

Dutch place-names. Mrs. Mabel Palmer discussed some Australian proposals for a wage varying in proportion to the size of the family. Mr. F. S. Livie-Noble outlined some practical applications of modern psychology. There was a discussion, opened

by Captain A. Cardozo, on the currency problem in Moçambique.

The next annual meeting of the Association will take place in July 1923 at Bloemfontein, under the presidency of Prof. J. D. F. Gilchrist. H. B. F.

Mental Character and Race.

IT is a commonplace of anthropological study that, in investigating the customs of primitive races, the difference in level of culture between observer and observed entails a difference in mentality and outlook which it is one of the aims of anthropological training to overcome. But it is also a matter of common observation that this same difference exists, if in a lesser degree, between peoples at the same stage of civilisation, and even between individuals or groups of individuals forming part of the same people or nation. The works of travellers, geographers and historians, both ancient and modern, abound in characterisations of the mental qualities of the various peoples of the world, both civilised and uncivilised; but when the ethnologist comes to the investigation of the problem of racial differences in mental qualities, he is confronted with a two-fold difficulty. On one hand he is, at present, for the most part, dependent upon empirical observation from which it is difficult to eliminate the personal factor, and, on the other hand, it is not clear how far, if at all, mental characters can be correlated with the physical characters upon which the ethnologist bases his classification of races. In the solution of this problem it is essential that the anthropologist should secure the co-operation of the psychologist, and it was with this object that a discussion on "Mental Character and Race" was held in a joint session of the Anthropological and Psychological Sections at the meeting of the British Association at Hull in September last.

The discussion was opened by Prof. J. L. Myres, who said that the principal consideration to be submitted to psychologists and ethnologists alike was that in many individuals in any modern society of mixed ancestry, dispositions and faculties differ. Such mental qualities are inherited like physical qualities and characters. It might be assumed that they stood in some direct relation to some element in the nervous system. Further, some mental qualities seemed to be associated with some physical characters, as for example a "fiery" temperament with red hair. Some of these physical characters are racial, or (like red hair) seem to result from crossing of racial elements. The analogy from the artificial selection of the breeds of domesticated animals indicates that it is possible to enhance or combine mental qualities. It did not always happen that the individual exhibited the characteristics desired, as in the case of the "gun-shy" pointer, and the "gun-shy" member of a military family. It would appear, however, that the hypothesis of correlation and transmissibility of psychical characters stands the test of practice in domesticated animals, the nearest analogue to the long domesticated animal man, a single species broken up into strongly marked racial strains.

Prof. Myres went on to point out that the older ethnologists characterised racial types by mental as well as physical characters, and quoted as an example the character of the Northern Mongols in Keane's "Man, Past and Present." He pointed out that such a characterisation included: (a) a description of mere psychological reactions to external stimuli conceived as characteristic of the racial strain and

capable, like brachycephaly, of being used to refer an individual to his racial type; (b) a description of social reactions (*e.g.* "sense of right and wrong") in which a social, cultural element was introduced. The individual has a post-natal experience as well as a pre-natal equipment, and in investigation it might be difficult to eliminate disturbing factors. Prof. Myres stated, however, that he himself had found that the offspring of British fathers and Greek mothers brought up in a Greek environment differed as markedly from pure Greeks in their attitude towards discipline and labour as they did in physique, temperament closely following breed.

Modern ethnology, relying on analogue and experiment, had made most progress in the department of sense perception; but even here one of the first results had been to show how intimately the social factor was involved, as for example in inducing a native to give a fair trial to an experiment beyond his social horizon and in eliminating the disturbing factor of an inadequate language, *e.g.* in the case of colours.

In summing up the problem, Prof. Myres said that the ethnologist, and, in particular, the social anthropologist, must define more clearly the elementary terms in their characterisation, while the psychologist must go further in laboratory work on such complex manifestations as the "sense of right or wrong," irrespective of race or breed.

Dr. C. S. Myers, president of the Psychological Section, said that the chief determinants controlling mental characters were heredity and environment. On the physical side environment—climate, temperature, food supply, and the like—acted directly and indirectly, especially on the internal secretions which affect the functions of the emotions. Environment must have played an important part in producing such differences as distinguished Americans, Australians, and New Zealanders; but it was not known with certainty how these differences came about, nor how permanent they were likely to be. Different parts of the same country exhibited distinguishing characteristics. In England, for example, Yorkshire and Wales had for long been noted for musical ability. What did this mean in terms of race? Where there was lack of ingenuity or artistic skill, were these qualities latent, awaiting the encouragement of a more favourable environment? Rivers had shown that contact of culture produced something new, and apparently the same applied to an individual.

Dr. Haddon said the results of the psychological observations made by the Cambridge Expedition to the Torres Straits had been largely negative. A scheme should be worked out for the observation of the emotional content of the attitude of primitive peoples towards their own ceremonies.

Dr. Cyril Burt said that experimental tests of intelligence and other inborn mental capacities usually yield a correlation of about 0.5 between the performances of parents and those of their children. Thus, mental qualities seem to be inherited to much the same degree as physical. Small but distinct and constant differences are discernible between the averages for different nations and races. On the whole, however, individual differences tend almost to swamp the group differences. On the temperamental side,

group differences are possibly larger; and there is some evidence to show that differences of so-called temperamental type may be associated with racial differences (*e.g.* the so-called "objective" type with Nordic physical features and the so-called "subjective" type with Mediterranean).

