

the Rome meeting of the new organisation, and may be regarded as continuing the triennial reports presented to its predecessor. The volume is of considerable size, the principal contents consisting of a comprehensive report on determinations of latitude, azimuth, and longitude, prepared by H. L. P. Jolly, research officer to the Ordnance Survey; a report by E. de Martonne on the 1913-1914 campaign of geodetic astronomy executed by the geographical survey of French West Africa; and a report by E. Soler, professor of geodesy at Padua, on relative measures of the intensity of gravity in all parts of the world. There are also shorter reports by G. F. Dodwell on radio determinations of longitude in Australia, and by J. de Graaf Hunter on deviations of the vertical.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A man or woman on the staff of the Association of Special Libraries and Information Bureaux to compile supplementary data for the "Aslib Directory of Sources of Specialised Information"—The Secretary, Aslib, 38

Bloomsbury Square, W.C.1 (Sept. 15). A lecturer in mining at the Denbighshire Technical Institute, Wrexham—The Secretary and Director of Education, Education Offices, Ruthin (Sept. 17). A temporary assistant lecturer in education at the University College of Swansea—The Registrar, University College of Swansea, Singleton Park, Swansea (Sept. 20). A deputy director of agriculture under the Government of the Punjab—The Secretary to the High Commissioner for India, 42 Grosvenor Gardens, S.W.1 (Sept. 24). An assistant examiner of Questioned Documents under the Government of India, with knowledge of chemistry, especially analytical chemistry, and of physics and photography—The Secretary to the High Commissioner for India, 42 Grosvenor Gardens, S.W.1 (Sept. 26). A mycologist for research at the Imperial College of Science and Technology on wood-destroying fungi—The Secretary, Department of Scientific and Industrial Research, 16 Old Queen Street, S.W.1 (Sept. 26). Civilian education officers of the Royal Air Force, with practical qualifications for teaching engineering subjects—The Secretary, Air Ministry, Adastral House, Kingsway, W.C.2.

### Our Astronomical Column.

AN EXTREMELY MASSIVE MULTIPLE STAR.—The star 27 Canis Majoris has been examined spectroscopically by Dr. O. Struve, and found to be a most interesting quadruple system. His results, which are published in the *Astrophysical Journal*, vol. 65, p. 273, show that two independent spectra are visible. These are of types *B5ne* and *B8*, and correspond to the two principal components of the system, which have a period of revolution of 3.2 years. Each of these components has, in addition, a much shorter period, indicating the presence of invisible companions. The masses of the stars in this system are found to be unusually large, the minimum value of the total mass being 950 times that of the sun. The masses of the two principal pairs (*A+B* and *C+D*) are approximately equal, but the ratios *A/B* and *C/D* are not known. The mass of each star, however, must be in the average at least 238 times the solar mass. Attempts to attribute the line shifts to causes other than radial velocity are very unsatisfactory, and there seems at present to be no alternative to the acceptance of these enormous masses.

TABLES FOR EPHEMERIDES IN PARABOLIC ORBITS.—Some years ago a modification of the familiar equations, due to Gauss, that give the rectangular heliocentric coordinates *x*, *y*, *z*, was published; in this the coordinates are given in terms of  $\tan v/2$  and  $\tan^2 v/2$  multiplied by factors deducible from the elements of the orbit. Mr. Bengt Strömgren has calculated useful tables, which are published in *Meddelelser fra Kobenhavns Observatorium*, No. 58, and in *B.A.A. Memoirs*, vol. 27, Part 2. These give the natural values of  $\tan v/2$  and its square, the argument being *M*, which is the interval from perihelion in days multiplied by  $q^{-2}$ . The values are given to five decimal places, so they suffice for fairly accurate ephemerides, but not for rigorous ones. They extend to 120° from perihelion; comets are seldom observed farther than this unless *q* is very small. The tables are designed for use with a calculating machine, and will considerably reduce the labour of forming an ephemeris.

STARS WITH BRIGHT IRON LINES.—Among the emission lines which are found in stellar spectra, the lines of iron occur more frequently than those of any other element except hydrogen. Stars in which these lines are found may be divided into four groups, namely, long period variables, peculiar stars of late types, stars of type *Bc*, and novæ. In the *Astrophysical Journal*, vol. 65, p. 286, Dr. Merrill gives lists of stars showing bright iron lines in the second and third of these groups, as well as discussing all the available information concerning them. One point of great interest which emerges from this discussion is the fact that only the lines of ionised iron appear as emission lines in the majority of stars. This is the case even in the low temperature stars which possess very strong arc lines in their absorption spectra. The only stars in which emission lines of the neutral atom occur are the long period variables, and even in these cases enhanced lines are also present. It also appears that bright iron lines are found mainly in stars near the two extremes (*B* and *M*) of the temperature sequence, being absent in types *A* and *F*.

REPORT OF THE ROYAL OBSERVATORY, CAPE OF GOOD HOPE.—The annual report for 1926 of the Royal Observatory, Cape of Good Hope, has just been issued. The meridian observations include all stars south of Decl.  $-30^\circ$  down to mag. 7.5. Helio-meter observations of planets are also being made. Dr. J. Lunt, who has been using the Victoria telescope for stellar spectroscopy for thirty years, has now retired; a programme of stellar parallaxes with the instrument has been commenced. The Cape section of the Astrographic Catalogue is now almost complete, the last volume being in type. It is noted that the number of meridian observations and of solar photographs are in excess of any previous year. A new clock, Shortt No. 10, has been obtained from the Synchronome Co., and is working satisfactorily. A radio time signal is sent out daily for the use of shipping in South African waters; another one is distributed three times daily by the local broadcasting association.