

RESEARCH ITEMS

Amerindian Crania

THE fourth catalogue of crania of North America in the United States National Museum collections by Aleš Hrdlička (*Proc. U.S. National Museum*, 87; 1940) covers crania of Indians of the Gulf States. It includes 1,259 adult specimens, of whom 621 were identified as male and 638 as female, from Georgia, Florida, Tennessee, Texas, Louisiana and other adjoining States. Of these, 237 were deformed so that the measurements of the vault were affected, while the numbers of the specimens from each locality are uneven and sometimes inadequate. Their showing is of interest. The largest part of the peninsula is occupied by moderate to pronounced brachycephals. A narrower strain, characterizing the Seminole, originally formed a part of the Creek and Muskogean complex whose territories ranged from north-west Florida westward and northward. The Seminole type, both in the cranial index and in other respects, connects apparently with that of the south-eastern Algonkians. The prevalent broader headed and high-vaulted Floridian type connects in turn with that of Georgia and reaches, irregularly, so far westward at least as Mississippi. It deserves to be known henceforth as the Gulf type of the American Indian. Texas, in both its broad and its narrow cranial types, stands apart from the rest of the Gulf States—its skulls are but of moderate height. The size of the head in the Gulf States, with the exception of Texas, compares well with that of tribes of similar stature elsewhere on the North American continent. As regards height of skull the Gulf States stand out as a unit. With some of the Pueblos the measurement of this character is the highest in crania of similar breadth and cranial index on the North American continent, nor is there such a broad high-headed large human group elsewhere. This may be a regional development.

Disappearance of Serbian Gypsies

VARIOUS causes are stated by Dr. Alexander Petrovič (*J. Gypsy Lore Soc.*, Ser. 3, 19, 3; 1940) to be responsible for the inevitable disappearance of Serbian gypsies. The nomad gypsy is free, and neither knows nor cares for birth-place, nor where he shall be buried. The world exists to provide him with food. But when a gypsy becomes sedentary there is a fundamental change in his point of view. He never steals in his own village. He knows where he was born and approximately his burial place. His interests are directed towards the village. Although gypsies still have numerous children, they are fast disappearing because they are gradually blending with the gentiles. First, on settling, a trade is sought, usually that of blacksmith, musician or farmer; but the assimilation is most rapid when they begin to do the same work as the villagers, such as agriculture or work in the factories. Then they forget Romani. Most gypsies are of the opinion that a man who does not speak Romani is not a gypsy. A final step is the assimilation of blood, brought about by the marriage of gypsy and gentile. In one village of eighty gypsy families, five, including the richest man, are married to Serbian girls of the peasant class.

Bark Canoe, Dugouts, and Plank-built Boats

JAMES HORNEILL, while still convinced of the tenability of his conclusion that both types of the plank-built boat now in use in Europe, the clinker and carvel build, are derivative from the dugout, on further consideration regards the dugout as an intermediate stage only in the evolution of the plank-built boat from the bark canoe (*Man*, August 1940). That the bark canoe represents the earliest form of construction for purposes of navigation is inferred from the circumstances, tools and materials available in the primitive life of a nomadic hunter, and also from the constructional methods of the Australian. Examples of primitive methods of construction of bark canoes are cited from many parts of the world; but among the Australian aborigines all stages of construction leading up to the dugout may be observed. Of these the earliest or most primitive is the trough-shaped bark canoe in which the open ends may be closed with clay, or each end may be bunched together and tied in position with bast fibre or creeper stems. On these follow sharp-ended bark canoes either without internal stiffening, or stiffened by crossed ribs and gunwale poles, upon which follows the development of 'frames' of oblique rib-sticks and then curved transverse frames of pliant rods. Typically sharp-ended dugout canoes show these transverse frames in ridges across the bottom and up the sides, which are left when hewing out the hull. In a further development these ridges disappear. Of plank-built canoes a primitive form is that of three planks without frames sewn together edge to edge, the prototype of the carvel build, or alternatively overlapped, the prototype of the clinker build. In the latter, inverted frames are tied to cleats on the inner side of the planks; in the former, frames are sewn directly to the hull.

Fungus Parasites of Nematodes

CHARLES DRECHSLER, U.S. Bureau of Plant Industry, describes three species of such fungi found in old agar cultures started from diseased rootlets or other decaying vegetable material (*J. Washington Acad. Sci.*, 30, No. 6, June 15, 1940). The agar consistency being firm in these cultures, Drechsler points out that the cultures provided conditions approximating to terrestrial rather than aquatic conditions and the fungi described might therefore attack free-living nematodes under natural conditions in the soil. *Haptoglossa heterospora* (gen. et. sp. nov.) was frequently observed destroying enormous numbers of nematodes; it is characterized by the discharge of non-motile infective structures from non-motile sporangiospores and belongs to one of the zoospore-producing groups of the Phycomyces. *Meristacrum asterospermum* (gen. et. sp. nov.) is a conidial fungus related to the Entomophthoraceae and occurred in leaf mould from Wisconsin; it was observed destroying nematodes in agar plate cultures from this leaf mould. It is distinguished by its production of plural conidia, mainly laterally, on a multiseptate conidiophore. The last fungus described possibly did not attack healthy eelworms but only hosts already disabled by a protozoan endoparasite. It

is a species of *Cephalosporium* and is not assigned a name as it is thought that the cephalosporium stage described may only constitute an accessory reproductive phase in the development of the fungus concerned.

