

about the middle of the eighteenth century, when turnips were added to the diet, and the introduction of oil cake about 1797 made it possible to fatten during the winter. It is found that a linseed-cake feed gives the results most desired by the butcher, a cotton-cake feed giving a poorer bullock. The oil was long considered to be the valuable constituent; later, most importance was attached to the albumenoids. Maize was introduced in 1875, brewers' grains a few years later, and the carbohydrates are now regarded as a most important constituent.

In the subsequent discussion the minimal protein was defined as that sufficient to supply the units for tissue formation. Dr. E. F. Armstrong alluded to the importance of the mineral constituents in a colloidal state and their analogy to enzymes. Prof. Starling pointed out that the physiologists diet for health, whereas the agriculturists feed for fattening purposes.

ANTHROPOLOGY AT THE BRITISH ASSOCIATION.

THE meeting of Section H at Winnipeg, apart from being one of the most enjoyable of recent years, was also fruitful of much good work, and was undoubtedly in every respect a great success. It was hardly to be expected that the audiences would be as large as at an English meeting, but although the numbers attending the section were at first few, they increased daily, and at the end were well up to the average. Last year a great diminution in the number of papers dealing with physical anthropology had to be recorded. Unfortunately, this was still more apparent at Winnipeg, and only one paper on the subject was presented. It is to be hoped that this is only a temporary falling off, and that in future years the papers on physical subjects will be as numerous as in the past.

The address of the president, Prof. J. L. Myres, on "The Influence of Anthropology on the Course of Political Science," need only be mentioned here, as it has already appeared in the pages of NATURE. The last few paragraphs of it, however, in which the president urged the importance and necessity of undertaking an ethnographic survey of Canada, must have particular attention directed to them, as, in a way, they struck the keynote of the meeting.

When the association met at Montreal in 1884 Prof. Tylor presided over the newly formed anthropological section, and the chief result of the meeting was the foundation of an ethnographic survey of Canada, under the auspices of the association, which appointed a committee and gave liberal grants. This committee did much good work and published annual reports, but the lamented death of Dr. George Dawson brought work to a standstill. Since then, with the notable exception of Mr. Hill-Tout's work on the Salish of British Columbia, practically nothing has been done by Canadians towards a systematic study of the natives inhabiting the Dominion. It was felt, therefore, that the time was ripe for endeavouring to organise an ethnographic survey, and a whole day was accordingly set apart for papers and discussion on this important subject.

This discussion was opened by Mr. Sidney Hartland, who gave a *résumé* of the work that had been done in the past from the times of the Jesuit fathers onwards. This retrospect made it apparent how small had been the part taken by Canadians in contributing to our knowledge of the natives of the Dominion, and how little interest had been taken by the Dominion and provincial Governments, which had been content to leave inquiries, which have a bearing, not only on scientific questions, but also on the practical problems of government, to the Government and museums of the United States, and to individual effort.

Mr. Hartland was followed by Dr. Franz Boas, of New York, who, in a paper on the ethnological problems of Canada, urged the immediate importance of undertaking such a survey at once, before it is too late. Primitive life is rapidly disappearing before the economic progress of Canada, and unless the work is undertaken at once the opportunity will be gone for ever, and information which will have a most important bearing upon general anthropological problems will never be obtained. Dr. Boas then directed attention to some of the problems awaiting solu-

tion, and pointed out what an important field Canada offered to the investigator.

Dr. G. B. Gordon, of the Philadelphia Museum, explained the work which is being undertaken by the Smithsonian Institution and the various museums in the United States.

But the native question, although the most pressing, is not the only ethnographic problem in Canada which requires study. The problem of the white immigrants is in many respects even more important, and a strong feature was therefore made of this side of the question. Dr. Shrubbsall, who opened the discussion on this aspect of the problem, pointed out the great importance of collecting careful statistics so as to be able to ascertain the effect of Canadian environment upon immigrants of European origin. He urged the vital importance of a survey of physical characters, mental conditions, and physique, so as to discover what type was best suited to the Canadian environment, and he also pointed out how necessary it was that the Dominion should take preventative measures now to stop the landing of the physically or mentally unfit, rather than remedial measures later. The task before the Dominion was to prevent these problems, which are now facing the great centres of population, from arising in Canada rather than to let them arise and then to attempt to remedy them.

