

Research Items.

GYPSY SLAVERY.—Dr. M. Gaster, in the *Journal of the Gypsy Love Society* (Third Series, vol. ii., Part 2) publishes a remarkable series of facts drawn from a case decided in Moldavia in 1851, which shows that at that time the sale of Gypsies must have been comparatively common, as there seems to have been a fixed, or at any rate normal, price at which slaves were sold. The persons offered for sale fall into four groups, including various trades, some hereditary and others in which the son practises a craft different from that of the father. Sales of this kind go back at least to the beginning of fifteenth century.

THE SECRETARY HOUSE IN MARYLAND.—Mr. L. V. Lochwood contributes to the *Brooklyn Museum Quarterly* (July 1923) an account of this historic house. The site was granted to Henry Sewall of London, who arrived with his family in Maryland in 1661 and the house was named after him, Secretary of the Province, a large landowner, and a man of high importance. It was occupied by him and his family until his death in 1665 and the remarriage of his widow to Charles Calvert, 3rd Baron Baltimore, third Land Proprietor of Maryland. The house is of brick laid in Flemish bond, and is a typical seventeenth century Virginia or Maryland house of the wealthy class. All the furniture shown in the house at present dates before 1725. Mr. Lochwood's article fully describes this interesting building and its contents, and is illustrated by a series of good photographs.

ANTIQUARIAN WORK IN EGYPT.—In *Ancient Egypt* (Part 2, 1923) Sir W. Flinders Petrie describes an important tomb on the shore-cliff at Byblos, twenty miles north of Beirut. A fine obsidian vase bears the name of Amenemhat III. and the tomb may be safely assigned to the period of the XIIth dynasty. The Syrian objects are of even greater importance, as the tomb furnishes a firm starting point for the dating of Syrian types, and for the relations of Egypt with Syria. This paper is followed by a report by M. Noel Giron of the French Embassy on a tomb found at Sheykh Fadl in the eastern deserts, dating from the Old Kingdom and containing Aramaic inscriptions. These point to a Jewish settlement so far up in Egypt as early as the reign of Manasseh, and the mention of Tirhaka shows that the family went back to eighty years before the fall of Jerusalem. Their natural familiarity with Greek words, objects and thoughts through the Greek camp of Tahpenes throws strong light on the criticism of the prophetic books.

THE CHINESE JUNK AND SAMPAN.—At the ninth Indian Science Congress, the proceedings of which are reported in the *Journal of the Asiatic Society of Bengal*, New Series, vol. xviii., 1922, No. 6, Mr. J. Hornell, comparing the Chinese junk and sampan, concludes that the sampan is ultimately derived from a modification of the double canoe in use until comparatively recently for sea work throughout Polynesia, and in a simple form still employed on inland waters in India, and that the junk is in turn a development of the sampan type. The truncate transom bow and stern of the sampan probably represent cross planking fitted between the bows and sterns of the two canoes forming one double canoe, while the two projections that curve upwards from the stern of the sampan appear to be the homologues of the up-curved sterns of the two hulls in the double-canoe form. In the same way, the median rudder of the sampan and the junk and the anchor platform that gives a square-

bow appearance to the junks are what would be expected if these crafts developed from two canoe hulls joined together by a planked deck platform. The facts point to the range of the sea-going double canoe having extended in former days to India and China, the inventors and users being the ancestors of the present Polynesian race, who probably occupied the maritime districts of China at the time the Chinese left their original homeland in north-east Central Asia.

CATTLE AND EXCITEMENT FROM BLOOD.—In the *Psychological Review* (Vol. 30, No. 5) Prof. G. M. Stratton gives a very interesting account of his attempt to verify a popular belief. It is widely held that cattle react powerfully and perhaps instinctively to blood, and to get definite expression of this view from persons accustomed to observing cattle, he obtained testimony from a large number of cattlemen. They all replied to the effect that nothing else is so irritating or exciting to cattle as the smell of blood. As to the kind of emotion aroused, there was less unanimity, some ascribing it to anger, others to fear, aversion, or curiosity. The reports, however, were quite clear that blood did have a marked emotional effect. To determine the truth of these views, experiments were carefully conducted on cattle in the Berkeley Hills. Both cow's and horse's blood were used under careful experimental conditions. The experiments proved, however, more exciting to the experimenters than to the cattle. In general, the observations showed that while individual cattle displayed mild interest, there was little of that excitement spoken of by the cattlemen, no herd-seizure of alarm or rage. The author concludes, not that the cattlemen had no grounds for their belief, but that they were wrong in ascribing the excitement to blood alone; when excitement occurred it was probably due to the presence of blood in union with other factors—*e.g.* with cries of pain, or with the sight of wounded cattle. He believes that the reaction of cattle to blood, and probably of human beings too, is less of a native physiological reflex than is commonly thought, being largely influenced by special experience.

