

## RESEARCH ITEMS

## 'Hermanation'

'HERMANATION', Hanns Weltzel explains (*J. Gypsy Lore Soc.*, Ser. 3, 18, 4; 1939), is derived by the gypsies of Germany from the German 'harmonieren', in the sense of 'getting on well with'. If this is correct, it is remarkable that the *Sinti* should have adopted a German term for so characteristic and ancient an institution. It is centuries old among German gypsies or rather among *Sinti* only. It is the basic principle in the structure of their unity. It is the union of a small group of gypsies, in which the number of families is not limited, and the leader is not a chief, but a 'dispenser of justice', or 'judge'. The Hermanation also applies to a definite localized group. Most of the gypsies of central Germany belong to one. The 'Kartepoor' is so called from the beautiful tail feather of the moor-cock, which hunters often wear in their hat. Members of one Hermanation would not eat with those belonging to another. Sometimes the term is used as a synonym for a meeting, when it is equivalent to *Tsillu*, the gathering at which matters concerning gypsy law are discussed, and marriages, dispensations of justice, cases of outlawry, and the like are settled. From this it follows that Hermanation denotes a grouping of families which, on the basis of a bond of relationship, subjects itself to its senior member and his colleagues in matters of definite custom. The 'judge', who was in no sense a 'chief' or 'king', had to be a person of reputation and unblemished character (in the gypsy sense), of imposing appearance, and of pure gypsy blood. Supplementary information concerns ceremonial purity, in which taboos relating to women are stressed: for example, the sole of a woman's shoe renders things unclean, and hence it is never mended; while among the Krauses a woman carrying a jug or bucket must hold it away from her body.

## Bunas of Bengal

ON various occasions in 1933-35, Minendra Nath Basu carried out investigations of the physical, social and cultural peculiarities of the Buna colonies in Bengal (*J. Department of Letters*, Univ. of Calcutta, 32, 1939). The Bunas are an aboriginal people of Bengal, probably immigrants from Chota Nagpur, attracted by the demand for 'landless' labour. Buna is a name given them as a 'wild' people, though there are other interpretations. In the villages they live in separate areas; and the statement that they are hated by Hindu and Mahomedan alike on account of their fondness for fowl and pork is correct; but nevertheless a large amount of intermixture with the two communities has taken place. Anthropometric measurements and observations of 220 subjects show skin colour (unexposed) varying from tawny white to dark; hair wavy, but with 1.5 per cent woolly; in colour, black, dark brown or grey. Eye slit horizontal, or straight; eye-colour dark brown, 65 per cent, with medium and light brown as variants. The nose is generally straight, though convex noses occur; no alveolar prognathism, and facial prognathism slight; lips medium, 85 per cent without eversion; the chin is prominent; and the body musculature is marked. The following are the percentages for: (1) stature, male, ranging from 130.0 (very short) to 179.9 (tall);

the highest percentage is 82.5 in the group 150.0-159.0, the next highest percentage being 9.5 in the group 160.0-169.9; females, range 140 (short) to 152.9 (below medium), 65 per cent being in the group 140.0-149.9; (2) cephalic index, males, dolichocephalic, 41 per cent, mesocephalic, 54 per cent, brachycephalic, 5 per cent; females, 40 per cent, 20 per cent, and 40 per cent respectively; nasal index, males, leptorrhine 26 per cent, mesorrhine 70.5, platyrrhine 3.5; females, 5 per cent, 80 per cent and 15 per cent respectively. On analysis it appears that the Bunas are a highly mixed group, of which the basic stock was probably indigenous to Chota Nagpur, but which afterwards intermixed freely with the peoples of Bengal, Brahmans, Kayasthas, and Namasudras, and lower Hindu castes.

## Blood Groups in Africa

DR. R. ELSDEN-DREW has described the results of an investigation into the distribution of blood groups among African natives (*Pub. S. African Inst. Med. Res.*, 44, Johannesburg, 1939). Tribes were examined over a wide area in Southern Rhodesia, Nyasaland, Tanganyika, Kenya and Uganda, and a number of blood specimens were collected and examined in the field. Considerable differences exist between the peoples investigated, for the percentage of the O-group varies from 41 in the Lango to 74 in the Ndau; the percentage of the B-group ranges from 5 in the Gogo to 31 in the Ankondo, while the A-group ranges from 13 in the Ndau to 32 in the Akamba. The significance of the ethnological distribution of the blood groups is discussed, and it is suggested that the Bantu did not descend from the Negro, but are rather a purer example of a common stock, and that the migration on the west coast has been from east to west rather than in the contrary direction. The Bush people are shown to be less 'ancient' than are the Bantu, and an Egyptian origin is suggested for the Hottentot. The technique employed is described, the findings are subjected to statistical examination, and tables are given of the calculated gene frequencies.

