

national unit; and sodium morrhuate, which is now being used for the injection treatment of varicose veins. A therapeutic index of diseases is also included. We have also received from the same firm a leaflet describing the applications and uses of the acriflavine group of antiseptics; illustrative cases are quoted and a selected bibliography is appended. These antiseptics have a wide use in the treatment of wounds and a great variety of septic conditions.

"METHODS and Problems of Medical Education", 17th Series, has been issued by the Rockefeller Foundation, N.Y. This volume deals with departments and institutes of anatomy, histology, and embryology in all parts of the world, including Lima, Batavia, and Manila. It is profusely illustrated with plans and views, and gives details of the accommodation, staffing, courses of instruction and research work, and budgets of a number of the leading schools of the world.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An organising secretary of the Land Utilisation Survey of Britain—Dr. L. Dudley Stamp, c/o The London School of Economics, Houghton Street, W.C.2 (Sept. 29). An engineer in the Offices of the Divisional Road Engineers

—Establishment Officer, Ministry of Transport, Whitehall Gardens, S.W.1 (Oct. 1). A graduate assistant in electrical engineering at the Wolverhampton and Staffordshire Technical College—Clerk to the Governors, Education Office, North St., Wolverhampton (Oct. 4). A lecturer in experimental psychology at the Otago University, Dunedin—High Commissioner for New Zealand, 415 Strand, W.C.2 (Oct. 10). Assistant executive engineers for the Indian Service of Engineers, and assistant executive engineers for the Indian Railway Service of Engineers—The Secretary, Services and General Department, India Office, Whitehall, S.W.1 (Oct. 31). A teacher in mechanical power plants equipment for evening classes at the Central Polytechnic, Croydon—Education Officer, Education Office, Katharine St., Croydon. A temporary full-time lecturer in mechanical engineering at the Municipal Technical School (The Gamble Institute), St. Helens—Secretary for Education, Education Office, St. Helens. An evening lecturer in geography at the West Ham Municipal College—The Principal, West Ham Municipal College, Romford Road, Stratford, E.15. Assistant engineers for the Public Works Department of the Federated Malay States—The Crown Agents for the Colonies (quoting M/1990), 4 Millbank, S.W.1.

Our Astronomical Column.

Pluto.—The first observation of Pluto after its conjunction with the sun was obtained by Prof. M. Wolf at Königstuhl on Aug. 29 (on two plates taken with the reflector); the approximate position is R.A. 7^h 27^m 9^s, N. Decl. 21° 54', which is in accord with the ephemeris in *Lick Bulletin*, No. 427. The period adopted in that *Bulletin* is 249.1661 years. Many other computers have found similar periods, so that the orbit is now known within narrow limits. The *Bulletin* gives approximate ephemerides for every year back to 1890, in the hope that further images may be found. Prof. Wolf has found an image that may be Pluto on a plate exposed on 1914 Jan. 23^d 7^h 33^m 0^s Königstuhl M.T.; R.A. (1914.0) 5^h 57^m 54^s.93^s, N. Decl. (1914.0) 17° 37' 23.0"; the *Lick* ephemeris, reduced to the same equinox, gives 5^h 58^m 1^s.4, 17° 38'. As some approximations were used in preparing the ephemeris for past years, the discordance is not excessive.

Prof. T. Banachiewicz gives a full description in *Cracow Circ.* No. 26 (see also *U.A.I. Circ.* No. 296) of the work carried out at Cracow on the orbit of Pluto. It will be remembered that the ephemerides calculated there led to the detection of an image of Pluto on an Uccle plate of Jan. 27, 1927; that in turn led to the detection of the images of 1919 (Mt. Wilson) and 1921 and 1927 (Yerkes). Individual observations of Pluto in 1930 give residuals that occasionally attain 3". These residuals explain the very erroneous orbits that were first published. Prof. Banachiewicz shows that by using a large number of observations made in 1930 an orbit can be deduced that is similar to those that were obtained with the aid of the observations made in 1919, etc.

The following additional observations have been received from Prof. Wolf: they are for 1930.0.

1930 Aug. 30 ^d 2 ^h 36 ^m 5 ^s .5	U.T.	R.A.	7 ^h 27 ^m 57 ^s .97 ^s	N. Decl.	21° 53' 55.9"
Sept. 5 2 35.0			7 28 26.38		21 53 16.7

The star places are from the Abbazia Catalogue.

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Orbits of Binary Stars.—*Bull.* No. 195 of the Astronomical Institute of the Netherlands contains several determinations of orbits by G. P. Kuiper. The orbit of the close pair β 232 is now determined for the first time. Since its discovery in 1876, 240° of the orbit has been described. The period found is 91.2 years, periastron 1914.9, a 0.368", e 0.326. Using Eddington's mass-luminosity curve, the masses are 0.95 and 0.91 of the sun, the absolute magnitudes 4.5 and 4.7, parallax 0.0148".

Θ 277 is a pair with equal magnitudes in which there is liability of confusing the two components when they emerge from periastron; Jackson and van den Bos adopted different identifications and found periods of 95.2 and 51.6 years respectively. The ten years that have since elapsed decide against the short period. Mr. Kuiper finds the period 122.6 years, periastron 1883.4, a 0.472", e 0.170; the hypothetical mass of each star is 1.13 sun, absolute magnitude of each 3.97, parallax 0.0146".

Θ 282 is in the Hyades, and the brighter star is a spectroscopic binary; Prof. Hussey gave the period of the visual pair as ninety-eight years, using observations up to 1900; subsequent observations show that this is too short, and the new period is 487 years. The parallax appears to be close to 0.02", and the sum of the three masses is between two and three times that of the sun.

The fourth system studied is a fivefold one. It is shown that the double star Σ 1999 is probably in physical connexion with the triple system ξ Scorpii, from which it is distant 281"; the common parallax is estimated as 0.04"; the masses of the components of the triple system are given as 1.50, 1.39, and 0.95 of the sun; those of the binary are stated to be equal to each other, but their values are not given; the two systems are about 7000 astronomical units apart in the direction normal to the line of sight. The shift of the second system relatively to the first is only 0.25" in sixty-four years, whereas the proper motion of ξ Scorpii in that period is 4.7".