

### P. Zeeman (1865-1943)

PIETER ZEEMAN, born at Zonnemaire in Zeeland on May 25, 1865, won world-wide recognition through his work on the effect produced in a spectrum when light rays are passed through a powerful magnetic field. Zeeman was a student at Leiden, and was lecturer there from 1890 until 1900, when he was elected to the chair of physics at Amsterdam; later he became director of the Physical Institute in that city. In 1896 Zeeman discovered a spectral phenomenon which was to bear his name in physics and astronomy. He observed, by means of a large-grating spectroscopy, that if a sodium flame was placed between the poles of a strong electromagnet, the familiar yellow bands of its spectrum became broader. On closer examination he found that the outer edges of the bands were in fact polarized—a result foreseen when Lorentz applied his electronic theory of matter and radiation to spectra. Zeeman's evaluation of the velocity of light in different media also agreed with results gained from Lorentz's formula. The paper that Zeeman gave before the Amsterdam Academy of Science in 1896 initiated a fruitful series of studies, and in 1902 he and Lorentz shared the Nobel Prize for Physics. The Zeeman effect proved to be of considerable value in analysing spectral structure and in determining the electronic structures of atoms and ions (with Zeeman also contributing significantly to the knowledge of isotopes). It also proved invaluable in studying the magnetic properties of stars. H. W. Babcock, for one, discovered almost a hundred stars with strong magnetic fields following careful examination of the Zeeman effect on spectrograms from the Mount Wilson and Palomar telescopes. G. E. Hale, director of American Observatories, made invaluable observations on magnetic fields in sunspots and on the periodicity in polarity. Pairs of sunspots, rather than single ones, as had at first been believed, were revealed and the Zeeman effect showed that invisible spots of opposite polarity were present in a number of cases. Zeeman was honoured by various scientific bodies and was awarded the Rumford Medal of the Royal Society of London in 1922.

### Ice Conditions in Greenland Waters

CLIMATOLOGISTS and others interested in the distribution of sea ice in the North Atlantic region have used as their main source of information over the past half-century the Danish Meteorological Institute's *Isforholdene i de arktiske have*. This annual series is now replaced by another, *Isforholdene i de Gronlandske farvande*, produced by the same office (Pp. 33 with 61 ice charts. Charlottentlund: Danske Meteorologiske Institut, 1964). More detail is shown, but the area is reduced, being confined to Greenland waters. The change is justified by the big increase in data relating to the area for which Denmark is primarily responsible, and the user will certainly be better served for that area. For other parts of the North Atlantic he will have to look elsewhere, but, thanks largely to the British Meteorological Office's monthly charts, he will not be less well served than before. It would be helpful if the change stimulated Norway, for example, and, even more important, the U.S.S.R., to produce a comparable series of reports for Svalbard waters and the Barents Sea.

### Spores from Devonian Deposits

In a well-illustrated paper on "Spores from Devonian Deposits, Mimerdalen, Spitsbergen" (*Norsk. Polarinstitutt Skrifter*, No. 132, 1964), Jorunn Os Vigran deals with the dispersed spores from some of the material originally described by Høeg in his famous paper on the macro-fossils (1942 in the same series), "The Downtonian and Devonian Flora of Spitsbergen". Mrs. Vigran figures clearly the megaspores (new genus) and microspores taken from the sporangium of the fructification which

Høeg regarded as belonging to *Enigmophyton*; the spore size ratio is no more than 4:1, which is in accord with that in other already described Upper Devonian plants. Mrs. Vigran also adds support to Høeg's suggestion that the Mimerdalen material was of early Frasnian age, although fish evidence indicated probable Givetian (Middle Devonian) age. The small number of samples handled means that firm stratigraphical assessment must await further work, some of which is already in the press.

### Social and Economic Consequences of Poliomyelitis

IN 1963 the Office of Health Economics published a paper called *The Price of Poliomyelitis*; it showed that the vaccination campaign has paid. This is now followed by a much longer document by M. Leo, *The Residue of Poliomyelitis*, which is concerned with the social and economic consequences of the disease (Pp. i+123. London: Office of Health Economics, 1965. 25s.). It is based on information obtained from some 1,700 members of the British Polio Fellowship. One purpose of this survey was to guide that excellent organization in planning for a situation in which, as a result of the almost complete disappearance of the disease consequent on vaccination, it is concerned with a slowly diminishing—and ageing—number of disabled persons. It is doubtful whether the sample is accurately representative and questionable whether so many data are necessary; however, for practical purposes the survey is adequate. What emerges is a picture of a community, a number of governmental agencies and a few devoted voluntary bodies making a determined effort to help the physically disabled. The agencies are almost good enough; what is sometimes lacking is the imagination and initiative required to fit the various forms of assistance that have been evolved to the needs of the individual, which vary greatly. There are a few matters that call for attention at a high level, such as the substantial slice of a disabled person's income that is consumed by his disability and his peculiar dependence on such aids as the telephone. Humanity apart, there is a good case for going to considerable trouble to assist the victims of poliomyelitis. Although as a cause of crippling this disease is unsurpassed, it has certain favourable features. The disability is not progressive, there is no impairment of intelligence and no sensory deficit. Most people stricken severely by poliomyelitis have a good expectation of life and are capable of spending it usefully and, up to a point, happily. They are resourceful; most of them are at work and, according to this survey, two-thirds found their own jobs. The chief need is that those concerned with their welfare should be at least as enterprising as their clients. There are, inevitably, regulations; these tend to breed conformity and it is easier to conform than to think. In hospitals which have achieved satisfactory co-ordination of the medical and rehabilitation services neither patients nor their advisers have much fault to find with the agencies available to them.

### The Royal Society of Tasmania: Elections

THE following have been elected officers and members of Council of the Royal Society of Tasmania for the year 1965: *President*, H. E. the Governor, Lieutenant-General Sir Charles Gairdner; *Vice-Presidents*, Prof. G. C. Wade and Mr. E. C. Gifford; *Honorary Secretary and Honorary Librarian*, Dr. W. Bryden; *Honorary Treasurer*, Mr. G. E. A. Hale; *Council*, Mr. R. A. Both, Mr. J. V. Cook, Mr. T. E. Burns, Mr. W. F. Ellis, Mr. G. K. Meldrum, Prof. I. H. Smith, Mr. E. R. Pretymann and Dr. W. W. Wilson.

### Award of the Meldola Medal for 1964

THE Meldola Medal, which is the gift of the Society of Maccabaeans, is normally awarded annually by the Council of the Royal Institute of Chemistry, with the concurrence of the Society of Maccabaeans, on the recom-