## Employment Tests for Rayon Factory Hands

Sigemi H. Kiriwara and Kazuo Nakamura (Report No. 41. Japan Institute for Science of Labour) carried out a study to see what relation there was between mental characteristics and efficiency in the operatives of a rayon factory. The ages of the workers ranged from 14 to 18 years. An intelligence test and various performance tests were given to the workers on a number of processes, and the results of the tests were correlated both with the quality and quantity of the output. Intelligence apparently plays a negligible part in success in all processes with the exception of 'reeling'; this process gives a positive correlation with all the tests whereas the others give either negative or insignificant correlations. Taking the results at their face value, the use of tests would not give a better selection than the more usual methods. The writers, however, do not give an adequate account of their method, and although they indicate that motion studies were attempted, they do not make it clear whether the results of such studies guided them in their choice of tests.

### A Pleistocene Bird's Egg

EGGS are rarely found in fossil deposits, so that the discovery of a bird's egg on the east slope of Lone Mountain, Nevada, in a deposit attributed to Pleistocene times, deserves notice. Alexander Wetmore states that the egg, of which only one half has been preserved, is embedded in dendritic tufa, having apparently been deposited in water beneath a cone of that material in which it afterwards became involved (*Condor*, 41, 98; 1939). It measures about 63 mm. in length and 38.5 mm. in width; the shell is pale olive buff in colour on the outer surface and its surface bears irregularly scattered pits. Although no identification is claimed, the author states that comparison with modern eggs suggests that the fossil egg comes closest to the egg of a cormorant.

### Jungle Yellow Fever and other Diseases

IMPORTANT studies on jungle yellow fever in Brazil are described in the annual report for 1938 of the International Health Division of the Rockefeller Foundation, recently published. Jungle yellow fever differs from the classical variety of yellow fever in that it is not conveyed by the mosquito, *Aedes aegypti*. As a result of much research, it seems probable that certain monkeys may be reservoirs of jungle yellow fever, infection from which may be transmitted to man by two species of mosquito. Preventive vaccination with a particular strain of virus has been extensively pursued, more than a million persons having been inoculated, but it is too soon to state with what amount of success. Malaria, influenza, tuberculosis, and worm and other diseases have also been the subjects of study. Details are given upon finance, and of grants made to various bodies, schools and individuals.

### A Trypanosome in a Tigress

PARASITIC trypanosomes are found in the blood and tissues of various kinds of vertebrates, sometimes causing important diseases in animals, for example, in the horse, and the African sleeping sickness in man. They are, however, rarely found in carnivorous animals, and the record of a trypanosome encountered in a tigress by Dr. Z. Mohamed is therefore of considerable interest (Ministry of Agriculture, Egypt. *Veterinary Service Bull.*, No. 200. Cairo, 1939). The animal came from Sumatra to the Zoological Gardens, Giza, in 1926; it had always been healthy, but became ill on October 18, and died on October 21, 1935. Trypanosomes were found in the blood in large numbers; cultures were failures, but inoculations into dogs, rabbits, rats and guinea pigs proved fatal to these animals in periods of from one to four months. The morphology of this tigress trypanosome is described; it closely resembles that of *Tr. evansi*, which causes surra in camels, but differs from it in some points, and is regarded as a new species, for which the name *Tr. kirdanii* is proposed. The source of the infection in the tigress was not discovered.

