

that a convenient way of escape from social adaptation.

Prof. Olive Wheeler, in her paper on "Variations in the Emotional Development of Normal Adolescents", gave some account of the results of her own inquiries, in which she used the questionnaire method. The replies to her questions pointed to an increase of emotionality during the period of adolescence, which showed itself in three directions: first, an increased feeling of self, tending towards psychological independence and the finding of a vocation; second, a rise or intensification of sex emotions, tending towards the development of a hetero-sexual attitude and the finding of a mate; and third, the development of social, aesthetic, and religious emotions, tending towards the formulating of a point of view on society and on life in general. There were great variations in the time and rate of this emotional development, and equally great variations in the intensity of the new experiences; in some cases there appeared to be a great accession of energy along each of the three chief channels of experience and adjustment, an observation which supported Burt's hypothesis of a central emotional factor.

As regards emotional differences between the sexes, Prof. Wheeler thought that, apart from the earlier emotional maturity of the girl, the most striking difference between the sexes was to be found in a difference of emphasis on the active and passive groups of emotions: boys tended to be more aggressive; their misdemeanours were aggressive (pugnacity, acquisition), while those of girls were passive (lying, sex offences, and attempted suicides). This difference, it was suggested, might be partly responsible for the fact that highly intelligent girls and women found it more difficult to attain that eminence in professional, business, or cultural life justified by their intellectual ability: in boys there was a harmony between the egoistic and the sex emotions which resulted in activity, while in girls there was a perpetual liability to conflict between them, which tended to a passive resultant.

Concerning environmental influences, Dr. Wheeler expressed the opinion that emotional maturity was much more affected by training and circumstances, particularly by the home, than is any other phase of development. Many parents delayed the psychological weaning of their children, with serious consequences; they tended to keep their sons and daughters in emotional leading-strings and to allow them too little freedom of thought and action. The long preparation period necessary for entrance into the pro-

fessions made difficult the harmonious development of some adolescents: biological maturity was attained before economic independence was reached. Hence the self-help movement, which largely arose through stress of economic circumstances and was beginning to be a feature of English (as of American and Scottish) university life, was psychologically sound: in their vacations, at any rate, students could get a taste of real work, responsibility, and economic independence. The difficulties were very much greater for the youth who was unemployed and sometimes found a mate before he found a vocation and had been trained by work to accept responsibilities and to consider the rights and needs of others.

The development of the young industrial worker of the continuation school was discussed by Miss M. Phillips in a paper entitled "The Adolescence of the Young Wage-earner". His social development, she said, was hampered by his limited environment. Repetitive work provided an even more restricted environment than did the school-room: it provided him with few opportunities of expressing his initiative. Most of these workers resigned themselves to the world as they saw it, and resorted to fantasy: some sought opportunities for development in personal relationships outside of the workshop: a few carried the unadventurous, spiritless attitude of the workshop into their personal relationships.

The fourth paper, by Miss A. H. M'Allister, on "Adolescent Modes of Thinking", gave an account of her own observations made with a method of studying adolescent thought, which seems very promising. She compared some 400 stories written by girls of 18 and women of 30 to be told to children, thinking that the writers would in the selection and treatment of their material reveal their own attitude of life; and her expectations were fully realised, for there were distinct differences between the stories of the younger women and those of the older, which can only be explained by their difference of outlook. Fairy stories were more popular with the adolescents and were treated somewhat differently: they depicted a beautiful, busy, but secret world, a place of feasting and dancing and all sorts of wild impossibilities; it was an expression of the adolescent's growing interest in the world, of her hopes, and realisation of her own independence: those of the older women were more sober by comparison. A curious feature of the adolescent stories, one which raises a problem for the psychoanalyst, was the comparative absence of 'fathers'; 'mothers' were plentiful, but 'father' was seldom introduced, and then usually to explain his absence.

Anthropology and Archæology in the "Encyclopædia Britannica".

AS a survey of natural and applied science the "Encyclopædia Britannica" is a record of stupendous achievement by the human intellect in probing Nature's secrets and in the reduction of material conditions to subservience to man's needs. When we turn to the sciences which deal specifically with man himself and his past, we enter upon a field of discovery in which the results, if less spectacular, offer no lesser appeal to the imagination, and redound no less to the credit of those to whose genius and patient piecing together of the evidence they have been due.

In those branches of science which deal with the origin and development of man and the growth of civilisation, there is one name which dominates all others, one man whose influence and example, explicit or merely implied, permeate the whole and determine the attitude of the investigator towards his

material. That man is Darwin. In his article on the evolution of man, Sir Arthur Keith, in paying a tribute to Sir Edward Tylor, the greatest of the early anthropologists, emphasises the effect of his acceptance of the evolutionary theory of human descent as a working hypothesis. He goes on to demonstrate that Darwin's views on the descent of man have withstood all attack, remaining the only sound guiding principle in interpreting the facts.

An earlier generation, apt to facile generalisation, found in the Darwinian theory a ready key to the solution of all its difficulties. Since then as the facts have accumulated they have been seen to conflict with the crudities of premature theorising, and this has led to a popular misconception that the Darwinian position has been discredited. Far from this being the case, as Sir Arthur Keith shows, for example, in his review of the evidence of embryology on the descent

of man, the facts on a subtler interpretation only serve to confirm it. The tree of human descent still flourishes, but instead of a single stem, it has put forth many branches, each a specialised adaptation to its environment. We may no longer believe that men are descended from monkeys, but rather that in the line of descent the anthropoids are early forms which branched off, and have had to pay the penalty of too early specialisation.