As a result of this discussion a committee was appointed by the association to consider what steps can be taken to organise an ethnographic survey of Canada, and a memorial has also been drafted urging upon the Government the importance of undertaking the work before it is too late. It is hoped that this memorial will be presented in due course.

As was natural at a meeting in Canada, many papers dealing with American, and particularly Canadian, ethnology and archaeology were presented to the section.

To take first of all those dealing with Canadian ethnology. Mr. Hill-Tout, whose reports on the various British Columbian tribes have appeared from time to time in the *Journal of the Royal Anthropological Institute*, presented a further instalment of his work in a report on the ethnology of the Okanagan of British Columbia. These people are the most easterly division of the Salish of the province, but they are not confined to British Columbia, but extend southwards into the United States, the international boundary dividing them into two fairly equal divisions. The material culture and language of the stock was discussed, and from the linguistic and cultural evidence a most important conclusion was arrived at, namely, that the original home of the stock, before its division into its present sections, was not the rivers and bays of the Pacific coast. The staple food of these people is now, and as long as they lived where they do now must have been, the salmon. If, therefore, they had inhabited their present districts before their language was divided into its present groupings, we would expect to find the same word for salmon among the different stocks; but this is not the case, and, in addition, their myths as to the origin of the salmon differ. It seems clear, therefore, that, before the division, the people cannot have inhabited their present district. Where they came from is another matter, but it is noticeable that the linguistic evidence points to a connection with Oceanic stocks.

An interesting paper on the Blackfoot Medical Priesthood was presented by Dr. John Maclean. The paper dealt with every aspect of the subject, with the initiation ceremonies, dress, and facial decoration, and with the causes of disease, especially the influence exerted on the mind and body of the native by his belief in evil spirits. Native medicines and remedies were also discussed, and the value of the work of the medicine-men among the natives and the influence exercised by them on the native religion.

Mr. William McIntosh presented a paper on the present native population and traces of early civilisation in the Province of New Brunswick. At the present time the native and half-breed population numbers about 1500, and is composed of two tribes, the Micmacs, on the east coast and part of the shores of the Bay of Fundy, and the Malecites, on the St. John River valley, which is approximately the site of their ancient habitations. There are abundant traces of the prehistoric occupation of the

district by peoples in the Stone age of culture. Kitchen middens and camp sites are abundant; stone implements, almost invariably of the type common to the Algonquin areas, are numerous, while there is a considerable amount of pottery which in material and shape closely resembles Algonquin wares, but shows interesting varieties of ornamentation.

An interesting series of copper implements from a site in western Ontario was exhibited by Prof. E. Guthrie Perry. The collection consisted of a large number of fish-hooks and of spear- and arrow-heads. All were of cold-hammered copper from the Lake Michigan district.

In a paper on the archaeology of Ontario and Manitoba, Prof. H. Montgomery, who has spent many years in excavating mounds and other early sites in America, gave a general account of his work on the antiquities in this part of Canada, and exhibited many of the objects discovered.

Miss A. Breton presented a paper on race types in the ancient sculptures and paintings of Mexico and Central America. There is an enormous mass of material available for study, including terra-cotta or clay statuettes, small jadeite heads and figures, archaic stone statuettes, portrait statues and reliefs, stelæ, MS. frescoes and vases. Among distinctive types are the chiefs on the reliefs at Xochicales, the shaven clay heads at Teotihuacan, the priests, with protruding lower lip, of the Palenque reliefs, the caryatid statues, in feather mantles, at Chichen Itza, and the sixteen warriors, at the same place, of a type similar to some of the modern Indians of the villages near Tlaxcala. Portraits of the Mexican kings are on the border of a picture map, representing the western quarter of the town of Tenochtitlan. Of female types there are the painted clay figures of Jalises with compressed heads. The figures of some of these are short and broad, while others are slender, and it is interesting to note that the type still survives. Finally, on the Guatemalan stelæ two female types are shown, the women-chiefs being obviously of a different caste to the victims prepared for sacrifice.

