

The Chairman of the Board of Management, Rubber Research Scheme, Peradeniya, Ceylon (Mar. 30). A deputy director of the Public Health Laboratories, Cairo—The Under-Secretary of State, Department of Public Health, Cairo (April 14). A demonstrator in physics at Bedford College for Women—The Secretary, Bedford College for Women, Regent's Park, N.W.1 (April 20). A lecturer and adviser in veteri-

ary science in the Harper Adams Agricultural College and National Institute of Poultry Husbandry—The Principal, H.A.A.C., Newport, Shropshire.

ERRATUM.—NATURE, Feb. 21, p. 268, five lines from end of notice of "The Economics of Forestry" by W. E. Hiley: for "British Isles" read "British Empire".

### Our Astronomical Column.

**Mapping the Larger Magellanic Cloud.**—A recent *Daily Science News Bulletin* issued by Science Service, Washington, D.C., gives a summary of a paper by Prof. H. Shapley read before the American Association for the Advancement of Science at the recent Cleveland meeting; he stated that a detailed map of the larger cloud is being prepared; the cloud contains 200,000 giant and supergiant stars, each more than 150 times as bright as the sun, and more than 2000 stars that are each more than 10,000 times as bright as the sun.

Another *Bulletin* gives a new estimate of the distance of the sun from the centre of the galaxy. Dr. Harlow Shapley had found a distance of 15,400 parsecs by taking the mean of two different methods; but, since that was made, Dr. R. J. Trumpler has found evidence of appreciable absorption of light in the galactic plane; Dr. van de Kamp has applied the necessary correction to Dr. Shapley's figures, and finds that the distance is reduced to some 12,000 parsecs, or even less.

**The Eighth Satellite of Jupiter.**—This tiny body, the magnitude of which is  $17\frac{1}{2}$ , has been unobserved since June 1923. It was discovered by Mr. Melotte at Greenwich in 1908, and was followed there for many years; but of late years the Thomson Equatorial, which is the only instrument there that is suitable for observing it, has been in use for stellar parallax and other researches. There was danger of its being lost, as the solar perturbations are very large and the computation of them long and tedious. However, Prof. Numerov, of Leningrad, computed them a few months ago, and issued an ephemeris; Prof. G. van Biesbroeck has succeeded in photographing the satellite, and publishes eight positions, obtained from photographs on four nights, in *U.A.I. Circ.* No. 310. The first position is:

	R.A. (1930-0).	N. Decl.
Dec. 16. 20562 U.T.	7 <sup>h</sup> 25 <sup>m</sup> 36.46 <sup>s</sup>	22° 54' 50.3"

The observed places are about 8 sec. smaller in R.A. than the predicted ones, and 10' north of them. These residuals are satisfactorily small after an interval of nearly eight years. The plates were taken with the 24-inch reflector at Yerkes, with an exposure of 30 minutes.

**Variable Stars in the Globular Cluster Messier 3 (Canes Venatici).**—*Astr. Nach.*, No. 5747, contains a study of the light variations of 47 stars in this cluster, by Mr. Paul Slavenas. The plates used were 97 in number, and were taken by Dr. J. Schilt in 1926 with the 60-inch reflector at Mt. Wilson. The data for 30 stars were sufficient to deduce accurate periods: these are given to the eighth decimal of a day; the shortest is about 0.288 day, the longest 0.708 day. The majority lie close to half a day. It will be remembered that it was from a study of the magnitudes and periods of Cepheids that the distances of globular clusters, the Magellanic Clouds, and the spiral nebulae have been determined.

No. 3201, Vol. 127]

**Reference Stars for the 'Selected Areas.'**—The scheme, initiated by the late Prof. Kapteyn, of intensive observations of stars, both bright and faint, in certain areas distributed uniformly over the entire heavens, needs very careful meridian observations of the brighter stars in each area, since these have to serve as reference points for the plate constants, and the proper motions of the faint stars will depend upon them. The Observatory of Leyden has just produced a catalogue of 1172 of these stars in vol. 15, part 3, of its *Annals*. They include all the 'areas' in the northern hemisphere except the polar one. The catalogue bears the names of C. H. Hins and J. J. Raimond, jr., with Prof. de Sitter as director. The observations were made between 1921 and 1929. In 1922 a hand-driven moving-wire micrometer was inserted. As there is no movable declination thread, the declinations were observed at different times from the Right Ascensions, the eye-end of the telescope being turned through a right angle. Most of the stars have been observed at least twice in R.A. and three times in Declination. The positions are reduced to the equinox of 1925.0.

**Occultation of Antares.**—Kwasan Observatory *Bulletin* No. 189 contains an observation of the occultation of Antares on Jan. 15 by Prof. K. Nakamura with the 30-cm. Cooke refractor. It was cloudy for the disappearance. At the reappearance, the greenish companion emerged first, and the bright star some 4 seconds later. It was seen first as a dim red glare, and took fully a tenth of a second to reach full brightness. This is in good accord with the large diameter of the star, about 0.04", found by the Mount Wilson interferometer. The times of emersion in U.T. are:

1931. Jan. 14<sup>d</sup> 20<sup>h</sup> 2<sup>m</sup> 27<sup>s</sup> companion.  
30.9 Antares.

The first time is noted as probably late.

It is of interest to note that the first observation of the companion was made on the occasion of an occultation. The *Berliner Jahrbuch* of 1822 records that Burg at Vienna observed the small star reappear five or six seconds before the bright one on April 13, 1819. He concluded that Antares is double. Bode, however, discredited this, and added the note, "Antares ist kein Doppelstern". The companion was not seen again until 1844 (by Grant in India) and 1845 (by Mitchel in America). Incidentally the green colour of the companion is shown to be inherent, not a contrast effect, when it reappears before the bright star.

**The Cracow Astronomical Handbook for 1931.**—This handbook, as usual, is almost entirely taken up with ephemerides of variable stars. There are 391 eclipsing variables for which the dates of minimum are given, and 382 others for which certain elements are given. There are also elements of occultations of stars by the moon for several stations in Poland. There are also useful tables of precession, obliquity of ecliptic, etc. The explanations are given both in Polish and in flexible Latin, which is very easy to read.