Magnesium Deficiency in Fruit Trees

T. WALLACE (*J. Pom. & Hort. Sci.*, 18, 145; 1940) reports investigations on the magnesium status of leaves from various fruit plants growing in orchards on different soils. Symptoms of magnesium deficiency in apples, black currants, gooseberries, and plums were accompanied by low magnesia in the leaves. The importance of the base status is stressed. Data for healthy apple leaves show CaO between 1.5 and 2.4, MgO 0.42-0.49 and K₂O 1.1-1.9 as percentages of the dry weight. Minimum values for MgO and K₂O consistent with health are given as 0.4 and 1.0 per cent respectively. Symptoms of magnesium deficiency did not appear in conditions of potash deficiency. Leaves showing no symptoms at a given potash level showed definite symptoms when the potash content was raised, though no significant change in magnesium content occurred. Magnesium requirements were increased when liberal dressings of potash were given. Magnesium deficiency may occur in conditions of high or low lime. In the former case, dressings of kieserite or Epsom salts are advised, and in the latter magnesian limestone. In the same journal (p. 119), E. B. Kidston, *et al.*, describe symptoms of magnesium deficiency in apple leaves in the Nelson district of New Zealand. Appearance of the symptoms, brown blotching between the veins, and premature defoliation, were prevented by injections of magnesium sulphate. The deficiency symptoms were most severe where liberal use of potassic fertilizers had been made. High potash in the leaves was correlated with low magnesia. On leached acid soils, magnesium deficiency is presumed to be due to an unfavourable ratio of available potash to available magnesium.

Reproduction in *Rubus*

M. B. Crane (*J. Genet.*, 40, 109-118; 1940) and P. T. Thomas (*J. Genet.*, 40, 119-128; 1940) show that *Rubus nitidioides*, *R. vitifolius*, *R. thysiger*, *R. calvatus* and others may produce offspring by asexual means. Sometimes these asexual progeny showed segregation of characters. Some species may produce both sexual and asexual progeny. Thomas finds that the embryo-sacs degenerate in *R. nitidioides* and that apospory is probably general in this species. *R. vitifolius*, however, shows a more normal development although there are sometimes abnormalities in the differentiation of the embryo-sac nuclei. *R. nitidioides* regularly reproduces by apospory, while *R. vitifolius* pollinated with diploid *R. idaeus* reproduces sexually, and pollinated with tetraploid *R. idaeus* it may produce progeny by apomixis. Further, segregation may occur in this apomictic series. Thomas directs attention to the fact that the transition from completely sexual to completely apomictic reproduction is correlated with the transition from allopolyploidy to autopolyploidy and the related sterility phenomena.

New Plant Diseases

W. C. MOORE, of the Ministry of Agriculture's Plant Pathological Laboratory, Harpenden, keeps a watch over some of the minor maladies of plants as

well as upon the major diseases. Three new examples of lesser-known pathology are described in a recent short paper (*Trans. Brit. Mycol. Soc.*, 24, Pt. 1, 59-63, June 1940). *Lobelia syphilitica* var. *nana* is attacked by a fungus of the genus *Septoria*, probably *S. Lobeliae* Peck. This causes irregular pallid blotches upon the leaves, which are ultimately killed; the disease has appeared in America and Germany, and has only appeared yet as an isolated instance in Great Britain. Another species of *Septoria* also attacks *Campamula Raineri*, which unfortunate host is further parasitized simultaneously by *Ascochyta bohémica* Kab. and Bub. The third disease is a root and bulb rot of tulips caused by *Pythium ultimum* Trow., the pathogenicity of which has been proved by isolation and re-inoculation. This is, perhaps, scarcely one of the minor plant diseases, for it is probably more widespread than is commonly known. The present account discusses some of the environmental factors which affect the severity of attack. Plant pathologists should find this paper, and the earlier ones of the series in the same journal very useful in the identification of infrequent maladies.

Extreme Specialization of a Rust Fungus

THE very close specialization exhibited by many rust fungi is well known to mycologists, but *Uromyces Scirpi* appears to provide an extreme form of host preference. It is heteroecious, having uredo- and teleuto-spores on *Scirpus maritimus*, with spermatogonia and aecidia on *Glaux maritima* or on *Ēnanthe crocata* and other umbellifers. Grove and Chesters described the occurrence of the aecidial stage on *G. maritima* at Gorleston in Norfolk, though not on susceptible umbellifers in the neighbourhood, and also the appearance of aecidia on *Ēnanthe crocata*, but not on surrounding *G. maritima* at Saltash in Cornwall. There seems to be a specialized host relation in the aecidial stage, and this conclusion is now reinforced in a detailed paper by Margaret Fort (*Trans. Brit. Mycol. Soc.*, 24, Pt. 1, 98-108, June 1940). Infection experiments and cytological investigations were carried out with material from Fife where *S. maritimus* and *Ēnanthe crocata* were natural hosts, and no aecidia were seen on the neighbouring *Glaux*. *Ēnanthe* was repeatedly infected and re-inoculations to *S. maritimus* proved the life-cycle, but no inoculation of *G. maritima* was successful. Mycelium on *S. maritimus* was binucleate; that on *Ēnanthe crocata* uninucleate until after the production of spermatia, when binucleate cells appeared regularly in the base of the developing aecidium.

Earthquake Work at Toledo, Spain

DURING the first quarter of 1940, fifty earthquakes were registered on the Weichert seismographs at the Geophysical Observatory at Toledo (director, Enrique Barrios). Six of these were sufficiently well registered to have their epicentres determined. The first on January 6 was near New Caledonia (22° S., 170° E.). The second on January 17 was near the Mariana Islands (17° N., 148° E.). The third on February 7 was near the Aleutian Islands (52° N., 174.5° E.). The fourth on February 12 was near the coast of Chile (26° S., 71° W.). The fifth was on February 20 near Santa Cruz Islands (12° S., 167° E.) and the sixth on March 27 was near the Aleutian Islands (51° N., 180°). Some of the other registrations were confused by microseisms of which the report gives some information.