

RESEARCH ITEMS

New Neolithic Site in Ulu Kelantan, Malaya

THE results of the partial excavation of a rock-shelter at Gua Měntěri on the banks of one of the tributaries of the Sungai Nenggiri have been described by H. D. Noone (*J. Fed. Malay States Mus.*, 15, 4; 1939). The shelter is about 50 yards in length, 20 yards in height, and of an average breadth under cover of 9 or 10 yards. Two trial trenches were dug, but barely 10 per cent of the area available for excavation was touched. Nevertheless, finds were exceedingly numerous. Except where removal was imperative, they were so far as possible covered in again pending the systematic excavation which the importance of the site demands. It affords stratigraphic evidence for the neolithic period, which is urgently needed; and in the human skeletal remains from the burials it will throw light on the at present obscure problem of the population which carried the neolithic culture into Malaya. The grave goods included pots in rows, and disposed in one instance in threes, one inside the other in the inverted position. The eight complete specimens now recovered are unique as evidence of the character of the neolithic pottery, previously known only from sherds, except for a few complete pots from open sites found without associations or stratification. The trial excavations of two trenches revealed three cultural layers, of which the uppermost at a depth extending to 2½ ft. below red clay was rich in relics of a fully developed neolithic, among which three polished axes were found, preceded, it would appear, by an earlier developmental period. This, in turn, was preceded by a cultural layer of an intermediate character marked by the occurrence of numbers of worked flakes of a black stone, which when struck behaves like flint. The earliest cultural level contained palæolithic implements (Hoabinian). In this three intrusive (neolithic) burials with grave furniture were found, the lowest at a depth of five feet below the red clay. Apart from that associated with the burials this lowest level contains no pottery.

A New Drug for Pneumonia Treatment

THE search for new drugs for combating certain infections continues. A few years ago sulphanilamide was introduced and proved of considerable service in the treatment of sepsis due to the streptococcus, and a couple of years ago sulphapyridine (M. and B. 693) was discovered to be of great value for the treatment of pneumonia, cerebro-spinal fever, and other infections caused by the coccoid group of microbes. It is now announced by Science Service of Washington, D.C. that another drug, sulphathiazole, has been developed in the Squibb Institute for Medical Research, New Brunswick, for the treatment of pneumonia. It is stated that it is even more efficacious against this disease than sulphapyridine, that it is safer and has less toxic effect than the latter.

Control of Puerperal Sepsis

AN important memorandum on this subject has been issued by the Ministry of Health (Memo. 226/Med. H.M. Stationery Office. 2d. net). Its object is "to explain the nature of puerperal sepsis, how it is spread, and how to identify and group the

streptococci responsible". Actually, little is said about puerperal infection in general, the pamphlet being restricted to infections due to the class of microbes known as hæmolytic streptococci, which, however, do not account for more than half the cases of puerperal infection. Details are given of the sources of streptococcal infection, and of the methods of detecting it in patient, midwife or nurse, and of the procedure to be adopted when a source of infection is detected. Finally, a description is given of the laboratory methods required for the isolation and identification of the hæmolytic streptococcus.

Insects of Greenland

STUDENTS of animal distribution will welcome the recent contribution by Kai J. Henriksen entitled "A Revised Index of the Insects of Greenland". Published in *Meddelelser on Grønland* (119, No. 10, 111; 1939), it is obtainable from Messrs. C. A. Reitzels of Copenhagen, price Kr. 5.00. It appears that more than twenty years have elapsed since the last list of Greenland insects was published. During that period both English and Danish collecting expeditions have added materially to what is known of the Greenland insect fauna. The Collembola, for example, have been well studied and now number forty-one species. Only a single species of may-fly and no dragonflies have so far been recorded. Among the fifty-four species of Lepidoptera only four are butterflies. Of particular note is the Noctuid moth *Rhyacia occulta* L., the larvæ of which are often pests of the grassland. In two peat bogs at the head of the Ameralik Fjord an entire layer of pupæ of this insect is recorded, and it bears witness to an outbreak of *R. occulta* in bygone times. Coleoptera are poorly represented and number only forty-four species while some of them, notably Cerambycidae, are introduced forms. Among the Hymenoptera the Parasitica are relatively very numerous, but little idea can be framed as to their hosts. Records of sixty-five species of the Ichneumonidae alone are given, whereas the only Aculeata recorded are two species of bumble bees. Of the Diptera some two hundred and seventy-five species are listed, Nematocera being the best represented. Mr. Henriksen's memoir concludes with a bibliography of about eighty references, the majority being to writings in the English language.

Hormones and the Garden

THE discovery of growth-promoting compounds in plants brought new opportunities of horticultural propagation. Marked stimulation in the rooting of cuttings of many species can be brought about, but a curious crop of failures has still to be explained. M. A. H. Tincker, with the assistance of C. H. Urwin, has studied the action of a number of such substances upon a wide range of plants which can be propagated by cuttings. Their most recent results (*J. Roy. Hort. Soc.*, 64, Pt. 12; December 1939) indicate that sixty-one species of those which were tried propagate more readily with treatment, whilst twenty-nine species still defy the propagator. The growth-promoting substances can be mixed with talc and applied satisfactorily in powder form—a great convenience.