### Toxicity of certain Insecticides

G. R. Cameron and Cecile R. Doniger have carried out toxicity experiments on mice, rats, guinea pigs and rabbits with lauryl thiocyanate and *n*-butyl-carbitol-thiocyanate (in the form of lethane 384). These agents are now being employed as contact insecticides in the campaign against the bed-bug. In

field-work, they are diluted, usually with kerosene, to about 1:64 for the first-named, and 1:40 for lethane. Methods of exposure included contact in miniature houses sprayed with the undiluted and diluted liquids, skin applications, oral administration and injections. Both compounds cause death of the experimental animals on injection, but in dilutions similar to those used in field work have produced no ill effects, and in such dilutions are unlikely to be dangerous to human beings. Undiluted lauryl thiocyanate causes severe local reaction when applied to the skin, lethane only a slight reaction. The skin should, therefore, be protected when handling the undiluted substances (*J. Path. and Bact.*, 49, 363; 1939).

### Effect of Temperature on Chromosomes affected by X-rays

K. Sax and E. V. Enzmann (*Proc. Nat. Acad. Sci.*, 25, 397-405; 1939) have analysed the effect of temperature upon aberrations induced by X-rays on the chromosomes of *Tradescantia* microspores. Except for earliest prophase, it is found that X-rays induce considerably more breaks at 3°C. than at 38°C. There is a critical temperature above which the number of observed breaks is much reduced, but this critical temperature varies with the season. The authors consider that X-rays induce a similar number of breaks at low and at high temperature, but at high temperatures the reunion of ends is accelerated; therefore the reunion of the original breakage points may take place. Misalignment may occur through the slowness of reunion at low temperatures. The reverse temperature effect at earliest prophase is difficult to explain, but may be due to similar causes to those underlying the phenomena of chiasma formation, which also occurs at this stage.

### Analyses of Commercial Coals

A REPORT on the analysis of commercial grades of coal produced in the Nottinghamshire and Derbyshire area has just been published (Summary of Fuel Research Survey Paper No. 48. London: H.M. Stationery Office. 3s.). The report forms part of the general survey of the national coal resources which is now being carried out, and is the second to deal with commercial sampling in this area. It presents the results of the analysis of 277 grades of coal from seventeen collieries. The work of the survey proceeds along two parallel lines. The first deals with the seams as they occur below ground. The coal from the seams, however, is passed through many processes of blending, cleaning and grading before being marketed. The second line of investigation is therefore to sample and analyse the actual products of the collieries, so that information may be available regarding the types of coal actually obtainable by consumers. The present report is confined to work of the second kind and deals with such types as varieties for the manufacture of metallurgical coke, high-grade house and gas coals, locomotive and bunker fuels, and free-burning coals for steam raising and general industrial purposes. At each colliery visited, all the grades finding a commercial outlet were sampled and analysed. Against the recognized commercial name of each grade are given the screen size and description, including the method of preparation, use and seam of origin. These data are followed by the analyses. The report also includes a discussion of the variability of the grades and of the methods by which they are prepared.

## Ground Vibrations near Dynamite Blasts

THIS has been the subject of investigation by L. Don Leet (*Bull. Seis. Soc. Amer.*, 29, No. 3, 487; July 1939), who has examined in detail the records of such quarry blasts obtained on a portable three-component seismograph. He found that high-frequency vibrations (25–50) of short duration (about 0.5 sec.) were typical of records on rock, whilst lower frequencies (3–5) and longer duration (max. 23 sec.) were recorded on unconsolidated earth fill, particularly if it exceeded about 20 ft. in thickness. Among the chief types of vibration, Rayleigh waves, Love waves and a new (observationally) *C*-type wave were generally observed. The average period of the Rayleigh waves was 0.14 sec., the velocity of the front of the group about 1,000 ft./sec., and the velocity of the centre of energy about 800 ft./sec. The period of the Love waves was about 0.15 sec., and the beginning of the group corresponded roughly with the equation  $t = 0.340 + \frac{\Delta}{2180}$ , with  $t$  in seconds and  $\Delta$  in feet. The

third type of surface wave, called *C*, was characterized by motion on all three components, with maximum displacements in phase, a pull-down-left followed by a push-up-right or other similar combination. It most nearly resembled one of the theoretical coupled waves of Uller. The apparent beginning of the *C* wave approximately fitted the travel-time equation

$t = 0.100 + \frac{\Delta}{2960}$  (ft. sec. units). Its period may have been 0.18 sec., but irregularity of form made the measurement uncertain. Some or all of these types of waves could be identified on the records examined by Leet, and their separation by velocity differences was undoubtedly a basic factor in the rapid diminution of the initial amplitudes with distance. It was observed that the detailed manner in which this occurred was unique for every location, depending on local formations and velocities, but the range of amplitudes for various distances and sizes of charge could be predicted within limits which were narrow enough to be of practical engineering value in estimating probable effects on structures. Maximum amplitudes at distances greater than a few hundred feet from the shots reported (typically 60 per cent and 75 per cent quarry gelatin loaded in three holes 6 in. diameter and 140 ft. deep) did not exceed  $\frac{1}{4}$  and were often less than  $\frac{1}{100}$  those found necessary to cause initial damage to plaster in a test house subjected to increasingly severe vibrations until damage occurred.