In another paper Miss Breton described the arms and accoutrements of the ancient warriors at Chichen Itza, where the walls of the Temple of the Tigers are covered with sculptured rows of chiefs, carrying a variety of weapons. Among these are stone implements, harpoons, spears, and the throwing stick. For defensive armour the warriors wear protective sleeves in a series of puffs, breast plates and helmets, and carry round or oblong shields.

Dr. G. B. Gordon gave an account of his recent expedition to Alaska on behalf of the University of Pennsylvania. The tribes investigated were those inhabiting the Koskokwim valley, who preserve to a marked degree their aboriginal characteristics. In the upper valley were found Dené tribes preserving the characteristics of the Dené stock. Seven hundred miles from the mouth of the river Eskimo culture began, and two hundred miles further Eskimo culture had entirely replaced the native customs, even in those communities where there was little or no admixture of Eskimo blood. The tendency of the Dené in this region to adopt Eskimo culture, which has intruded from the Bering Sea district, is most marked, and shows the aggressive nature of the Eskimo civilisation. At the mouth of the river the Eskimo have retained in full vigour their peculiar customs and mode of life, because that part of the coast has not been visited by trading vessels or whalers.

As is usual at meetings of the section, papers dealing with Mediterranean archaeology and with the work of the British Schools at Athens and Rome were again a prominent feature.

In a paper on recent Hittite research, Mr. D. G. Hogarth gave a most valuable *résumé* of the present state of our knowledge of this interesting subject, and summarised the results of the explorations which have taken place. At first the general opinion was that the Hittite race and civilisation were Syrian, but gradually opinion has changed, and it is now held that the original home of the Hittites must be looked for in Cappadocia, and that only at a later period were they domiciled south of the Taurus. At Boghaz Koi has been discovered what amounts to the collection of royal archives, among them a duplicate

of the treaty between Rameses II and Khetasar, inscribed on the wall of Karnak; this discovery shows that Boghaz Koi was the centre of the Hittite confederacy as early as 1280 B.C., and proves that the Hittite power was centred in north-west Cappadocia long before it is mentioned as being at Carchemish by the Assyrian records.

In their paper on prehistoric antiquities of Malta, Dr. Ashby and Mr. Peet, of the British School at Rome, described the excavations on the Corradino Hill, now being conducted by the Maltese Government with the active cooperation of the British School at Rome. The excavation of the rock-cut hypogeum at Halsafieni shows that its architectural features imitate in a most surprising way the sanctuaries above ground, and it has, moreover, produced an adequate series of Maltese pottery of the Neolithic period. Excavation has shown that the Megalithic buildings on the Corradino Hill are of irregular plan. They were constructed of rough masonry, with large slabs at the bottom and smaller ones higher up. The walls converge as if to form a roof. The use of standing slabs at the base of the walls, with coursed masonry above, is paralleled by the giants' tombs in Sardinia and the prehistoric huts of Lampedusa.

In the report of the committee appointed to carry out archaeological and ethnological researches in Sardinia, Dr. Duncan Mackenzie showed that the tombs of giants were the burial places of the dwellers in the Nuraghi, and that these tombs, with their elongated chamber and crescent-shaped front, were derived from the more ancient dolmen type. In one case the chamber of an original dolmen tomb had been elongated so as to resemble a giant's tomb. In another example the large covering slab was supported by upright slabs at the sides and back, and behind are traces of an apse-like enclosing wall, a characteristic of some of the dolmens of northern Corsica and Ireland, where giants' tombs do not exist. A new type of giant's tomb was also discovered in which the mound was entirely faced with stone, upright slabs being used below and polygonal work above. Another feature, hitherto unique, is the discovery of a hidden entrance into the chamber on one side in addition to the usual small hole in front, through which offerings were probably introduced.

The work of the British School at Athens on the site of the shrine of Artemis Orthia at Sparta was fully described by Mr. R. M. Dawkins, the director of the school. At previous meetings of the association the work of excavation for the past year has been described in detail, but in this paper Mr. Dawkins gave a general *résumé* of the work on this interesting and important site.

