

W.C.2 (October 30). A lecturer in the department of physics of Transvaal University College—The Registrar, Transvaal University College, Pretoria (October 31). Male investigators in industrial psychology, having had training in experimental psychology—The Secretary, National Institute of

Industrial Psychology, 329 High Holborn, W.C.1. A lecturer in electrical distribution and an instructor in machine drawing at Goldsmiths' College—The Warden, Goldsmiths' College, New Cross, S.E.14. An assistant in the physiology department of the University of Edinburgh—The Professor of Physiology.

Our Astronomical Column.

MARS.—Mars is drawing near to opposition; it will be nearest to the earth (distance $42\frac{1}{2}$ million miles) on Oct. 27, in North Declination $14^{\circ} 52'$. The distance will be 8 million miles greater than in 1924, but this is far more than offset for European observers by its being 32° farther north. Observations have already begun, but no results have yet been published.

M. E. M. Antoniadi gives in the August issue of *L' Astronomie* a new map of the planet, based chiefly on his own observations made with the great Meudon refractor between 1909 and 1924. He rejects the narrow rectilinear network of canals, and those shown on his map are represented as broad diffused shadings. A very large number of round dark markings (the *luci* of Lowell) are shown: there are six on the Lacus Solis, and five more on the bands connecting it with the neighbouring dusky regions. This region of the planet appears to be specially unstable, since the drawings at different oppositions show notable discordances. It should be specially scrutinised at present. M. Antoniadi gives an interesting drawing, made at the suggestion of the late M. Camille Flammarion, showing the aspect of the planet from Phobos, the inner satellite. The planet subtends an angle of 42° from Phobos, and consequently a zone 22° in radius at each pole of Mars is permanently hidden. Also only 136° of the equator is visible at once, and the centre of the disc is seen under a much larger scale than the edges, since it is 2000 miles nearer. These points have been carefully attended to in the drawing, which is very instructive. The planet would appear to rotate in the opposite direction to its real rotation, owing to the rapid orbital movement of Phobos; the terminator would move quicker than the markings in the ratio of three to two (about).

SUNSPOTS AND MAGNETIC STORMS.—The August number of the *Publications of the Astronomical Society of the Pacific* gives an abstract of a paper by S. B. Nicholson on "The Magnetic Classification of Sunspots associated with Terrestrial Magnetic Storms." The author, working from data collected at Mt. Wilson, states that the spots which synchronise with the occurrence of magnetic storms are usually those with complicated magnetic polarities, classified as γ or $\beta\gamma$. Moreover, in most cases where there is a large spot and no corresponding magnetic disturbance, the polarities of the spot or group of spots are generally found to be unipolar or bipolar with regularly distributed polarities. These are interesting results which promise to go far in explaining some of the anomalies met with in the study of these two phenomena, the general relationship of which is so well established.

As mentioned in NATURE last week (p. 459), a large group of sunspots crossed the sun's central meridian on September 19. Two days later a marked magnetic disturbance was registered by the Greenwich magnetographs. There was, however, no sudden commencement, characteristic of magnetic storms, but at the culmination of the disturbance at about 6 hr. on Sept. 21, the declination magnet was nearly $40'$ from its normal position. At this time the centre of position of the two sunspots was 1.7 days or 22° west of the central meridian. It may be noted

that the leader spot of the group, which approximated in type to those commonly found to be bipolar, showed considerable changes of structure suggestive of complicated magnetic polarities. The Mt. Wilson observations of the polarities of this group of spots may be expected to appear in the December number of the *Publications of the Astronomical Society of the Pacific*.

ABUNDANCE OF FIREBALLS.—Mr. Denning writes that between Sept. 12 and 20 as many as seven fireballs were observed from various parts of England. On Sept. 12 one was seen from Bristol in Lyra, shooting from a radiant at $290^{\circ} + 54^{\circ}$. On Sept. 15 a meteor twice as bright as Jupiter was noted from Oswestry with path from $340^{\circ} - 17^{\circ}$ to $328^{\circ} - 27\frac{1}{2}^{\circ}$. It left a bright streak for twenty minutes. On Sept. 17 a splendid object was visible from near Bristol, Sheringham, and Whitstable. It exhibited an exceptionally long course, for the observer at Sheringham saw it come up apparently from beyond the crest of the North Sea, while the one at Whitstable followed it until it disappeared on the horizon of the English Channel or Normandy in France. The path must have ranged over 600 or 700 miles; radiant on north-east by east horizon. On Sept. 18 a fireball was noticed in the eastern sky from Faversham, Kent, and on Sept. 20, at 1^h A.M. G.M.T., another was viewed from London, which the observer described as falling like "a large drop of molten metal." On Sept. 20, at 19^h 2^m G.M.T., a splendid meteor was seen from Weymouth; Bude, Cornwall; Bruton, Somerset; Downend, near Bristol, and other places. It emanated from a radiant at $60^{\circ} + 36^{\circ}$ and pursued a lengthy flight of about 320 miles from above the North Sea about 90 miles east of Bridlington to 25 miles south of Portland Bill in Dorset.

THE NORMAN LOCKYER OBSERVATORY.—The report of this Observatory for the year ended on March 31 last begins with a weather analysis which shows that the number of clear nights was 165, being 32 in excess of the preceding year.

The 12-inch prismatic camera on the Frank McClean telescope was used for obtaining stellar spectra for classification and parallax work. The classification is now automatic, being based on numerical measures of line intensities. The parallax work has been on the B stars; it is based on a revised classification of spectral type, combined with estimates of the width and character of lines. Several photographs of Mira Ceti were obtained near the maximum last December, when the magnitude was 3.1. The next maximum will be on Nov. 4, when the star will be nearly in opposition with the sun. This telescope was worked chiefly by Mr. Edwards.

The 9-inch prismatic camera on the Kensington telescope was worked by the Director, Dr. W. J. S. Lockyer. Special attention was given to stars with bright hydrogen lines. The interesting star θ Persei, of type Bope, was followed for an entire period, 110 photographs being secured on 79 nights between Sept. 9 and Jan. 13.

Prof. Sampson of Edinburgh has tested the method of producing widened spectra by using a clepsydra for moving the plate. He finds that the widened spectra are as trustworthy as the original ones and much more convenient for measurement.