## Weather Periodicities in Turkestan

PERIODICITIES in weather observed in Turkestan and on the eastern shore of the Black Sea (V. A. Blagoveschensky, *Piroda*, No. 6; 1939) would appear to coincide with the 20-day period of variation which has been found to exist in the solar constant (cf. Abbot, *NATURE*, 143, 705–709; 1939). While investigating the periodicities in daily minimum temperatures, Blagoveschensky discovered in them a master cycle, lasting, on the average,  $18 \pm 2$  days, with a sharp fall maintained for 3–4 days at the beginning of each period, followed by a gradual increase until a new period is initiated by another fall. The master cycle may be interrupted on the ninth or tenth day by a fall, initiating another temperature wave. These waves occur throughout the year, and the summation of minimum temperatures within them shows that there is a more or less

regular alternation of relatively warm and cold cycles. They appear to be determined by the passages of families of major and secondary cyclones arriving from the north.

## Salts of Europium

ALTHOUGH the rare-earth element europium was characterized by Demarcay in 1900, its compounds have been little studied. H. N. McCoy (*J. Amer. Chem. Soc.*, 61, 2455; 1939) has examined some salts with different results from previous workers. The *m*-nitrobenzenesulphonate crystallizes with 6 (not 3)  $H_2O$ , the citrate with 4 (not 5)  $H_2O$  and the iodate with 4 (not  $5\frac{1}{2}$ )  $H_2O$ . A number of other europic salts with organic acids, mostly with water of crystallization, were analysed. Europous salts are quickly oxidized by air when they are soluble, but the sulphate,  $EuSO_4$ , was found to be stable and to suffer little change in a year. An improved titration method is described.

## Total Solar Eclipse Results of June 8, 1937

IN "Solar Eclipse Series" No. 1 of the publications of the National Geographic Society (Washington) are described by several specialists the observations of the total solar eclipse of June 8, 1937, made from Canton Island, a small atoll in the Phoenix Islands, by the joint expedition of the National Geographic Society and the United States Navy. The observation of this eclipse presented unusual difficulties, because the path of totality was confined almost wholly to the Pacific Ocean, but the duration of totality, which exceeded 7 minutes—the longest since the year 699—was an incentive to the projected expedition, although no land site was near the position of longest totality. The expedition had perfect weather for the eclipse. The corona was of maximum type according to expectation, the maximum of the 11-year solar cycle occurring in that year. Photographs of the corona were obtained with a special rotating sector disk in the optical train in order that the exposures might be more nearly equalized for the inner and outer parts of the corona. A long streamer was recorded up to a distance of 5 million miles from the sun's limb. The total light of the corona was also determined, and as in most previous eclipses was about equal to half the intensity of the full moon, or one millionth that of full sunlight. A study of the polarization of the coronal light was made, and it was found that the percentage of polarization of the corona and its streamers increased outwards from the sun. The inner corona was also photographed by colour processes (giving a beautiful reproduction in the text). To obtain colour separation negatives, each plate carried its own gelatine colour-filter on the opposite face to the photographic emulsion. A colour painting was also made and is a useful record of the full extent of the corona as seen by the eye. In the study of the spectrum of the chromosphere and of the corona, a new emission line at  $\lambda 4412$  was detected and appears to be a genuine coronal line. Valuable experience was obtained with a Schmidt camera (giving almost perfect definition over a very wide field) and aluminized plane gratings as applied to eclipse problems. The progress of the eclipse was described from the eclipse camp in a radio broadcast arranged by the National Broadcasting Company of the United States, the radio transmitter being installed on the *Aracet*, the ship which brought the expedition from Honolulu to Canton Island.