

Research Items

Nayadis of Malabar

MR. A. AIYAPPAN, in introducing his study of the social and physical anthropology of the Nayadis, a beggar caste of Malabar (*Bull. Madras Govt. Museum, N.S. Gen. Sec.*, 2, 4; 1937), points out that the centrifugal aspect of caste has diverted attention from the function of caste in the caste *milieu*. The Nayadis are the lowest known caste in India, polluting even the Pariah by their approach. When begging for alms in the stentorian voice, which is their most noticeable characteristic, they must stand yards away from the road. Their poverty and degradation constitute them a serious problem, which for long has engaged the attention of missionaries, administrators and social reformers. The origin of the Nayadis is obscure. A persistent tradition derives them from the Namputiri Brahmins, the highest grade in the Malabar social hierarchy, from which their forbears are said to have been ejected as 'unclean'. Sanctity is added to the repute of the caste by this tradition of origin. As beggars the Nayadis do not need to excite the compassion of the charitable as do those who have fallen on evil days. Their alms arise from the religious faith of the donors. They receive gifts on regular occasions—regular days of the week, and special occasions, such as the twelfth day of the waxing and the waning moon, and death-gifts. It is as much a sin to omit to give to them as to the Brahmins. Physically, the Nayadis stand midway between the hill jungle tribes and the castes of the plains; and in some there are distinctly Veddoid characteristics. The head is dolichocephalic and high. The estimated capacity shows that they belong to the microcephalic group. Their stature equals that of the lower castes, but is distinctly below that of the Namputiri Brahmins and Nayars. They are more platyrrhine than the lower castes, but less so than the Paniyans of the Wynad Hills.

The Zoology of Iceland

UNDER this title a work in five volumes is in preparation. A few parts are now published (Copenhagen and Reykjavik: Levin and Munksgaard, 1937) and include two by K. Stephensen: Marine Isopoda and Tanaidacea (vol. 3, Pt. 27) and Pycnogonida (vol. 3, Pt. 58). The Isopoda and Tanaidacea in the waters around Iceland (including the Faroes and Greenland) have been dealt with already by H. J. Hansen (Danish Ingolf Expedition 1913, 1916). Saemundsson (1937) has recorded the Icelandic Isopods from the Reykjavik Museum, and Stephensen himself (1929) has given a list of the species from Iceland in depths from 200 (300) metres. In the present work, the Isopods from 0–300 metres (the limits of the shelf) number 42 species and the Tanaidacea 9. *Aega tridens* alone is noted from Iceland for the first time. As the author points out, the comparatively small number of species is no doubt partly, but not exclusively, due to the somewhat isolated site of the island and is thus more apparent than real. The difference between Norway and Iceland is most marked in the very small forms, which have been thoroughly investigated in Norway, whilst the large

easily noticed species occur nearly equally in both regions. Most of the Isopods and Tanaidacea found around Iceland are widely distributed in the northern part of the Atlantic with adjacent arctic waters. The main interest is connected with the fairly numerous species which are East Atlantic lusitanic-boreal, distributed in the north-eastern part of the Atlantic from the Mediterranean or south-west Europe northwards to Norway, the Faroes and Iceland, but found in Iceland only along the southern and western coasts. The Pycnogonida have not been hitherto so thoroughly investigated. Nineteen species are recorded, down to a depth of 300 metres, four of these for the first time. They are mainly widely distributed in the littoral and sub-littoral zones in the northernmost part of the Atlantic with adjacent arctic waters, with a few representing more special areas of distribution.

Mineral Deficiency affecting Farm Animals

THE extent and influence of mineral deficiency on the growth and reproduction of farm animals have been investigated in Canadian agricultural research centres, as well as elsewhere, and are of special interest as part of the general study of the function of minerals in the thrift of domestic stock. As an aid to the investigation, the National Research Council of Canada has published a bibliography, compiled by Muriel E. Whalley, of papers dealing with mineral deficiencies as affecting the growth and reproduction of farm animals (Ottawa, 1937). The list contains 987 numbered entries arranged in alphabetical order according to authors, and covers the literature to the end of 1936. Cross references to the principal subjects mentioned in the titles have been included to assist the reader in gaining some idea of the scope and nature of the reference listed. Under each subject there is a numerical list of relevant references. The bibliography occupies 89 pages of duplicated typescript matter. The Council announces that a single copy of the bibliography will be sent free to anyone engaged in, or with special interest in, this field of research, on application to the Division of Research Information, National Research Council, Ottawa, Canada.

Larval Crustacea from the Red Sea

IN his series of papers on Decapod larvæ, Dr. R. Gurney has contributed largely to our knowledge. A recent work ("Notes on some Decapod and Stomatopod Crustacea from the Red Sea" (3–5), *Proc. Zool. Soc. London*, Series B, 1937) deals in addition with certain Stomatopod larvæ. The natural position of the Stomatopoda is always a controversial point and the author's remarks on the larvæ are suggestive, showing that in many ways they are nearer to the Euphausiacea than to the Decapoda proper. He is of the opinion, and rightly so, that the difference between the *Lysiosquilla* type (Antizoea) and the *Squilla* type (Pseudozoea) is fundamentally important, showing as it does a different kind of locomotion, on one hand by the thoracic appendages and on the other by the abdominal. He was fortunate in obtaining eggs of *Gonodactylus glabrous*

and the first and second larvæ from them as well as several stages from the plankton, making an almost complete series. *Lysiosquilla* larvæ (almost certainly the first stage), also described, are interesting in being intermediate between the Antizoea and Pseudozoea type, having the head and thorax of an Antizoea but with well-developed pleopods. *Callianassa* larvæ are discussed. Here there is always much that is difficult owing to the lack of definite identification. Two types exist, one (of which *C. subterranea* is an example) being found in a number of widely separated species, the other, less known, being closely related to that of *Axius*. The larvæ of a species of *Chlorotocella*, regarded as a Pandalid by Balss, is unusual in having the legs exceptionally backward in development and in having no exopods on the last four pairs of legs.

