RESEARCH ITEMS

Further Concepts of Serbian Gypsies relating to Disease

Bibi, who brings disease to Gadže children, but protects gypsy children from every illness, says Alexander Petrovič (*J. Gypsy Lore Soc.*, Ser. 3, 18, 4; 1939), among the gypsies of Golubinci is regarded as a hen. When she flies her chickens fly after her; and they are devils, witches, fever, cholera, diphtheria, and every kind of disease. Some believe that Bibi is in the whirlwind. They are afraid of the whirlwind, and believe that when it gets hold of a man he loses the use of an arm or a leg, or his speech. Bibi is found in dust: we breathe or swallow dust, and disease with it. Illness is caught at the new moon, and waxes and wanes with the moon. Other gypsies believe that cholera is brought to the village by a woman "dressed in black", who carries disease only to those houses which are unclean. They conclude that a man is saved from cholera who keeps his house clean. The Golubinci gypsies, on the contrary, with a similar belief as to the origin of the disease, have come to the opposite conclusion. Because Bibi does not like smoke, dust, dirty napkins, dirty clothes and greasy pillow-cases, and these things stifle her, she will flee. In a house where everything is clean, she enters, touches each inmate, and they die. In the spring when colds, fevers, etc., begin to be prevalent, small dolls are dressed in red, one of which thrown into the well drowns Bibi, the other suspended from a high pole, is Bibi's son, the devil who drives her away. The Golubinci gypsies believe that every illness comes from fever. This may account for the belief that Bibi is a hen. A man suffering from malaria trembles violently, just as a hen does, when she beats her wings as if shaking off something. Thus it is not the sick man who shivers and trembles, but the disease itself, the hen that is in him.

North American Indian Music

Miss Frances Densmore, in continuation of her studies of the music of the indigenous peoples of North America, has published songs collected among the Nootka and Quileute of Neah Bay, Washington, on the Strait of Juan de Fuca, near Cape Flattery (*Bureau Amer. Ethnol. Bull.*, 124; 1939). These 'songs of the sea' are here compared with those previously collected among Indians of the prairie, woodland, high plateau and desert. The people are hunters of the whale; they use wooden canoes, and in pursuit of their prey often put far out to sea. Though not of great stature, their physical strength is considerable. They were warriors who cut off the heads of their enemies and displayed them on poles before their village. The potlach was practised with lavish generosity. Among their principal foods were the oil and meat of the whale, the flesh of seafowl and other birds, potatoes, fern roots, grasses and water plants and various berries. Climatic conditions are unfavourable to the growth of grain. Their songs, of which 44 per cent have a major tonality as against 38 per cent in Pawnee and 71 per cent in the Ute repertoire, while they show the smallest percentage beginning on the octave above the keynote, are characterized by a small compass; 70 per cent have a compass of six tones or less, compared with 15 per cent in the songs previously analysed. The songs recorded are connected with every department of life and individual and communal activity. They are both ritual or magical in significance as well as purely recreational. One of the most interesting from the cultural aspect is the group associated with whaling in which the skilled whaler was assisted by a strong tumanos (guiding, protecting spirit) acquired as the whaler's first task in the course of prolonged fasting and prayer.

Inheritance of Cyanogenesis

R. D. Williams (*J. Genetics*, 38, 356–366; 1939) shows that some plants of wild white clover (*Trifolium repens*) contain a cyano-glucoside. There is a large variation in the HCN content of the different plants. 1,495 plants resulting from a cross between individuals giving a positive and a negative reaction to the picrate paper test gave positive reactions while 2,473 plants from crosses between acyanogenetic plants gave negative reactions. Further crosses show that the presence of a cyano-glucoside is governed by an almost completely dominant gene *Ac*. Variation in the HCN content between individuals is probably due to modifying factors.

Genetical Analysis of Abnormal Chromosomes

The value of genetics in the analysis of cytological abnormalities is ably demonstrated by B. McClintock (*Proc. Nat. Acad. Sci.*, 25, 405–415; 1939). An abnormal chromosome 9 of *Zea Mays* formed as the result of irradiation with X-rays possessed two centromeres. Therefore the chromosome will break at anaphase I. In order to discover the subsequent history of this chromosome, the behaviour of the genes *Yg C Sh* and *Wx* was studied in plants heterozygous for the abnormal chromosome. It was shown that in embryo and plant tissue the broken ends do not rejoin, but in the embryo sac and endosperm there is a cycle of breakage—fusion of broken ends—bridge formation—breakage at succeeding cell divisions. This phenomena can be followed by the appearance and behaviour of hybrid fruits, which are sometimes variegated as the result of loss of a gene through breakage and refusion of the chromosome.

Position Effect in Œnothera

D. G. Catcheside (*J. Genetics*, 38, 345–352; 1939) has studied X-ray derivatives of the structural homozygote of *Œnothera blandina*. One derivative, *blandina*-a when crossed with *blandina* forms a ring of four chromosomes involving the chromosome 3·4 on which the gene *Ps* is known to be placed. *Ps* normally gives flower buds broadly striped with red separated by narrow green bands. In the heterozygote *blandina*-a-*blandina*, however, there are narrow ill-defined bands of red. By crossing the F_1 *Ps-blandina-a.Pr blandina* with *Ps blandina*, one *PsPs-blandina* plant in 96 plants occurred. This probably arose as the result of crossing over in the F_1 plant. The author therefore concludes that the activity of the *Ps* gene in *blandina*-a is reduced by its relocation in position relative to the material different from normal blandina.

