

Research Items

Mountain Tribes of New Guinea. Some hitherto undescribed tribes of New Guinea are the subject of a communication from Mr. E. W. P. Chinnery (*Man*, August). They inhabit the great central mountain ranges which are now being examined by administrative officers. Along the Papuan border from Mt. Joseph to Mt. Hagen, and on a wide expanse of grass-covered plateau between the Western Kratke Mountains and Mt. Hagen, are groups of people with methods of garden culture and certain customs not found elsewhere in New Guinea. Of the three groups of these peoples, the western half of the second group and the whole of the third or north-western group have only recently been examined. The so-called Kukukuku groups usually live in small family houses near their gardens; but in the western Tauri there are many large stockaded villages of round houses with conical roofs. Both men and women dress alike. The men are usually clean-shaven and the hair is cut short with a tuft on the top to hold a loop from which is suspended a long cape of tapa cloth for protection against cold and rain. The men use a short bow and arrows, and carry a stone-headed club. They chew betel nut, but do not smoke tobacco. Cannibalism has been reported of the people between the Garfuku River and Kratke Mountains. During inter-tribal warfare the women accompany the men with spare arrows. On the Bena Bena tributary there is a cane-swallowing ritual not previously observed in New Guinea. Some of the adult men wear a long length of thin cane doubled and looped round their necks. They send the women and children away and then push the bent part of the cane down the gullet for several inches, leaving the two ends protruding from the mouth. It is said that a man may have three canes down his throat at the same time. At one performance two important men grasped the ends of the cane and danced around the performer, who still had the rest of the cane down his throat.

Feeding of Trout in Tasmania. The study of the more important insects which serve as food for trout is an indispensable preliminary to a full understanding of the methods by which a successful and permanent trout fishery may be maintained. Dr. R. J. Tillyard begins this study with reference to Tasmania with a description of the life-history and contacts of the mayfly genus, *Atalophlebia* (*Papers and Proc. Roy. Soc. Tasmania for 1933, 1934, p. 1*). He makes the interesting suggestion that the supply of these mayflies in the Macquarie River might be augmented by the judicious placing of more or less decayed timber in the stream. If old willows or gum-trees which are being cleared away near the river are cut into convenient lengths and submerged (in places where they would not interfere with angling), the mayfly nymphs find their way to these logs in vast numbers, and hiding in the crevices obtain a rich living from the vegetable material which collects on them and from the products of their decay. In the experience of the writer of this note, success on similar lines has followed upon the introduction of cut grass to a pond in the lowlands of Scotland.

Littoral Fauna of Hong Kong. In the *Hong Kong Naturalist* (Supp. No. 3, February 1934) there are four interesting papers dealing with the local fauna,

namely: echinoderms by Th. Mortensen; holothurians by S. Heding; fishes collected in October-December 1931 by Albert W. Herre; and crabs (Part 4) by Chia-Jui Shen. A number (30 species in all) of Asteroids, Ophiuroids, Echinoidea, Holothuroids and Crinoids are recorded. This is the first time the echinoderm fauna of the vicinity of Hong Kong has been specially investigated, but the present collection only represents a small fraction of what is present in the area. Prof. Mortensen states that it is beyond doubt that more extensive shore collecting and dredging both in the littoral regions and in deeper waters will yield a very rich harvest. Three new species (one asteroid and two ophiuroids) are represented in the collections sent to him by Dr. Herklots, reader in biology in the University of Hong Kong, besides seven species new to the area, and included in the new species is a magnificent *Euryale* (*E. purpurea*, Mrtsn.) about 50 mm. in disc diameter. Among the holothurians are two new species and one new variety.

Iso-electric Points of Bacterial Suspensions. It has been shown in a number of cases that the presence of a salt affects the physical properties of proteins when these are studied in relation to changing hydrogen ion concentration. It is now found by G. Yamaha and S. Abe (*Sci. Reports Tokyo Bunrika Daigaku*, 1, 221; 1934), that similar effects may exist for suspensions of bacteria, of which nine species were used. The bacteria were suspended in a 0.9 per cent sodium chloride solution and the hydrogen ion concentration changed by the addition of hydrochloric acid. In these circumstances, the apparent iso-electric point as measured by precipitation was consistently at a much lower pH value than that found by cataphoresis. There is some evidence that this effect varies with the nature of the acid employed.

Genetics at Cold Spring Harbor. The Year Book, No. 32, of the Carnegie Institution of Washington for 1933 contains a report of the Department of Genetics by the director, Dr. C. B. Davenport. It refers to work done mainly at the Cold Spring Harbor Laboratory. By intensive investigation of the ten known allelomorphs of the miniature wing locus in *Drosophila virilis* and the eleven allelomorphs of white eye in *D. melanogaster*, Demerec is further analysing the nature of the gene. He has devised a method for testing whether a lethal factor at a particular locus is due to the elimination (deficiency) of the corresponding gene, and finds that 56 per cent of all lethals are cell lethals, the individual cell failing to survive in their absence. In *Datura*, Blakeslee has obtained several haploids with an extra chromosome, the extra being identified by the characters of the plant. He finds that segmental interchange has accompanied the production of new species in this genus. A mutation has been found which produces pollen dyads having $2n$ chromosomes. When selfed, the offspring are tetraploids and again form dyad pollen grains. Other extensive fields of investigation are leukemia in mice, another hormone of the anterior pituitary by Riddle, the inheritance of racing capacity and a general formula of heredity by Laughlin. Human genetics is represented by the studies of Steggerda and others on racial differences between Indians, Negroes and Dutch, the

papillary patterns of various races, growth studies of children, and the inheritance of sporadic goitre. Dr. T. Kemp suggests that this is due to a dominant gene in the X-chromosome which also causes non-disjunction of the two X-chromosomes in the female.

