

average daily readings for August of the intensity of ultra-violet radiations at various localities in the British Isles. The figures illustrate the high intensity which these radiations sometimes attain in England, figures of about 8.7 being obtained at Cleethorpes and Lowestoft, and of 7.75 at St. Ives and Ventnor. They also illustrate how much the intensity of the radiations must depend on climatic conditions prevailing, for while the figure for Clacton is about 7.0, at Southend-on-Sea it was only 1.0—the lowest record of all stations. Among other articles, Dr. Kathleen Vaughan writes on the value of sunlight and the open-air life for healthy motherhood.

A SHORT list of nearly 300 books on British and foreign birds has been received from Messrs. Francis Edwards, Ltd., 83 High Street, Marylebone, W.1. It includes a few scarce items.

MESSRS. Wheldon and Wesley, Ltd., 2 Arthur Street, W.C.2, have just circulated a list (New Series, No. 23) of many second-hand works, classified under the headings of periodicals and publications of learned societies, miscellanea, zoology, botany, medicine, sport, and addenda. It is obtainable upon application.

WE have received from Messrs. A. Gallenkamp and Co., Ltd., a catalogue of apparatus for testing petroleum and its allied products. The list, which covers

52 pages and is well illustrated, covers nearly all the standard apparatus required for testing such materials, but the Tate specific gravity bottle seems to have been overlooked. The prices are all given.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—Two inspectors of aircraft under the Union of South Africa—The Secretary, Office of the High Commissioner for the Union of South Africa, 73 Strand (Dec. 16). An assistant chemist at the sewage disposal works of the County Borough of Reading—The Town Clerk, Town Hall, Reading (Dec. 18). A head of the chemistry department of the Plymouth and Devonport Technical College—The Secretary for Education, Education Offices, Plymouth (Dec. 20). An inspector of alkali, etc., works, under the Ministry of Health—The Director of Establishments, Ministry of Health, Whitehall, S.W.1 (Dec. 20). A junior lecturer in the department of pathology of the University of Liverpool—The Registrar, The University, Liverpool (Dec. 24). A whole-time abstractor and translator at Sheffield, under the Safety in Mines Research Board—The Under Secretary for Mines, Establishment Branch, Dean Stanley Street, S.W.1 (Dec. 31). A professor of biochemistry at the Indian Institute of Science, Bangalore—Prof. F. G. Donnan, University College, Gower Street, W.C.1.

### Our Astronomical Column.

**Magnetic Disturbance, Dec. 3-4, 1930.**—A considerable magnetic disturbance, falling into the category of a small storm, occurred on Dec. 3-4. The storm began with a characteristic 'sudden commencement' on Dec. 3 at 1¼<sup>h</sup>, but apart from this the oscillations of the needles were not appreciable until about thirteen hours later, the most disturbed part of the traces being between 15<sup>h</sup> and 22<sup>h</sup> on Dec. 3. The range in Declination at Greenwich was 51'. At the time of the storm there was only a smallish sunspot, of area 130 millionths of the sun's hemisphere, a little way past the central meridian. Spectroscopic observations, which greatly increase the range of detection and scrutiny of solar eruptions, were impossible owing to fog or overcast skies. The recent magnetic storm appears to be the largest since that of Mar. 11-13, 1929, though during 1930 a number of disturbances of somewhat lesser intensity have occurred.

**Stellar Parallaxes.**—*Scientia* for October contains an interesting paper by Prof. S. A. Mitchell, describing the remarkable advance that has been made in recent years in determining the distances of the stars. It is less than a century since Bessel found the distance of 61 Cygni; it was not until the present century that the work was placed on a reliable basis, and the probable error of a parallax reduced to about one-hundredth of a second. Prof. Mitchell states that about three thousand accurate parallaxes have now been found; his own observatory (the Leander McCormick) is the leader with a thousand parallaxes; each of these rests on some fifteen plates, taken at about five seasons six months apart:

Reference is made to Prof. Schlesinger's measures with the Yerkes refractor twenty years ago; since it was not a photographic telescope, yellow screens and isochromatic plates were necessary. The use of colour screens has the advantage of reducing the error

arising from the different colours of the stars, which cause difference in refraction; this difference is also reduced by taking all parallax plates near the meridian, and using only the parallax in right ascension. The systematic errors of the results of the leading American observatories were shown by Stromberg and van Maanen to be of the order of 0.003", which is the angle subtended by one inch a thousand miles away. Other methods have been devised for estimating the distances of objects too remote to show any parallax: spectroscopic parallaxes, the relation between period and absolute magnitude for Cepheid variables. Edington's relation between mass and absolute magnitude, and the strength of the lines in the spectrum that are due to interstellar calcium; but all of these methods need a number of reliable parallaxes in order to calibrate the curves. Thus the spiral nebulae are distant millions of light-years, but this estimate is ultimately based on the parallaxes of stars that are only distant about a hundred light years.

**Comets.**—*Beob. Zirk.*, No. 42, contains observations of comets 1925 II. (Schwassmann-Wachmann) and 1927 IV. (Stearns) made during September and October with the large reflector at Bergedorf, by Dr. W. Baade. Their magnitudes were 17 and 17.5 respectively. These were taken at an interval of 5¼ years after perihelion for the first comet, and 3¼ years for the second. It will be remembered that the orbit of 1925 II. lies entirely between those of Jupiter and Saturn, its period being about fifteen years. There appears to be a fair prospect of its being observable round the whole of its orbit, which would be a new cometary record. 1927 IV. is affording a record of another kind. It is now outside the orbit of Saturn, and has probably been observed at a greater distance from the sun than any previous comet. Halley's comet was lost soon after crossing the orbit of Jupiter.