*, was recommended by a committee of the British Association. But nothing very definite followed; and Prof. Marvin gives the history, which is not without its moral, of the way in which the natural appropriateness and utility of this unit re-noticed, reported upon, or brought into partial use upon inconsistent systems by Guillaume, Bjerknes, and various others, including international committees.

All this most people will be content to forget, if possible, but two or three simple cardinal points remain, and an appeal is made that we should assess them and settle down to uniformity of practice for the future. The first of these is: Can one unit be adopted for the whole range of physical, including meteorological, pressures, from high vacua to extreme compression, with the help only of the familiar C.G.S. prefixes of *mega-*, *milli-*, *micro-*, and convenient numerical factors? Secondly: What is this unit? Is it a dyne or a megadyne per square centimetre? Thirdly: How far, up to the present, has actual practice gone to fix and ratify the answers to these two questions? Finally: What is the name to be?

On these points meteorologists, at any rate, may be said to have made up their minds. The *bar*, of 10^6 dynes per square centimetre, is to be the unit. One millibar is approximately equal to the pressure of 0.75 mm. of mercury, and the mean atmospheric pressure is approximately 1000 mb. or 1 bar. One-tenth of a millibar is not far from the accuracy with which the barometer can be read. The range of the barometer is included within 100 mb. In increasing degree in recent years the unit has been brought into use in the publications of the British, French, and United States meteorological services. One may say that it would now be very difficult to dislodge the millibar from meteorological use. In supplement, Prof. Marvin has prepared a table that shows that it is entirely convenient for expressing the range of physical pressures from very high vacua at 0.01 microbar to pressures of a megabar, at, say, the bottom of the ocean; while the dyne per square centimetre, which the C.G.S. system first offers, entails a much more cumbersome set of factors.

If there are any substantial objections to the bar of one megadyne per square centimetre as the unit of pressure—and there do not appear to be any—the wide acceptance it has already won in use should go

far to outweigh them. If physicists could resolve to adopt it, it would seem pretty sure of general and complete acceptance, and therefore offer one more piece of the difficult and contentious "No Man's Land" of conflicting units won over for the right side.

R. A. SAMPSON.

DEEP-SEA NEMERTINES.

DURING the forty years which have elapsed since the first two deep-sea nemertines were taken by the *Challenger* Expedition, a few examples have been collected by various other expeditions, but deep-sea nemertines have never been other than rare. Prof. Brinkmann, whose monograph on pelagic nemertines has recently been issued (Bergens Museums Skrifter, Bd. iii., No. 1, 1917, 194 pp., 16 plates), has, however, had a rich collection at his disposal, chiefly from the *Michael Sars* Expedition, so that he has been able to investigate the structure of most of the species described. He has also subjected the previously known species to careful revision, and concludes that five of them are so imperfectly described that they must be labelled as "uncertain." The rule that the single type specimen of a species should be kept intact is, in the opinion of the author, unsound, for the external features often give little help to the systematist, and therefore investigation by means of serial sections is indispensable.

The known pelagic nemertines, all of which belong to the order Hoplonemertini, are referred to eighteen genera and thirty-seven species. *Bathynemertes* is the most primitive genus, and in its external features resembles the bottom-living forms. Among the pelagic nemertines two types have been evolved:—(1) By an increase in the size of the gut diverticula, and therefore of the body surface—without a corresponding increase of tissue—some became specially adapted to a floating life, and in these a marked reduction of the musculature of the body-wall took place; (2) from the floating forms arose the swimmers, in which a tail-fin was formed, with strengthening of the parts of the musculature necessary for swimming. Two specimens of *Nectonemertes mirabilis* were observed swimming by means of undulations of the body and energetic strokes of the tail. These are the first recorded observations on the swimming of pelagic nemertines.

We have not space to give an adequate summary of the account of the structure of these animals, but reference may be made to the general reduction of sense-organs, to the presence of penes in *Phallo-nemertes*, to the reduction in the number of eggs to three or four in each ovary, or in the more modified genera to two, or even one, and to the presence of cephalic tentacles in *Balænanemertes* in both sexes, and in *Nectonemertes* in the male only, in which they probably act as claspers.

The author discusses the horizontal and vertical distribution of pelagic nemertines, some of which certainly, and the rest probably, are bathypelagic. Most of the species will probably be found to have a wide distribution, e.g. *Nectonemertes mirabilis* occurs in the tropical parts of the Atlantic and Pacific Oceans and in Davis Strait, the conditions as to temperature, etc., being uniform over a wide area in deep water. In spite of the enormous mass of water transported by the Gulf Stream into the North Sea, no example of any Atlantic species of pelagic nemertines has been taken in the North Sea. There is also a total absence of records from the Mediterranean, explicable by the fact that the pelagic nemertines in the Atlantic live in deep water, while the entrance to the Mediterranean at Gibraltar is comparatively shallow.