Polynesian Mosses. Edwin B. Bartram has recently published a report of a representative series of mosses collected by various travellers during the past ten years in the Society Islands, Austral Islands, Tuamotu Archipelago, Marquesas Islands, Cook Island, and Tonga (Bernice P. Bishop Museum Occasional Papers, 10, (10), 1-28; 1933). A considerable extension of the known range of several is noted and the following twelve new species are described and figured, the types being deposited at the Museum: *Dicranoloma plicatum*, *Calymperes tuamotuense*, *Calymperes pseudopodianum*, *Trichosteleum pygmaeum*, *Dicranella rufiseta*, *Dicranoloma brevifolium*, *Taxithelium falci-folium*, *Calymperes Quaylei*, *Thuidium ramosissimum*, Dixon and Bartram, *Raphidorrhynchium Quaylei*, *Glossadelphus tahitensis*, *Spiridens armatus*.

Treatment of Light Soils. Conference Report No. 17 from the Rothamsted Experimental Station, Harpenden, Herts (34 pages, price 2s., obtainable from the Secretary), deals with the difficult problem of the cultivation of the light soils of England. Successful methods of farming light hill arable and downland in Wiltshire are described by Mr. A. J. Hosier (Marlborough). Hoof cultivation and manuring the grass through dairy cows and poultry is the key to the improvement of his downland pastures. Improved grassland may then have its fertility cashed by a few years under arable cultivation. The results following the deep ploughing of thin acid sand resting on the chalk are set out by Mr. W. Parker (King's Lynn). Sugar beet growing becomes possible and the whole level of the rotation is raised. The utilisation of this land for the large-scale production of dried lucerne meal is a novel feature of Mr. Parker's system. Methods adopted by Mr. A. W. Oldershaw with much success in handling the acid sand at Tunstall, Suffolk, are fully discussed in his paper. They include deep cultivation, chalking and the use of suitable artificials. Finally, some of the scientific problems arising in the cropping of light soils are dealt with by Dr. H. H. Mann in the light of the classical field experiments conducted on the sandy soils of Woburn. The report shows that the difficulties of the management of the light soils can be met by capable and resourceful cultivators making full use of the scientific and technical methods now available.

Seismometric Reports on Tokyo Earthquakes. Since the great Japanese earthquake of 1923, nine seismograph stations have been established in the district round Tokyo, in addition to eight local meteorological observatories also provided with instruments. During the last three years, quarterly lists of the earthquakes sensible in Tokyo have been issued by the Earthquake Research Institute, each illustrated by a map showing the positions of the epicentres. Early this year, the lists for the years 1924-30 have been published in a special *Seismometrical Report*. In these seven years, the number of earthquakes felt in Tokyo is 413, or an average of 59 a year. In addition to the usual elements of the motion, the position of the epicentre is given for each earthquake and, in about three fourths of the total number, the depth of the focus.

This ranges from 10 km. to 140 km., with an average of 42 km. or 26 miles. For each year, a map is added showing the distribution of the epicentres.

Electric and Photometric Units. Volume 15 of the *Process-Verbaux* of the Comite International des Poids et Mesures contains the Report for 1933 of the Advisory Committee on Electricity and Photometry. With regard to electrical units, the Advisory Committee recommends that so soon as the results of the comparisons of the current international units with the absolute units have been made by all the national laboratories, the absolute units be substituted for the international. The question of adopting platinum instead of manganin as the material for standard resistances was left undecided. Some uncertainty as to the stability of the 12.5 per cent cadmium amalgum of the standard cell, and as to the utility of acidifying the cell, having arisen, the two questions were submitted to the national laboratories for investigation. Both resistance and electromotive force standards are to be determined to one part in a million. The primary unit of light intensity is ultimately to be based on the radiation from a perfectly black body, and in the opinion of the Advisory Committee, photometry of coloured lights can only be secured by fixing *a priori* a curve of visibility throughout the spectrum such as that recommended by the International Committee on Lighting in 1924.

Evaporated Metal Mirrors. R. C. Williams in a letter (*Phys. Rev.* July 15) has described the advantages of making mirrors by evaporating on to glass first a thin film of chromium and then a layer of aluminium. The film is at first fairly soft, but it is hardened by washing in water or alcohol and may then be rubbed hard with cotton cloth without appreciable change. Even rubbing with steel wool affects the film only slightly. The reflectivity of the films is similar to that of pure aluminium. The aluminium may be dissolved off without affecting the chromium, and the author says he has found a method of removing the chromium layer if required.

Indium. A considerable amount of attention has been given in recent years to the so-called 'rare elements', several of which could be made available in quantity if a demand arose. A large field of chemical investigation is awaiting attention in this direction, and the old-fashioned attitude towards inorganic chemistry is rapidly passing away. An element which has in the past provided some important results from the point of view of chemical theory is indium. Its three chlorides, InCl , InCl_2 and InCl_3 , disposed of the cherished doctrine of perissads and artiads, the very name of which is now practically unknown. The correct choice of the atomic weight of the element was one of the first services rendered to chemistry by the periodic law of Mendeleeff. A "Bibliography of Indium", drawn up by Potratz and Ekeley, has just been published by the University of Colorado (*Studies*, 21, No. 3; 1934), in which communications to the literature from the date of the discovery of the metal in 1863 to 1933 are listed in a classified system. Most of the work on indium appears to have been published in Germany and the United States, although England is represented by the work of Carpenter and Tamura on twinned metallic crystals, older work of Roberts-Austin and Carnelly, and an investigation of indium acetylacetonate by Morgan and Drew.