It must not be concluded that there are no gaps in our theories, that no difficulties remain to be solved. There are still divergences of view. For these we refer the reader to Sir Arthur Keith's article, in which he pilots a way through the evidence from the anthropoids, *Pithecanthropus erectus*, Piltdown, Neanderthal, Rhodesian man, and the rest. Unfortunately, Peking man came too late to fit into Sir Arthur Keith's chain of evidence. A mere reference to the articles on "Heredity" and "Eugenics" for the place of Darwin in other fields must suffice as we pass to the study of man in its wider aspects. Dr. Marett in his article on "Anthropology" largely attributes the foundation of anthropology in its modern sense to Darwin's revolution in the study of biology. Man and his customs and institutions, it is true, have been a subject of curiosity from time immemorial. Herodotus is the father of anthropology just as much as of history. The study of archaeology goes back at least to the Renaissance, as is pointed out in the article "Archæology" by Dr. Hall. But when Darwin published his "Origin of Species", as Dr. Marett says, "the time was at length ripe for a world-wide, age-long survey of the human record". Hence Dr. Marett has taken human survival as the prime object of anthropological study. It was the Darwinian theory of the struggle for existence and the survival of the fittest which provided method, a unity of aim, and a consequent strictness of procedure in dealing with the enormous range and diversity of the material for such a survey, and it is in the light of their survival value that Dr. Marett deals with the study of race and culture, language, social institutions, religion, and morals. It may be noted that Dr. Marett eschews the practically convenient but theoretically unjustifiable arbitrary divorce between prehistoric man, the modern savage, and civilised man. All are equally subject to the same biological canon.

In accordance with the scheme of arrangement of the "Encyclopædia", Dr. Marett has dealt with general principles only. Subsidiary articles cover the question of racial characters, racial distribution, social institutions, and culture under continents or countries as circumstances dictate. Others deal with special subjects of inquiry such as exogamy, kinship, marriage, totemism, and the like. Dr. Harrison's article on "Material Culture" is of special interest at the moment in its bearing upon the question as to how far development in material culture is to be regarded as due to independent invention or to a diffusion from a given centre—a subject which he developed further in his recent address to the anthropological section of the British Association at Bristol.

Those who are prone to ask what is the practical outcome of research and to demand some ultimate utility from academic studies may refer to Prof. Seligman's "Anthropology, Applied", in which he deals with the bearing of anthropological studies on the problems of the administrator in dealing with primitive races in our dependencies, drawing instances from his experience in the field.

When we turn to the treatment of archaeological studies in the "Encyclopædia", it is inevitable that attention should be directed in the first instance to the general article by the late Dr. H. R. Hall, whose un-

timely death we all deplore. In accordance with the general scheme for strengthening the appeal of the scientific articles to a wider public, Dr. Hall has opened with a brief history and methodology of his subject. Two points are immediately presented to the reader with no little force. First is the astonishingly rapid increase in our knowledge in recent years, particularly since the War; and second, the need now felt for technical training in the practical archaeologist and the wide range of knowledge which that training must cover, not merely within the four corners of the subject, but also in a wide variety of subjects which impinge upon work in the museums, and still more in the field, and involve problems ranging from practical chemistry to engineering. Dr. Hall is in accord with the spirit of the "Encyclopædia", though he may, perhaps, have felt a little ill at ease in seeking a practical end for archaeological studies which he justifies, were justification needed, as one of the 'things of the spirit'.

The final word on method rests with Mr. O. G. S. Crawford, who from the fund of his practical experience deals with archaeological discovery from the aeroplane.

The general survey of the stone ages by Mr. M. C. Burkitt, the bronze age by Mr. H. J. E. Peake, and the iron age by Mr. Reginald Smith are synthetic rather than analytic. Even more than in their detail, their general trend marks the advance in archaeological studies of recent years. It is of no little significance that the treatment of the larger problems of archaeology tends to expand in range until, in the earlier phases at least, it is little short of world-wide. This would have been even more evident had publication been delayed by a little to include discussion of recent evidence from China, India, and Africa which holds out possibilities of world-wide correlations in prehistoric times based on climatological and meteorological argument. As it is, Prof. Seligman could barely touch on Mr. L. S. B. Leakey's discoveries in East Africa.

It is when reference is made to the departmental articles, mostly under geographical headings; that the increase in the sum of detailed knowledge becomes impressive. In this connexion Mesopotamia with its record of recent excavation must hold first place; but Egypt with Badari and the Faiyum, India with Mohenjo-daro and Harappa, China, and Palestine each contribute no less significantly if less sensationally to the archaeological picture of the growth of civilisation in prehistoric times which gradually is being pieced together. By no means less important is the eastern European area, of which the prehistoric archaeology is ably surveyed by Prof. Gordon Childe. Less attractive, perhaps, to any but the expert because of its difficulties, of which not the least is the language in which most of the original records of research are published, it assumes its proper perspective in Prof. Childe's hands in linking up the cultures of Central Europe, the Danubian area, and the eastern Mediterranean.

It would be impossible even to glance in passing at the many fascinating problems which now engage the attention of the archaeologist and are here recorded—the Hittite empire and its ramifications, which the archaeological and philological evidence carries, on one side to India, and, on the other, to the peoples of the Mediterranean; the cultures of the south-western United States, in which an archaeological method and framework develop as evidence accumulates; and the great pre-Columbian civilisations of Central and South America. As a whole, archaeology in the "Encyclopædia" is a record of great achievement reared upon a sound basis of carefully observed and recorded fact.