

the discovery of interstellar polarization by Hall and Hiltner indicated the existence of a general galactic magnetic field, and one would like to determine the strength and direction of this field. H. C. van de Hulst studied the scattering of light by homogeneous spheres, and from the observed extinction concluded that the interstellar grains are dielectric, and are about  $1\mu$  in size. The grains must be asymmetric in shape to produce interstellar polarization, and the relation between the observed polarization and extinction will depend on the shape of the particles. It would be an improvement if the theory could be based on scattering by long cylinders. R. Wilson (*Mon. Not. Roy. Astron. Soc.*, 120, 51; 1960) has recently published an approximate solution of this case for refractive index near unity. Extinction curves have been computed for different degrees of polarization; it is predicted that the colour excess per unit mass and the ratio of the total to selective extinction will both depend on the polarizability. The predictions are compared with observation, and confirmation is obtained of the existence of a general galactic magnetic field aligning the interstellar grains by a mechanism of paramagnetic relaxation as proposed by L. Davis and H. L. Greenstein. The new expression for the ratio of total to selective absorption may lead to substantial revisions in the distances of some of the more distant stars.

#### Abundance of Marine Plankton

AN unusual and worthwhile statistical study of the abundance of marine plankton has been made by R. M. Cassie in the March issue of the *New Zealand Journal of Science*. He has analysed the results from a transect of sixty stations starting in the open sea and passing through a zone of mixed water into harbour water. Partial and multiple regressions were calculated, relating the abundance of each species to that of five other species, to temperature and to salinity. The regressions accounted for much of the variation, but the residuals were not randomly distributed, so that the interpretation of the results is necessarily inconclusive. It is inevitable that the results of one day's sampling should be suggestive rather than informative, but the technique which Cassie has described is likely to prove most useful in the quantitative study of the relationships of animals and plants to each other and to their physical and chemical environment.

#### Pelagic Polychaetes of the South Atlantic

THE samples collected since 1925 during the Discovery Investigations of the southern oceans continue to provide fruitful material for studies of systematics and zoogeography. In *Discovery Reports* (30, April 1960), Mr. N. Tebble has made a study of the pelagic polychaetes. A systematic account is given of the twenty-nine species recorded in the South Atlantic; this is followed by a description of the distribution of these species in relation to the environment. Only three species were found to be endemic to the Antarctic zone, while sixteen were found only to the north of the Sub-Tropical Convergence. Of the remaining species, four were cosmopolitan in distribution. The results conform to the usual pattern of plankton distribution in the South Atlantic with a few species occurring in large numbers in the Antarctic zone and a great variety of species forming a small standing crop in the sub-tropical and tropical zones.

#### Research Committee on Archæological Field Experiments

EXCAVATORS have long had to deal with the setting up of ditches, soil creep and other similar phenomena. They also have to notice the activities of worms which have frequently considerably altered the original soil structure. Too little has been known about these matters, and at the Glasgow meeting of the British Association in 1958 a discussion on the natural processes leading to the burial of archaeological remains was inaugurated. This led to the formation of a Research Committee which made preliminary investigations. The idea, now, is to start in a chalk down environment and to make there a simple earthwork which can be kept under review for a long period of time. Later similar projects in sandy and clayey situations will be undertaken as funds allow. The first site selected is near the summit of Overton Down near Marlborough, on the Fyfield Down reserve of the Nature Conservancy. After the earthwork is made a careful study at regular intervals will be undertaken so that more exact data relating to the infilling of the ditch and the weathering of different kinds of objects can be obtained. Only those with permits will be allowed on the site and no cars will be permitted anywhere near it. It is hoped in this way to learn something of the mechanics of these well-known phenomena in a chalk down milieu.

#### U.S. Gas Chromatography Research Center

A NEW Gas Chromatography Research Center, the first of its kind, has been established by the Barber-Colman Co., at Houston, Texas. The primary function of the Center will be new instrument development and evaluation of component parts and accessories. This will include the development of laboratory chromatographs, portable chromatographs, process monitors and custom instruments, as well as refinement of argon and flame ionization detectors, sample injection devices and other accessory designs. Further information can be obtained from Ad. Auriema, Inc., 85 Broad Street, New York 4, N.Y.

#### Analytical Chemistry and Applied Spectroscopy at Pittsburgh

THE twelfth Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy will be held at the Penn-Sheraton Hotel in Pittsburgh, Pennsylvania, during February 27-March 3, 1961. About 150 papers will be presented on all phases of analytical chemistry and spectroscopy. A symposium entitled "New Frontiers in Optics and Spectroscopy" will be sponsored jointly by the Pittsburgh Conference and the Optical Society of America. Original papers are invited on all phases of analytical chemistry, spectroscopy, and nucleonics applied to analysis. The final date for receipt of abstracts is October 15. Further information can be obtained from Dr. William F. Harris, Research Laboratories, Westinghouse Electric Corporation, Pittsburgh 35, Pennsylvania.

#### The Night Sky in August

FULL moon occurs on Aug. 7d. 02h. 41m. U.T., and new moon on Aug. 22d. 09h. 16m. The following conjunctions with the Moon take place: Aug. 3d. 18h., Jupiter  $5^{\circ}$  S.; Aug. 5d. 01h., Saturn  $4^{\circ}$  S.; Aug. 15d. 14h., Mars  $4^{\circ}$  N.; Aug. 15d. 17h., Aldebaran  $0.3^{\circ}$  S.; Aug. 31d. 01h., Jupiter  $5^{\circ}$  S. In