

## Research Items.

THE ROMAN BALANCE IN SOUTH AMERICA.—Mr. Erland Nordenskiöld has reprinted from the journal of the Société des Américanistes de Paris (N.S. vol. xiii., 1921) an article sub-titled "Emploi de la balance romaine en Amérique du Sud avant la conquête." He produces evidence, with a full bibliography of authorities, to show that this invention was not confined to the Old World, but was found in the New World before the discovery of America.

ANTHROPOLOGY IN THE CHILTERN HILLS.—In the Journal of the Royal Anthropological Institute (vol. lii. Part 1), Mr. W. Bradbrooks and Prof. F. G. Parsons publish an elaborate memoir, with a long series of measurements of skull form, on the population of the Chiltern Hills, in which they arrive at the following conclusions: in this comparatively isolated area about half the working-class male people can trace their ancestry back to three generations in some part of the area; the hair colour is rather darker than Beddoe found in the Eastern and East Midland Counties, and the proportion is higher than in any other part of Great Britain, except the South-western Counties and Wales; the eye colour is identical with that of London and the East Midlands; the average cephalic index, 777, is practically that of the modern working man in London, and the average height, 5 ft. 7 in., is that of the black-haired individuals. Thus, the present-day inhabitants of the North Chiltern area, who are not recent immigrants, are distinctly darker haired than those surrounding them, and this darkness appears to be due to the survival of a great proportion of Neolithic or Mediterranean blood in the district.

DISTRIBUTION OF FUTURE WHITE SETTLEMENT.—The problem of the potentiality of the world for white settlement is attacked quantitatively by Dr. Griffith Taylor in the *Geographical Review* for July. The world is divided into economic regions which coincide in the main with Herbertson's natural regions. The areas of these regions are determined by planimeter measurements. The factors influencing human settlement are grouped under four headings which comprise the dominant controls—temperature, rainfall, location, and coal reserves. Fisheries have local rather than general importance and are ignored. From the values of each of these four controls a quadrilateral graph, the econograph, is constructed for each region, and the area of the graph is found to represent approximately the habitability of the region concerned. The econograph is a rectangular figure formed on four axes which represent, respectively, the average annual temperature, the average annual rainfall, the average elevation, and the estimated total coal reserve of the region. In what Dr. Taylor believes to be the ideal region these values would be 55° F., 50 in., sea-level, and  $200 \times 10^4$  tons per square mile. The comparative value of these controls was apparently reached by assuming various values and testing them against the actual population map of Europe. By this means Dr. Taylor decided to give the temperature control double the weight of the rainfall and allow the coal factor, if large, to have equal weight with optimum temperature and rainfall combined. The ideal econograph represents 1000 units. All the seventy-four regions of the world have values below this ideal. The last step was to plot on a map of the world the numbers representing the areas and draw lines of habitability, called isoiketes. This map is of great interest as a partially successful attempt to forecast the future growth of white settlement.

MOSQUITO INVESTIGATIONS.—Since the statement was made by Messrs. Carter and Blacklock that *Anopheles plumbeus* is a potential carrier of malaria in this country, it having been experimentally infected by them, considerable interest has been taken in the habits and distribution of the species in Britain. Following studies made by these authors in the Liverpool district and in the Isle of Man, an inquiry was instituted by the mosquito investigation committee of the South-Eastern Union of Scientific Societies, acting on behalf of the Ministry of Health. The committee now announces that this special inquiry is concluded, and that *A. plumbeus* has been shown to be exclusively sylvan in habits, and to be widely distributed in England, occurring, when searched for, in almost any area in which are found beech, sycamore, chestnut, or other trees with water-containing rot-holes. The committee is now turning its attention to the mating and egg-laying habits of *A. plumbeus* and other species, which are still imperfectly known, and invites co-operation from observers in all parts of the country in elucidating these matters.

MUSCARINE.—In the Journal of the Chemical Society for September, Dr. Harold King, of the National Institute for Medical Research, records the isolation of muscarine, the highly potent and toxic principle of *Amanita muscaria*, the Fly Agaric, a common fungus of our birch woods. Muscarine has been the fertile subject of controversy among chemists and pharmacologists for more than fifty years, and it is now shown that the pure material differs essentially from the original claims as to its properties and constitution made by Harnack, upon whose work the whole of the subsequent edifice has been erected. There is no evidence that muscarine is related to choline or is a quaternary base. More than ordinary interest is attached to muscarine owing to its extreme specificity of localisation in the mammalian body and its complete antagonism by atropine.

A NEW SPECTRO-POLARIMETER.—Messrs. L. Bellingham and F. Stanley, Ltd., of 71 Hornsey Rise, have designed and provisionally protected a polarising prism which can be used either in the visible or ultra-violet region of the spectrum. The prism is constructed from one solid piece of Iceland spar cut in such a manner with respect to the crystallographic axis, and of such a length of side, that the extraordinary ray only is transmitted while the ordinary ray is absorbed at the sides. Two such prisms are placed side by side in a suitable mounting. Before being placed in contact the sides of each prism are ground away to give the required length of dividing line between the halves and also to produce the necessary half shadow angle. To provide a sharp face edge one of the prisms is allowed to project in front of the other, and the two are then bound together. It is claimed that such an arrangement is absolutely permanent and that the extinction is perfect. The entire absence of cement relieves the prism of all strain, and eliminates the possibility of light being diffused from particles in the cement or from scratches on the cemented surface. By employing such a polarising prism Messrs. Bellingham and Stanley have been able to construct a polarimeter which can be used either for visual observation, in conjunction with a mercury lamp, or for photographing the entire spectrum between wave-lengths  $230 \mu\mu$  and  $800 \mu\mu$  at one exposure.