AN ARTIFICIAL PLANT CELL.—Dr. D. T. Macdougall has found an interesting method of attack upon the problem of the permeability of the plant cell and the factors that cause it to vary (*Proc. Amer. Phil. Soc.*, vol. 62, pp. 1-25, 1923). He converts a Soxhlet extraction thimble into a semi-permeable cell by impregnating the cellulose with various substances analogous to those entering into the composition of the natural plasma membrane and plant wall, such as pectin, agar, lecithin, etc. Subsequently the rate of endosmosis of such cells is noted when they are filled with sugar solution and immersed in external solution containing different salts. The rate of entry of these salts into such cells can be followed by conductivity measurements; the exosmosis of sugar can also be estimated quantitatively. Potassium ions show a high rate of penetration into such cells, with very little action on the colloid in the wall; calcium, on the other hand, penetrates least, but exerts a powerful aggregating effect upon some of the colloids. The rate of endosmosis into the artificial cell increases as the permeability is lessened, and is thus usually most vigorous when immersed in the solution of a calcium salt.

OILS FROM INDIAN PLANTS.—The Indian Institute of Science, Bangalore, continues to publish in its *Journal*, under the editorship of Dr. M. O. Foster, the results of the examination of the natural products of

India. Among recent papers may be noted two from the Department of General and Organic Chemistry, namely: (1) a report upon cashew kernel oil by C. K. Patel, J. J. Sudborough, and H. E. Watson (vol. vi. part 6). The cashew nut is the fruit of *Anacardium occidentale*, Linn., an evergreen tree indigenous to S. and Central America, now cultivated in India. The nut contains some 42 per cent. of oil, but has not been much used as a source of oil, because of its ready sale for dessert and for use in the preparation of nut chocolate. (2) Hongay oil, extracted from the seeds of one of the commonest of Indian trees, *Pongamia glabra*, Vent., is used in Hindu medicine for the treatment of skin diseases; the oil has been fully reported upon by R. D. Desai, J. J. Sudborough, and H. E. Watson (vol. vi. part 5). From the Bio-chemical Department appears a paper by Gilbert J. Fowler and Talwar Dinanath (vol. vi. part 7) upon the production of sugar during the ripening of the fruit of *Bassia longifolia*. The seeds of this plant are used for oil, and the authors point out, as possibly of commercial significance, that, if the fruit is gathered and stored a few days under suitable conditions, sufficient sugar may be found in the pulp after removal of the seeds to make this waste product available as a source of alcohol upon fermentation.

SOIL ACIDITY AND LIGHT INTENSITY.—In a pamphlet published by the Cambridge University Press entitled "Studies in Soil Acidity—the Importance of the Light Factor," Mr. J. L. Sager gives an account of ecological studies carried out in the Alpine Laboratory of "La Linnaea," Valois, Switzerland. Soil samples were taken near the roots of dominant plants in and around the forests of a district characterised by gneiss, granite, and schists. Hydrogen ion concentration measurements were made by the colorimetric method on extracts prepared by shaking the soil with water and filtering after standing for thirty minutes. Tables of P_H values, dominant plants and amount of shade show that several plants, usually described as calcicole, are not confined to the alkaline soils and also bring out a correlation between soil acidity and light intensity. The acidity of the soil steadily decreases on passing from the deep shade of the spruce forest, through the lesser shade of the larch forest, to the open; whilst the soils exposed to the scorching sun at still higher altitudes above the forests are only slightly acid. Cases of high acidity with high light intensity occur only where the soil is badly aerated or frequently waterlogged. The author advances the hypothesis that light is able to lessen the acidity of the soil.

