

and on Thursday, at the same hour, Mr. Julian Huxley will deliver the first of two lectures on the courtship of animals and its biological bearings. The Friday evening discourse on January 16 at 9 o'clock will be delivered by Sir William Bragg on the investigation of the properties of thin films by means of X-rays, and on January 23 by Dr. A. W. Crossley, on science and the cotton industry.

THE third meeting of the Society for Experimental Biology was held at Cambridge on December 19 and 20, the different sessions being held in the Schools of Zoology and Physiology. Members were entertained at lunch in Caius College by Prof. J. Stanley Gardiner, and a dinner was held in Christ's College. The programme included a paper by Prof. J. Barcroft on "Hæmoglobin as an Example of the Evolution of a Chemical Mechanism," a discussion by Dr. H. H. Dale on "The Nature of the Active Substances in the Posterior Lobe of the Pituitary Gland," and a symposium on "The Rôle of Electrolytes in the Organism," in which Messrs. A. J. Clark, J. Gray and J. B. S. Haldane took part. A number of other papers of interest were presented. Fifteen new members were elected.

SIR NAPIER SHAW has published privately a "Kalendar for 1925" arranged in weeks, showing the seasons and the international days for observation of the upper air. This is followed by a detailed list of the daily observations of solar and terrestrial

radiation made in England during 1924. For each day of the year there is shown the sun's declination, the measurement of solar intensity at Kew Observatory between 11h. 30m. and 12h. 30m., the observations at South Kensington and Rothamsted of the maximum intensity of radiation from sun and sky and of the total radiation during the day upon a horizontal surface, and measurements of incoming and outgoing long-wave radiation made at Benson on cloudless evenings. These observations are given in weeks with the unusual but convenient arrangement of giving on each page two weeks which are separated by an interval of six months. The addition and subtraction of observations separated by six months gives the even and odd harmonics of the radiation curve separately. The Kalendar thus contains in readily accessible form much information of great value to meteorologists and others interested in solar and terrestrial radiation.

Two books of ethnological interest are announced for publication by Messrs. Seeley, Service and Co., Ltd., namely, "The Menace of Colour," by Prof. J. W. Gregory, dealing with many of the interracial problems of the day, and pointing out the dangers of the rising tide of colour and how they may be met or avoided, and "Vanishing Tribes of Kenya," by Major Orde Browne, Senior Commissioner of Tanganyika, a record of the habits and customs of the tribes inhabiting the slopes of Mount Kenya.

Our Astronomical Column.

THE ABSORPTION OF LIGHT IN OPEN STAR CLUSTERS.—Dr. P. ten Bruggencate, in the *Zeitschrift für Physik*, October 31, describes an investigation of the colour indices of stars of the open clusters N.G.C. 1647, of Præsepe and of the Hyades, and deduces that these clusters consist almost entirely of dwarf stars, as is to be expected on the assumption that they have developed from globular clusters and are of great age. Colour-brightness diagrams were prepared, in which the catalogued stars were plotted, and, with certain assumptions as to the value of the parallax, graphs corresponding to the stars of the general stellar system, as determined at the Mount Wilson Observatory, and described by Seares, were drawn on the same diagrams. It was found that in neither case did the stars of the cluster agree with the graph. This was also true of the colour-brightness diagram of the Pleiades, which has already been described by the author.

In the case of N.G.C. 1647, an analysis of the diagram leads to the conclusion that the abnormal distribution of the stars in it is due partly to the assumed parallax being too large, and partly to absorption due to extensions of the dark nebulosity in Taurus, which lies between the cluster and the earth. In the case of the two other clusters and of the Pleiades, there is general absorption due to nebulosity inside the clusters. The Pleiades form a younger cluster than the others, which contains a number of A and F stars, and the nebulosity in it is bright and connected with the bright stars, being formed from material recently given off by these stars, which are in an unstable state of development. In Præsepe and the Hyades the clusters are older, and the internal nebulosity has become dark.

No nebulosity is found in globular clusters which are relatively young, the stars not having reached the stage of development mentioned above; the first sign of instability in these clusters is the occurrence of variable stars. These and the super-giants develop to O type stars and planetary nebulae, and it is to be expected that the remains of these nebulae will be found in old star groups or open clusters.

OBSERVATIONS OF ALGOL VARIABLES.—An important paper by Col. E. E. Markwick (*B.A.A. Journal*, vol. 35, No. 2) contains discussions and light curves of six Algol variables from observations by himself and other members of the Variable Star Section. They are a good example of the useful results that can be obtained in this field by careful and long-continued visual estimations of magnitude. The curves for three of the stars show secondary minima: U Ophiuchi, loss of light at secondary minimum 0.2 mag., RW Tauri 0.2 mag., Z Vulpeculae 0.1 mag. They did not succeed in detecting the secondary minimum of Algol, but the curve of principal minimum is shown in great detail. The total number of observations used is 2630: they begin in 1906 for most of the stars, 1899 for Y Cygni. The period found for Algol is 2.867265 days, which is 3.9 sec. shorter than that given by Chandler. The range of the observations used is 5336 days or 14.6 years. The commencement and end of the principal eclipse are more rounded than those on Stebbins's curve. The effect is to make the total duration of eclipse 14.09 hours, which is longer than is generally given, but Col. Markwick defends his curve on theoretical grounds.