

been made by H. G. Moser and E. H. Ahlstrom (*Bulletin of the Los Angeles County Museum of Natural History, Science No. 7, 1; 1970*).

Moser and Ahlstrom have examined material collected during ten years of intensive and systematic surveys of the California Current Region off California and Baja California. They fully describe and illustrate the developmental stages of fourteen species of myctophid belonging to eleven genera, restricted to larvae in which the eyes are narrow (in the other major group the eyes are rounded). In spite of this restriction the work is of considerable value.

The first major contribution to the description of lantern fish larvae and young stages from an adequate series was that of Tåning, who in 1918 described several Mediterranean forms. This early lead was not followed until Pertseva-Ostroumova (*Akad. Nauk. SSSR Inst. Okeanologii Trudy, 73, 79; 1964*) described the larvae of eighteen myctophid genera from the Pacific and Antarctic Oceans. Later she described the larvae of a further nine Antarctic lantern fishes. But Moser and Ahlstrom disagree with some of the identifications given by Pertseva-Ostroumova.

Moser and Ahlstrom's work can therefore be seen as a major advance in the identification of the larvae of this group of lantern fishes. It is now possible in this area to use these larvae as biological indicators of the water masses in which they were found, and Moser and Ahlstrom distinguish several major ecological assemblages off the Californian coast. This work will also improve knowledge of the ocean food web.

GENETICS

Chemicals and Mutations

from a Correspondent

THE Environmental Mutagen Society, founded last year as a result of the concern felt by many scientists about the potential mutagenicity of the ever increasing number of synthetic chemicals in the environment, has just held its first annual meeting. About 250 of the society's 450 members attended.

In his opening address, Dr H. Bentley Glass (State University of New York at Stony Brook) discussed many of the problems involved in the detection of the genetic effects of chemical mutagens in the human population and in the extrapolation to man of data obtained with experimental systems. He stressed the urgent need for more research to enable geneticists to evaluate the effects of such agents directly on man.

The problem of monitoring the human population for an increase in the frequency of genetic damage was also discussed by Dr J. Crow (University of Wisconsin, Madison), who pointed out that even if methods could be developed for the detection of an increase in the genetic load there might be great difficulty in determining the exact cause of the increase. The feeling that harmful genetic effects in man should be prevented by careful screening of man-made chemicals before they are released on to the market was reflected when various test systems were discussed. Several speakers considered the relationship between the mutagenicity and carcinogenicity of nitroso and other compounds.

An investigation of the cytogenetic effects of cyclohexylamine in *in vitro* studies on tissue culture of the

rat-kangaroo and *in vivo* studies with rats was presented by Dr S. Green (FDA), and Dr J. Verrctt (FDA) reviewed the striking teratogenic effects of cyclamates in the chick embryo.

Evidence was given for the mutagenicity of various man-made chemicals that pollute the environment, including ethylene dibromide (Dr F. J. de Serres and Dr H. V. Malling, Oak Ridge National Laboratory), methyl mercury (Dr C. Ramel, University of Stockholm), captan (Dr G. Fiscor, Western Michigan University, Kalamazoo, and Malling and de Serres), and sulphur dioxide (Drs R. Shapiro, R. E. Servis, B. I. Cohen and M. Welcher, New York University).

MINERALS

Mineral Wealth of Wales

from our Structural Geology Correspondent

THE exploitation of minerals and the economic geology of Wales were the theme of a University of Wales colloquium held on May 14 and 15 at Cardiff. It was appropriate that the meeting coincided with the announcement of new legislation affecting planning for mineral exploitation in Britain, and Mr Cyril Leigh (University College, Cardiff) pointed out that the current exploration boom in Southern Ireland could be directly related to analogous legislation in Eire.

In a stimulating contribution, Dr J. W. Baker (University College, Cardiff) defined the fundamental tectonic patterns of the Welsh Region, which he claimed had already been initiated by Late Pre-Cambrian times. He speculated on the relationship between these and deep-seated metallogenic provinces. In the context of the recent discoveries of workable mineral deposits in Eire, delegates discussed the possibility of a symmetrical tectonic pattern between Ireland and Wales, and consequently of mineral deposits yet to be discovered in the Welsh Region.

As an example of mineralization in the Caledonian Province, Dr W. J. Phillips (University College, Aberystwyth) discussed the lead and zinc mineralization in Central Wales. By the application of hydraulic fracturing in rock mechanics he showed that the mineralization process was instantaneous. The hydrothermal solution pressure built up until pre-existing tension fractures were suddenly dilated with the consequent upsurge of mineralizing solutions, producing breccias around which the lead and zinc sulphide phases were deposited.

The description of the various ore mineral associations in South Wales by representatives of the Wolfson Research Group (University College, Cardiff) ranged from the haematitic iron ores of Glamorgan (Dr R. A. Gayer), a branch of the mining industry suffering from severe competition from the massive importing of relatively cheap ore from the Commonwealth, through the lead, copper and zinc assemblages in the Carboniferous Limestones and Mesozoic strata of the Vale of Glamorgan (Dr C. M. L. Bowler and Mr G. A. Kingston) to the gold ores of Dolaucothi in Carmarthenshire. Work being carried out by Mr A. Pinches on microbiological and biochemical searching methods for the gold ores may well lead to an economic process of gold production from low grade ores and from gold which is difficult to extract by standard chemical processes.

Bulk mineral deposits also received their share of