Mr. Fallaize pointed to the persistence of certain mental qualities in different races noted by the older travellers and historians.

Dr. Shruballs said that he had observed that the children of Chinese fathers and English mothers in London schools, brought up in much the same environment as English children, were intellectually as quick

as the latter but showed no inclination to take part in games. Among English children differences in pigmentation appeared to be associated with differences in direction of aptitude.

In summing up the discussion, Mr. H. J. E. Peake, the president of the Anthropological Section, said that while no very definite conclusion had been reached, it was clear that the aim of investigators must be to eliminate the personal element, while psychologists should endeavour to break up mental characters into such simple factors as might be subjected to reaction tests, as courage had been shown to be the reaction to danger.

Scientific and Industrial Research.¹

THE Committee of the Privy Council for Scientific and Industrial Research has issued its seventh annual report, with that of its Advisory Council, covering the year 1921-1922. The first few pages deal with the income and expenditure of the Department of Scientific and Industrial Research, and with its efforts to observe the spirit of national economy. It is pleasing to record that the Geddes Committee on National Expenditure has not found it necessary or expedient to recommend any reduction in the estimates beyond that proposed by the Department itself. The total expenditure during the financial year 1921-1922 was nearly 525,585*l.*, made up of 190,024*l.* at the National Physical Laboratory (nearly 100,000*l.* being recovered in fees, etc.), 46,616*l.* at the Fuel Research Station, 57,423*l.* for the Geological Survey and Museum, 10,323*l.* at the Building Research Station, 17,750*l.* at the Low Temperature Research Station, 21,464*l.* on the work of the Co-ordinating Boards and Committees, 5988*l.* on minor research programmes, 86,355*l.* (from the million fund) in grants to the Research Associations, 8287*l.* in grants to other bodies, 43,793*l.* in research studentships, and 37,561*l.* on administration at headquarters.

By far the major portion of the report, however, deals with the plans and achievements of the various research organisations associated with the department. Considerable interest will be awakened in the twenty-four industrial research associations, twenty-two of which are already in active operation. A few of these associations have now been in existence long enough to have produced results of practical value, examples of which are given. Thus, the British Portland Cement Research Association has been able to effect considerable economies in fuel in many works through the results of its researches on rotary kilns and advice on scientific management. The British Scientific Instrument Research Association has introduced a new polishing powder and an abrasive for the production of lenses and prisms, by means of which grading and hand work are eliminated, and much time is saved. The British Cotton Industry Research Association has produced an instrument for the testing of yarns, continuous lengths being examined instead of short pieces as hitherto, with the result that important variations have been revealed in certain yarns, which are introduced by the method of spinning. Finally, the Linen Industry Research Association has developed a pedigree strain of flax seed which gives much higher yields of fibre than any existing variety, and has discovered methods whereby flax and hemp may be distinguished at all stages of manufacture. It is obvious that these are

not isolated pieces of work, but rather the first-fruits of a considerable harvest which has been patiently husbanded by the research associations, and it is no secret that a mere catalogue of the further results which have been published in the scientific press since the report was written would occupy considerable space.

The value of co-operation between the research associations is emphasised again. Several instances are mentioned of two or more associations attacking a common problem, the most interesting cases being those in which the participants are respectively consumers and producers of the materials investigated. Mutual efforts of this kind must result in improvements in useful commodities and possibly in a lowering of the cost of production.

Considerable space in the report is also devoted to the work of the co-ordinating research boards, which more directly serve national interests. Attention is directed to the commendable willingness of the Service departments to enlist the co-operation of outside bodies and to arrange for the open publication of the results of the work undertaken when these are of sufficient general interest. The co-ordinating research boards consider an enormous variety of problems in physics, chemistry, and engineering, including radio-telegraphy, the liquefaction and storage of gases, the deterioration of fabrics used by the fighting services, adhesives, and lubrication, and the report mentions several of the results obtained. Furthermore, public interest should be aroused in the work of the Fuel Research Board, which has issued most valuable information in a number of publications which have already been noted in these columns; *e.g.* in NATURE of November 25, 1922, p. 718, when the report on experiments on low temperature carbonisation was discussed. The work of the Food Investigation Board is also of common interest, and important advances are reported in the study of cold storage, and the bacteriology of canned meat and fish.

A useful discussion of the terms "pure" and "industrial" research is given, the distinction being mainly a question of the source from which the impulse to the conduct of research is derived. It has been all too common on the part of workers engaged in "pure" research for a very few problems to be pursued through all inviting ramifications, with the result that while certain small areas may be very thoroughly cultivated, the worker remains unimpressed by the vastness of the unexplored territory outside his own subject. The problems facing any one industry are much more varied than is frequently imagined, and the gaps in scientific knowledge which they reveal are often astonishing. For example, the Cotton Research Association finds it necessary

¹ Report of the Committee of the Privy Council for Scientific and Industrial Research for the Year 1921-22. (Cmd. 1735.) Pp. iv+123. (London: H.M. Stationery Office, 1922.) 3s. net.