

OUR ASTRONOMICAL COLUMN.

LARGE METEOR ON JANUARY 4.—This brilliant object was observed at about 10.20 p.m. at the Royal Observatory, Greenwich; by Mrs. F. Wilson, Totteridge; by the Rev. Canon Grensted, Liverpool; and by the Rev. H. C. Bender, Chelsea, S.W. As viewed from the metropolitan district the meteor traversed the region of Pisces, while, as seen from Liverpool, the path lay amongst the stars in the western part of Canis Major.

Mr. Denning writes us that the data already to hand indicate that the object was very low in the atmosphere, its height being approximately from forty-four to eighteen miles above the earth's surface from a point six miles E.N.E. of Salisbury to four miles S.E. of Tetbury. Had the meteor survived during another twenty-five miles of flight it would have fallen to the ground in the locality about ten miles S.E. of Ross, or twelve miles E. of Monmouth, and this may have actually occurred, though the descent was not observed. The fallen mass may, however, yet be discovered. In the case of the meteorite of October 13, 1914, though the light and detonation were noticed over a considerable area, the fall of the object was not witnessed, but it was accidentally discovered, embedded in the soil, on the following day.

EXTRA-FOCAL PHOTOMETRY.—Among the many methods employed in photographic photometry, the extra-focal method developed by Parkhurst has the great advantage that only a simple equipment is required. The plate being exposed in the camera beyond the focus, the resulting images have relative densities varying with the brightnesses of the stars, and, by means of a Hartmann microphotometer, these can be compared with artificial star discs of known relative magnitudes. At the Lays Observatory, University of Missouri, investigations of the method have lately been made by R. H. Baker and Edith E. Cummings, using a 5-in. photographic doublet, attached to a 7½-in. refractor as guiding telescope (Bulletin No. 24). The greatest known source of error is sky-fog, the effect of which is greatest for the fainter stars. This and other possible sources of error have been fully investigated, and means of overcoming them have been found. Tests of the accuracy attainable were made on eight plates containing double exposures of selected circumpolar regions, on which 196 stars were suitable for measurement. The star images ranged from 0.3 to 0.5 mm. in diameter, and it is shown that the advantage of such small images in reducing overlapping and exposure time does not involve any loss of accuracy. The probable error of a single observation was about one-twentieth of a magnitude, so that the extra-focal method compares favourably with other methods. Twelve eclipsing variables are under investigation.

HYDERABAD OBSERVATORY.—From the annual report of the director of the Nizamiah Observatory, Hyderabad, for the year ending October 5, 1916, we learn that, although serious inconveniences have been caused by the war, substantial progress has been made with the work for the Astrographic Catalogue. Besides the investigation of proper motions by measurement of plates taken at Oxford, Mr. Pocock reports that 134 plates were taken and measured during the year. In zone -17° , 143 plates, containing 56,302 stars, have now been completely reduced and the results partly printed, while in zone -18° copy for press has been prepared for 102 plates, containing 42,545 stars. Much work has also been done in connection with the magnitude scales of the various catalogues used in connection with the astrographic work.

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EDUCATIONAL POSITION AND OUTLOOK.

AFTER-WAR problems dominated the various sectional meetings of the Conference of Educational Associations held last week, and the two schemes of reform suggested by the Education Reform Council and the Workers' Educational Association were frequently in evidence. Three main lines of thought could be noted. One took up the burden of the Master of Balliol's inaugural address in his insistence upon the need for an educated democracy. Thus Principal Maxwell Garnett, of the Manchester School of Technology, speaking on the vocational outlook before the Child Study Association, urged that primitively interest was aroused by things to be done; thus permanent neurographic records were formed, and from these neurograms interest systems were created which tended always to grow. Hence it was wise to develop a single wide interest and a power of concentrated attention, and such interest systems, developing in adolescence, if centred round one's vocation, would produce a body of workers who would be at once more effective and more contented. At the same time, there was need to reserve from all classes those who would become prophets and thinkers. This last was the note of Prof. Shelley's address before the Teachers' Guild; a healthy democracy must evolve an aristocracy whilst at the same time fostering the forces that would destroy it, and always there must be a selection of the most vigorous personalities who would express the ideals and aspirations of the age. This involved, as Principal Garnett also insisted, some other method than the crude intellectual test of selecting those who should proceed by scholarships to higher centres of learning. Prof. Gilbert Murray had pointed out at the previous meeting the corollary to this, that there should be secured to the youth of all classes the best education for which each was intellectually fitted.

A second main line of thought had to do with the classics-science controversy, with science in favour. Thus Sir Alfred Keogh, presiding at the Education Reform Council meeting, urged that the lack of knowledge of elementary facts of science and Nature shown by Ministers and administrators was a national misfortune, and that every boy destined for public life should have a very liberal education both in science and classics. The other side was given at the Association for the Reform of Latin Teaching, where, however, Dr. Rouse deplored the almost complete failure of the reformers to influence the teachers of classics. On the question of the teaching of science in secondary schools, an interesting point was raised by Prof. Nunn, in the discussion on women's work in boys' schools, before the Froebel Society. He thought that whilst the biological sciences were safe in their hands, the physical sciences were not. Such practical developments of mathematics and the physical sciences as engineering were nearer to men's interests, and if women were to treat these in any but an academic manner they must be brought into direct contact with such practical developments.

A third main line of thought was that of the position, prestige, and salaries of teachers. At no previous conference has this point been so frequently emphasised by chairmen and lecturers, and in reference to all grades and classes. Greater culture and efficiency and a wider training were constantly in demand, and to attract the right men and women to the profession a more generous recognition and remuneration were needed—and the teachers were not those who insisted; they only applauded.

The annual meeting of the Geographical Association was held at the London Day Training College on January 5-6, with Sir Thomas Holdich, president, in