

(April 28). A senior lecturer in applied mathematics in the University of Cape Town—The Secretary, Office of the High Commissioner for the Union of South Africa, Trafalgar Square, W.C.2 (April 30). A first assistant in the clinical laboratory of the Manchester Royal Infirmary—The General Superintendent and Secretary, Royal Infirmary, Manchester (April 30). A full-time assistant master in the Junior Technical School and Evening Technical Classes of the Worsley Technical School, near Manchester—The Secretary for Higher Education, Town Hall, Walkden (May 1). Readers, (a) economics, with special reference to banking and currency; (b) economics, with special reference to industrial organisation; and (c) international history, at the London School of Economics—The Academic Registrar, University of London, S.W.7 (May 1). A technical assistant in the department of the Chief Officer of the London Fire Brigade for inspectorial and advisory duties connected with fire and safety matters in buildings licensed by the London

County Council for public entertainment—The Clerk of the London County Council, The County Hall, Westminster Bridge, S.E.1 (May 5). A woman demonstrator in pathology at the London (Royal Free Hospital) School of Medicine for Women and Royal Free Hospital—The Warden and Secretary, 8 Hunter Street, W.C.1, or the Secretary, Royal Free Hospital, W.C.1 (May 6). An assistant medical secretary of the British Medical Association—The Medical Secretary, British Medical Association, Tavistock Square, W.C.1 (May 12). A soil chemist in the department of agriculture, Kenya—The Private Secretary (Appointments), Colonial Office, 2 Richmond Terrace, Whitehall, S.W.1 (May 15). A professor of mechanical engineering at the Bengal Engineering College, Sibpur, Bengal—The Secretary to the High Commissioner for India, General Department, India House, Aldwych, W.C.2 (May 19). A laboratory assistant for the medical department of Kenya Colony—The Crown Agents for the Colonies, 4 Millbank, S.W.1 (quoting M/2117).

### Our Astronomical Column.

**Recent Magnetic Disturbances.**—A magnetic disturbance with a range in declination of 30' was registered at Greenwich between April 6 and 9. There was no definite commencement, which may be taken as occurring about 18<sup>h</sup> on April 6. The greatest range in declination was registered on April 7–8. This is the third member of a sequence of three small storms which have taken place at intervals of about a solar synodic rotation. The dates of the two preceding storms are Mar. 11–18 (commencement Mar. 11·6) and Feb. 12–16 (commencement Feb. 12·9). No unusual solar disturbance was observed on any of the above dates, but cloudy weather in England rendered observing impossible on most days just before and during each magnetic storm. It may be noted, however, that a fair-sized sunspot in latitude 17° N. crossed the sun's central meridian on April 7·1.

**Distance of the Trans-Neptunian Planet.**—Prof. G. Armellini, Capitol Observatory, Rome, writing with reference to the distance of the Trans-Neptunian planet, reminds us that in 1918 he published in *Scientia* (vol. 24) a simple relation between the distances of the planets from the sun. This relation is given by the formula:  $D = 1 \cdot 53^n$ , where  $n = -2$  for Mercury,  $-1$  for Venus,  $0$  for the earth,  $1$  for Mars, etc. For the Trans-Neptunian planet,  $D = 1 \cdot 53^9 = 45 \cdot 6$ . The distance calculated by Bode's law is 77·2; and by Bérout's law (*Comptes rendus*, II, p. 937; 1905) is 61. Prof. Armellini regards the true distance as probably between 45 and 48, and his value agrees with this estimate. We do not, however, know the distance of the new planet yet. Assuming a circular orbit, the distance comes out close to 40; but it is probably an ellipse, and a much longer interval is required to determine its elements.

**Photo-electric Observations at Neubabelsberg.**—*Astr. Nach.*, No. 5683, contains a paper on these observations by Margarete Güssow. The most interesting of the stars the light-changes of which were investigated is Boss 46. This is one of the very massive stars, of type *O*, the radial velocities of which have been studied at the Victoria Observatory. It was found by Prof. Guthnick in 1919 that the star has a small variation of light; the full period of variation is 3·52 days; but this contains two unequal maxima and two minima. A paper by J. A. Pearce in vol. 3 of the Victoria publications discussed both the photo-

metric and spectroscopic data; he showed that the system consisted of two enormous stars, the diameters of which are 23·8 and 15·5 times that of the sun, their masses being 36·3 and 33·8 times the sun's. They revolve nearly in contact with each other, and their shapes differ sensibly from spheres in consequence of tidal distortion; the eclipses are only small partial ones, and would scarcely have been detected without the photo-electric cell, the light range being 0·17 mag. Their detection enables accurate deductions to be made of the masses, diameters, and relative surface brightness of the components. These deductions are of use in making probable assumptions regarding the elements of the Plaskett star, B.D. +6° 1309. This is still more massive, but no eclipses have so far been detected. The light-curve of Boss 46 appears to show progressive change since 1919, the two maxima having become more nearly equal; this might be explained by a motion of the line of apsides, which would undoubtedly be present. Geminorum is another of the stars discussed in the paper; the light-range is more than 0·6 mag., the period being 10·15 days; the colour index is found to change by 0·2 mag. in the same period, being 0·47 mag. at light maximum, and 0·66 mag. about a day before light minimum.  $\alpha$  Canum Ven. was also examined; the observations in 1927 showed a regular light-variation in the spectroscopic period of 5·47 days; the light range is less than 0·05 mag.; the variation is less clearly shown in the observations of 1928, 1929.

**Annuaire Astronomique et Meteorologique Camille Flammarion pour 1930.**—This publication (printed by Jouve et Cie, Paris; published by Juvisy Observatory, Seine et Oise. 12 francs) contains all the usual almanac matter relating to the positions of sun, moon, planets, etc., with several other features likely to help amateur observers. There is a very full table of the elements of the periodic comets prepared by M. F. Baldet; also tables of double stars, variable stars, stars of large proper motion, etc. There are also sections on magnetism and meteorology; a table for the date of Easter up to the year 2200 is of course based on the assumption that no change will be made in the method of computation. The hints on choice of a telescope and methods of observing should be helpful to beginners. The work is edited by M. Ernest Flammarion.