SPECIES-CROSSES IN COCHLEARIA.—The condition of polyploidy, or species with one or more extra sets of chromosomes, is being found with surprising frequency in plant genera. The latest case of the kind is described by Mr. M. B. Crane and Miss A. E. Gairdner (*Journ. Genetics*, vol. 13, No. 2) in species of *Cochlearia*. They find that *C. officinalis* and *C. alpina* have 28 chromosomes, *C. danica* 42, and *C. anglica* 49-50, all the numbers being thus multiples of 7. They have also made crosses between the various species, with interesting results that are as yet incomplete. The range of variation of the F_2 offspring is in some cases greater than the combined ranges of the parents. The interesting condition is disclosed that the forms with higher chromosome number do not have larger nuclei, and there is some indication that the higher numbers have arisen through some process of fragmentation or transverse fission. Further investigation will lead to a more complete analysis of the changes involved. This is also the beginning of a valuable and much-needed increase in our knowledge of species-hybrids.

THE MOLLUSCAN GENUS SCULPTARIA.—In west and south-west Africa there is found a small but beautiful little genus of land shells first described by L. Pfeiffer in 1855 under the name *Sculptaria*. This has been recently proved anatomically by Dr. E. Degner (*Arch. Molluskenk.*, 1923, No. 4) to belong to one of the more primitive groups of helicoids, the Endodontidæ. A considerable collection of these shells, which was made by Mr. P. R. Frames when serving with the Northern Force in the campaign in German South-west Africa in 1914-15, having been placed with other material in the hands of Mr. H. C. Burnup, he has been able to give a monographic account of the genus (*Ann. Natal Mus.* vol. v.). Three new species are described, bringing the total up to eight, and the whole are carefully differentiated and illustrated with excellent figures drawn by the author himself.

STANDARD INDUCTANCE COILS.—The Bureau of Standards has issued a leaflet giving detailed instructions for the construction of a series of single layer inductance coils suitable for laboratory standards. The series of "inductors," 17 in number, have been designed to cover the approximate inductance range of 8 to 5000 microhenries. Each successive coil arranged in order of magnitude and beginning with the smallest has 50 per cent. greater inductance than the preceding coil. Very little mechanical skill is required to make these coils. It is a real step in advance when you can give instructions at once to a mechanical assistant to make coils of any specified inductance. These coils in conjunction with a variable air condenser form a very accurate and trustworthy wavemeter. Full working diagrams are given, and the costs for material and labour are very small. To those who remember the difficulties of measuring or calculating small inductances twenty years ago, the ease with which standard inductances, even those which have to be used with high frequency current, can now be constructed, is wonderful.

INTERFEROMETER EXPERIMENTS IN ACOUSTICS AND GRAVITATION.—The Carnegie Institution of Washington issues as Publication No. 310 a report by Prof. Carl Barus on further experiments in which the interferometer is used for the measurement of very small quantities. These are in the main a development of the acoustic investigations with the pin-hole probe already described in Publication No. 310, 1921. Pressure variations at a node are converted into static pressures through the intervention of the pin-hole and measured at a mercury U-gauge, read by displacement interferometry. The pin-hole probe responds effectively to nodes in organ-pipes, but ignores the antinodes. With a device so sensitive to nodal regions the construction of a pin-hole resonator suggested itself. Great difficulty was encountered in the construction of the pin-hole. Both the size and the slope of the walls are critical. A salient pin-hole generates acoustic pressure, a re-entrant pin-hole acoustic dilatation, and there is neutral behaviour between the two. Within its restricted field the pin-hole resonator serves admirably for the acoustic survey of the interior of a room in which an organ pipe is sounding. If the phenomena were visible, the room would probably have the stratified appearance of a vacuum-tube stimulated by electric discharge. For a given position of the pipe, nodal regions alternate with anti-nodal regions, quite irregular in distribution but none the less fixed in position. An account is given also of work on gravitation, in which an endeavour is made to ascertain with what accuracy the constant may be found in a self-contained apparatus under ordinary laboratory conditions. The results are encouraging, but the experiments are not yet completed.