Elm Disease in Great Britain

A BRIEF memorandum on the elm disease was issued by the Forestry Commission in 1934. This Leaflet No. 19 is now reprinted (1938). The elm disease was first discovered in Holland in 1919 and is therefore referred to as the Dutch elm disease (*Ophiostoma ulmi*). It has been noted in Great Britain since 1927 and is fairly widespread over England, but does not extend to the north of Alnwick and is not reported from Scotland. The disease is now common throughout western and northern Europe; also in the United States. Many trees have been killed by it in Belgium, France, Germany, Holland and Italy. The first sign of the disease is a discoloration and withering of the leaves in the crown or at the ends of the branches. This is usually followed by defoliation, dead shoots being characterized by a drooping of the twigs, particularly noticeable in the months of summer. The trouble about this disease and the chief remedy (felling the tree affected) is that the severity of attack and the rate of progress of the disease are very variable. Trees may be killed in a single year, or the dieback may be more gradual, and if left standing they may entirely recover. Trees of all ages may be attacked, but small plants in nurseries and elm hedges are less frequently attacked than older trees. It is said that elms which have been pollarded, or severely lopped, are especially liable to infection. It is also held that the disease is spread by the elm bark beetles, *Scolytus destructor* and *S. multistriatus*; but observers are not at present unanimous upon this point. As regards the present position in Great Britain, between 1927 and 1931 the disease increased steadily. In 1932 there was a definite check, since when the disease has made steady progress, especially rapid in Worcestershire, but even in the worst regions it is said that the proportion actually killed is small. Attacked trees, therefore, should not be felled unless they become unsightly or die.

Fungi of Cyprus

GREATER knowledge of the problems of fungus ecology is one of the surest foundations for economic plant pathology of the future. One of the first requisites is an exact taxonomy of the fungi which occur in regions of characteristic climate. Dr. R. M. Nattrass has ministered to this need by publishing "A First List of Cyprus Fungi" (pp. xvi + 87. Nicosia, Government of Cyprus, price 2s. net, 1937). Details of climate and characteristic husbandry are given, and most of the fungi recorded seem

to be typical of the Mediterranean region. There appears to be, however, a distinct mycological link with India. Six new species are proposed. Several cosmopolitan parasitic fungi which are usually found in widely varying habitats are absent from Cyprus. *Nectria cinnabarina*, the coral-spot fungus, *Stereum purpureum*, the cause of silver-leaf in plums, *Ophiobolus graminis*, or 'take-all' of wheat, and the wart disease of potatoes, *Synchytrium endobioticum*, are examples. Fifteen plates delineate the characters of the new species and other uncommon fungi.

Assyrian Chemistry of the Seventh Century

DR. R. CAMPBELL THOMPSON delivered a lecture on March 16 to the Society for the Study of Alchemy and Early Chemistry on "Assyrian Chemistry of the Seventh Century B.C." The lecture showed that cuneiform records going back to the seventeenth century B.C. contain recipes for carrying out chemical processes, but the greater part of the abundant literary material is from the seventh century and is in the British Museum. The translation of these tablets by Dr. Thompson has made it possible to reconstruct with considerable probability the range of materials used by the ancient Assyrian chemists, and it is interesting to find that enamels and glasses coloured by metallic oxides and possibly gold were made by processes depending on the use of definite weights of materials. Elaborate lists of stones were drawn up and it seems as if these include scales of hardness similar to the modern Mohs' scale. Various salts were in use, and it is even possible that fuming sulphuric acid was obtained by distilling green vitriol. An account of the lecture will be published in *Ambix*, the journal of the Society.

The Photographic Image

R. W. Gurney and N. F. Mott (*Proc. Roy. Soc., A*, 164, 151; 1938) have applied the quantum theory of solid photo-conductivity to the production of the photographic image. If an electron is introduced into the silver halide lattice it is able to jump from ion to ion through the crystal, its energy lying in a band of 'conduction levels'. Such electrons are liberated from the halogen ions by the action of light, and whenever they come in contact with a speck of metallic silver they are captured. The negatively charged silver specks then attract silver ions which have left their normal lattice positions as a result of heat motions. This explains the direct darkening of silver halides by light (print out effect). It is clear that the efficiency of the process will be reduced at low temperature, and this is in agreement with experiment. The formation of the developable 'latent' image is due to the production of a sub-microscopic silver speck on the surface of a halide grain. The well-known sensitizing effect of traces of sulphur may be due to the sulphide specks localizing the formation of silver specks at points on the surface of the grain where the developer can get at them. It is shown that the silver specks will not be able to grow unless a certain concentration of electrons is provided by the photo-electric action, and on this basis the relations between time of exposure, intensity of light and blackening may be explained. There is a short discussion of the reversal of the image by red light and of the sensitization of emulsions by dyes.