Genetics of the Garden Nasturtium

Eileen Sutton (*J. Genetics*, 38, 161–176; 1939) reports the results of further genetical experiments on the garden nasturtium (*Tropæolum*). The gene *n* reduces the size of plant and of leaves and prevents the anther from dehiscing. The gene *m* gives a sheen to the petals, increases the *p*H value and shortens the flowering season. The effect of *m* on flower colour is to reduce scarlet to biscuit colour, red to mauve or brown, and pink to mauve. The factor *t* partially inhibits anthocyanin production. A gene *g* adversely affects the viability of the pollen-grain and, being linked with *B*, accounts for abnormal ratios of *B*. The genes *B* and *R* are linked with a cross-over value of 0·125. The biochemistry and interaction of characters and chromosome constitution of *Tropæolum* are discussed.

Invertebrates from Manchoukuo

Five zoological reports based on material collected by the expedition maintained by the Japanese in Manchoukuo during June–October 1933 under the leadership of Prof. Shigeyasu Tokunaga, of Waseda University, Tokyo, have been published (Rep. 1st Sci. Exp. Manchoukuo. Tokyo: Waseda University). The only earthworm reported is the widespread *Eisenia foetida*. Four trematodes are described, two of which, *Pneumonocces jeholensis* and *Harmostomum momiyami*, are new. The three leeches have all been recorded previously from Japan and China. The two major papers are those on mammals and molluscs: both of them have the text in Japanese and English and both are illustrated by good plates, coloured and plain. Tamezô Mori describes 21 species of mammals, of which three species and two subspecies are regarded as new. Only twelve were actually collected by the expedition; the rest came from the Pest Investigation Institute at Tang-liao. Only four species of molluscs were found, one of which, *Viviparus* (*Idiopoma*) *chengtehensis*, is new. The account occupies 222 pages (137 Japanese and 85 English) and is illustrated by 22 plates. It contains a detailed account of the anatomy of the species, a good deal of information of general interest, and a suggested revision of the Viviparidæ.

Wax Emulsions for Deciduous Fruit

Fruits are still living organisms when separated from the parent plant, and this fact is responsible for the main difficulties of storage. Citrus fruits have been preserved in good condition for longer periods than normal by the application of a thin coat of wax; indeed, 80–90 per cent of the crops in California and Florida are so treated. Waxing lengthens the effective period of storage apparently by lowering the rate of respiration, and research work on this subject in America is now being directed towards the use of the process on deciduous fruits. Robert M. Smock, of Cornell University, reviews the progress of these investigations in the *American Fruit Grower* of August. Research is also in progress in the Universities of California and Maryland in addition to Cornell, and the main problem appears to be to diminish the rate of respiration, and check the evaporation of water from the fruit without stimulating anærobic respiration, with its accompaniment of bad flavour. Bitter pit and storage scald are reduced by waxing, under certain conditions, and the aroma of certain varieties like McIntosh is conserved. Considerable possibilities are revealed by the paper, but the exact conditions of treatment are not yet sufficiently standardized for general commercial application.

Helium-Neon Content of Sea Water

The vertical distribution of oxygen in the deeper parts of the ocean shows a minimum concentration (which may be very pronounced) at depths of 200–1,000 metres. In parts of the Pacific there is virtually no oxygen, whilst in the Atlantic the minimum zone is seldom less than 30 per cent saturated and in the far north and south there is sometimes no minimum. Reported analyses of the helium-neon content of sea water showed an apparent minimum of the helium-neon mixture coinciding with the oxygen minimum. N. W. Rakestraw, C. E. Herrick and W. D. Urry (*J. Amer. Chem. Soc.*, 61, 2806; 1939), by a repetition of this work under more suitable and representative conditions, have shown that specimens of Atlantic and Pacific water are practically saturated with helium and neon at all depths investigated (from 0 to 3,000 metres) with no evidence of a minimum concentration at any depth. There is hence no relation to the depth of oxygen minimum. This result is in general agreement with other oceanographic evidence.

Magnetic Testing

Recent developments of alloys for magnet steel which require very high magnetizing forces for magnetizing and testing have led to the production of high-field permeameters, and R. L. Sanford and E. G. Bennett, of the Bureau of Standards, describe the one adopted at the Bureau, which seems capable of a high degree of accuracy (*J. Res. Bur. Stand.*, 23, No. 3; September 1939). It is a double-yoke apparatus with the adjustable pole pieces placed diametrically. The yoke is of laminated silicon steel. The pole pieces are channelled, with filler pieces fitting closely in the channels and capable of adjustment so as to grip the specimen to be tested, or if the specimen is very short it is made to butt against the pole pieces. The magnetizing coils are wound mainly on the pole pieces with auxiliary coils on the yokes. The induction is determined by reversal of the magnetizing current and the magnetizing field by coils rotated suddenly through 180°, close to the surfaces of the specimen. Both may be determined at various points along the specimen.

Mechanical Force due to an Electron Stream

Dr. P. Selényi of the Tungsram Research Laboratories, Ujpest, Hungary, has sent an account of a measurement of the mechanical force exerted on an electrode by a stream of electrons. The electrons were accelerated from a filament to a gold-leaf anode suspended as a pendulum. The pressures observed were 5–20 per cent higher than calculated from the accepted value of e/m for electrons, and this difference is ascribed to radiometer effects. The author considers that this mechanical pressure requires for its explanation a 'true' as distinct from an 'electromagnetic' mass, for he points out that when a single electron approaches a metallic screen, the electrodynamic repulsion due to induced currents depends on the conductivity of the screen, which is contrary to experience; while with a steady electron beam, conditions are stationary and no repulsion due to induced currents is to be expected.