Vitamin B₁ (aneurin) alone did not appear to stimulate rooting, but it did increase the percentage of rooted cuttings in a third of the total experiments. The most valuable substances for propagation were found to be (1) indolylbutyric acid, (2) tetrahydro-naphthylideneacetic acid, and (3) a mixture of (2) with 3:4-dihydro-1-naphthylacetic acid. Some species responded to (1), and others to (2), with equal effect, and the behaviour of (3) approximated closely to (2). The paper gives numerous results of the individual calibre which is urgently needed in this new practice of scientific horticulture.

Sex-chromosomes in Cimex

C. D. DARLINGTON (*J. Gen.*, 39, 101-136; 1939) has examined the behaviour of the sex-chromosomes during meiosis in Cimex. In the male there are 13 pairs of autosomes, a Y-chromosome, together with a variable number of X-chromosomes ranging from 2 to 12 according to the species and the culture. At first metaphase, the X-chromosomes do not pair but divide as univalents. At the second division, the autosomes form a peripheral ring and the sex-chromosomes congregate in the middle of the equatorial plate. At second anaphase, the Y-chromosome passes to one pole and usually all the X's pass to the other. This is believed to be brought about by repulsion resulting from a close approximation in the centre of the equatorial plate. Evidence suggested that the centromeres of the autosomes have polarized centromeres at second metaphase, while the X-chromosomes have not. The evolution of the sex-chromosome mechanism in Heteroptera is analysed, and it is shown how the peculiar behaviour of the X-chromosomes results from differential precocity.

Effect of X-rays on *Drosophila subobscura*

A. L. M. CHRISTIE (*J. Gen.*, 39, 47-60; 1939) has compared the effects of X-ray radiation on *D. subobscura* with those on *D. melanogaster*. The frequency of lethal mutations induced by X-rays is about equal in the two species, but many more visible mutants occur in *D. subobscura* at a given X-ray dose. It is noteworthy that *D. subobscura* lies between *D. melanogaster* and *D. funebris* in regard to the type of mutation produced. Twenty-eight mutants are described, and a rough map of the X-chromosome, approximately 120 units long, is given.

Mycological Taxonomy

THE *Transactions of the British Mycological Society* of October 1939 (23, Pt. 3) contains two papers which offer detailed contributions to the exact recognition of fungal species. J. A. Nannfeldt, of the Institutionen för Systematisk Botanik, Uppsala, describes a second batch of fifty type specimens of British inoperculate Discomycetes. This is part of a critical evaluation of species in this group, and deals with an alphabetical arrangement from Cenangium to Velutaria. The correct name of each species in the light of modern knowledge is indicated, and an adequate list of synonyms appears for each. Miss E. M. Wakefield writes the second contribution, on "Nomina generica conservanda". She sets forth the deliberations of the Society's Nomenclature Committee with regard to such generic names as now appear to have little use, after recent findings have excised well-defined groups. Peziza, for example, a generic name established by Fries in 1822 to include a large group, cannot now be used to express more

than a few species. The Committee has made definite recommendations for the retention of thirteen names in the lists published as a supplement to the International Rules, 1935. A new species of fungus, *Phleospora Dodonææ*, is also described by R. M. Natrass in the same volume. It was found as a parasite upon a hedge of *Dodonæa viscosa* in Cyprus.

Life-Histories of Coprophilous Fungi

DETAILS of the life-histories of coprophilous Pyrenomycetes have been somewhat lacking in the past. Literature dealing with the Sordariaceæ and Chaetomiaceæ, which are principally concerned, consists largely of descriptions of perithecia, asci and spores, or systems of classification. W. M. Page has grown, upon artificial media, sixteen species belonging to the genera Sordaria, Podospora, Philocopra, Sporormia and Chaetomium, in order to obtain more definite information as to their life-histories (*Trans. Brit. Mycol. Soc.*, 23, Pt. 3, October 1939). The perithecium originates from a coiled hypha in all but two of the sixteen species. The exceptions, two species of Sporormia, are notable in that the perithecium initial divides in three dimensions, probably an indication of evolutionary superiority. Microconidia were observed in *Podospora anserina* and *P. minuta*; many other details of spores and spore discharge appear in the paper.

Research in Agricultural Meteorology in India

IN addition to the brief summary of the more recent activities of the Agricultural Meteorology Section of the India Meteorological Department that is included in the Department's general report for 1938-39, a more detailed account has recently appeared of the Section's work in 1937-38 in its annual report for the latter period. This report includes a description of an improved portable sensitive galvanometer with thermocouple junctions for measuring plant temperatures, made by the Laboratory Apparatus Works, Poona. One of the thermocouples is kept immersed in water of known temperature inside a thermos flask, and the other is inserted into the stem of the plant. When used in the field the instrument is carried on a metal tripod and is levelled with the aid of a spirit-level. A number of soil evaporimeters were in use in which a 5-in. diameter cylinder of soil is kept with its bottom end in contact with the water in a reservoir at a depth of 6 in., or 1 ft., etc., down to 3 ft., in order to study the evaporation from soil surfaces with subsoil water at these depths. Other instruments included an alarum which could be set to sound when air temperature had fallen below a certain level, so that a farmer who installs the device can take precautionary measures against frost damage on hearing the alarum. It has been found that there is an increasing demand for these, vine and sugar growers being among those who have found it useful. Investigations into the disposal of solar radiation and rainfall at the surface of the ground were continued at the Central Agricultural Meteorological Observatory, and also the exchange of water vapour between soils, plant materials, seeds, etc., on one hand and the atmosphere on the other. It was found that all the last-named surfaces yielded moisture to the atmosphere during the hottest hours of the day and received back moisture at night. On the statistical side, sampling studies on the growth and yield of various crops at Poona and other places were continued.