

chronicle of geophysical organisation and work in various countries, it contains four articles of general interest. The first is a reprint of Dutton's address at Washington in 1889 on the contractional and isostatic hypotheses in physical geology. Two other articles deal with new geodetic measurements in Poland and France, while the last article describes a portable automatic tide gauge produced by the U.S. Coast and Geodetic Survey.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—Research chemist and a research physicist at the Building Research Station, Garston, Watford—The Secretary, Department of Scientific and Industrial Research, 16 Old Queen Street, S.W.1 (July 11). A lecturer in the zoology department of King's College, London—The Secretary, King's College, Strand, W.C.2 (July 12). A secretary and treasurer of the Rowett Research Institute—The Secretary, Rowett Research

Institute, Bucksburn, Aberdeen (July 12). A bacteriologist in connexion with the Dairying Research Division of the Ministry of Agriculture for Northern Ireland—The Secretary, Ministry of Agriculture for Northern Ireland, Wellington Place, Belfast (July 15). An assistant lecturer in geology in the University of Manchester—The Registrar, University, Manchester (July 16). An evening lecturer in philosophy and logic at Birkbeck College—The Secretary, Birkbeck College, Fetter Lane, E.C.4 (July 16). An assistant in the department of economics of the South-Eastern Agricultural College, Wye, Kent—The Principal, South-Eastern Agricultural College, Wye, Kent. A half-time demonstrator and half-time research assistant familiar with X-ray apparatus and its use in crystallography, and a research assistant familiar with the chemistry and physics of photosynthesis, in the department of physics of the University of Toronto—Prof. J. C. McLennan, Athenæum Club, Pall Mall, S.W.1.

Our Astronomical Column.

COMET PONS-WINNECKE. — Recent observations, both visual and photographic, indicate a very definite central condensation, 10" in diameter or less, permitting accurate measures to be made. According to usual views of comets, this indicates a well-defined meteoric cluster, not exceeding 250 miles in diameter. It is rather a puzzle how they have maintained this compact regular formation through at least 108 years, in view of repeated large perturbations by Jupiter. It suggests that some force other than gravitation may help to keep the constituents together.

The comet was seen with the naked eye on several occasions by those who knew exactly where to look for it; it could be seen in the telescope before the close of twilight. Since its distance is only about a quarter of that of Eros in 1931, it should be possible to derive a good value of the solar parallax, provided that nearly simultaneous observations are available from the southern hemisphere. The distance on the night of June 26-27 was about 3,600,000 miles. According to a bulletin dated June 4, issued by Science Service of Washington, there is only one case known of a nearer approach of a comet to the earth. That is the comet 1770 I, known as Lexell's, which passed within 1,400,000 miles of the earth on July 1, 1770. Its coma then appeared 2½" in diameter (Chambers, "Story of the Comets," p. 87).

The motion of comet Pons-Winnecke was so rapid that on a photograph with the Greenwich Astrographic taken about 1½ on June 23, with 3 minutes exposure, it appeared as a narrow faint trail more than a millimetre long.

THE GREAT PERSEID SHOWER OF METEORS.—Mr. W. F. Denning writes: "This important stream commences at the end of June or beginning of July. It is desirable to ascertain the dates when the first and last members of the display are visible. From a discussion of thousands of recorded paths, between about June 21 and Sept. 10, I think that the limiting dates are June 25 and Sept. 5, a period of 72 days. But in consequence of the many feeble contemporary systems in play with radiants in the same region of the heavens, it is difficult to decide with absolute safety on the exact period over which true Perseids continue to fall. It would be a good plan to arrange simultaneous watches by a number of trustworthy

observers. Meteors doubly observed yield radiants which are not affected with the same doubts as an object seen by one observer only. A meteor may be directed from the radiant of the Perseids and yet belong to another centre, whereas multiple records of the same object must give the correct radiant if the data are accurately recorded.

"The return of the Perseids this year takes place amid bright moonlight. The meteors, however, are often so bright and abundant on Aug. 11 and 12 that they well repay watching even when the moon is present."

THE SPECTROHELIOSCOPE.—An article by Lee McCrae in the *Scientific American* for March gives an illustrated description of Prof. Hale's spectroheliograph, which accomplishes visually the same work that the spectroheliograph does photographically (see also NATURE, July 3, 1926, Supp. p. 1). It is not essentially new; the earliest spectroscopic observations of the solar prominences were made visually, and the method of the oscillating slit, which is the main feature of Prof. Hale's instrument, was tried in those days. But long experience has so greatly improved all the accessories that the method is now much more effective.

The article points out the many advantages of the visual over the photographic method; the photograph can only catch a particular aspect, whereas the visual method, like a cinema film, shows the progress of events. Its action is more rapid than the photograph; further, it can pick out the regions of the sun where interesting developments are in progress, and follow them through their different stages.

Another advantage is that eruptions occur which change the wave-length of the line owing to Doppler effect. A record of these would be lost on the photograph, but can be obtained visually, since there is a device for altering the position of the slit. Knowledge has already been gained in this way regarding the nature of the whirling motion that occurs round sunspots. It is hoped to establish more accurately the relation between solar eruptions and magnetic storms on the earth.

Prof. Hale is trying to produce a simpler and cheaper form of the instrument, and hopes that it may lead to a more general and continuous watch on the sun for detecting outbursts.