Two other important contributions to Mediterranean anthropology were the reports of the committees to conduct researches in Crete and on Neolithic sites in Thessaly. The former committee issued an interim report by Mr. C. H. Hawes, who has been conducting somatological investigations. He reported the discovery of human remains certainly not later than Middle Minoan I. These remains consisted of four skulls, two portions of other crania, and several pelvic and long bones. All were in a wonderful state of preservation, and it is hoped that complete measurements will be published at an early date. Mr. Hawes has also been investigating the craniology of the modern population of the island with the view of comparison with that of the ancient population, and it is expected that most important results will be obtained from this investigation.

The work of excavating Neolithic sites in Thessaly has been continued during the past year, and it is now quite clear that there existed, in this isolated part of Greece, a people who were unaffected, until a comparatively late period, by the bronze culture around them, and who remained in the Stone age almost until the beginning of the age of Iron. It is important, too, to note that an analogous state of culture has been discovered in similar latitudes in southern Italy.

A paper on excavations at the Nubian cemetery at Anibeh was presented by Dr. Randall-MacIver. The cemetery, which dates during the first five centuries A.D., exhibits a culture, apparently of negro origin, but strongly influenced by Egyptian, Greek, and Roman art. A most important feature was the discovery of a form of script which has not up to the present been deciphered.

Other papers which call for passing mention are one by Mr. Sidney Hartland, on a cult of executed criminals in Sicily; another, by Mr. W. H. S. Jones, on a study of malaria in ancient Italy, which will shortly be published in the *Liverpool Annals of Archaeology and Anthropology*; and one by Dr. Shruballs, on the influence of geographical factors on the distribution of racial types in Africa, in which he showed that the trend of the migrations was from the north southwards, and also directed attention to the importance in the problem of the presence of the tsetse-fly in certain areas, which, by modifying the conditions of animal life in those districts, influenced their occupation by the native population.

Among the reports of the various research committees special attention should be directed to that on stone circles, which reported that excavations had been continued at Avebury, with the result that additional evidence had been collected which tended to confirm the opinion, arrived at in the course of the previous year's excavations, that the monument was of Neolithic date.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Colonel Sir T. H. Holdich, K.C.M.G., will deliver a lecture on Thursday, October 21, on some aspects of political geography. The lecture will be given in the large lecture-room of the Sedgwick Museum of Geology. Lieut. Shackleton will lecture on Thursday, October 28. The lecture will be given in the examination hall.

Dr. Breul, the reader in Germanic, will conduct practical exercises in reading scientific German for students of natural science at the literary lecture-rooms on Tuesdays and Thursdays, beginning on Thursday, October 14.

LONDON.—University College:—A course of lectures in electrochemistry will be begun by Dr. Wilmore on Monday, October 18. The lectures on vertebrate palaeontology, by Prof. J. P. Hill and Dr. Woodland, began on Tuesday last. It is announced that Dr. Woodland will deal with fishes in the first term, and Prof. Hill with Amphibia, Sauropsida, and Mammalia in the second and third terms.

OXFORD.—Mr. Walter Brudenell Gill, formerly scholar of Christ Church, has been elected to a fellowship at Merton College to undertake research work in physics, and to act as a demonstrator in one of the laboratories of the University.

Dr. G. B. Longstaff, of New College, has, through the trustees of the endowment fund, presented the sum of 2400*l.* to be invested as an additional endowment for the Hope Department of Zoology. A decree will be introduced in Convocation on October 26 to record the gratitude of the University for the gift, and to sanction regulations for the employment of the fund. The regulations contemplate the endowment of an assistantship to the Hope professor of zoology, but the curators of the Hope collections are empowered to make other arrangements with the sanction of the donor.

MISS ALICE PARKIN has been appointed organising secretary for the courses in home science and economics at King's College, London, for Women.

A SPECIAL course of lectures by Mr. A. P. Thurston on aeronautics is announced by the East London College, Mile End Road. The first lecture will be given on Monday, October 18.

A LAKH of dollars (8750*l.*) has been collected in the Canton district, and forwarded to the Governor of Hong Kong, as a contribution towards the endowment fund of the Hong Kong University.

IN addition to the men of science referred to on p. 419 of NATURE (September 30), the Bohemian University of Prague has conferred the honorary degree of Doctor of Philosophy upon the following:—Prof. H. B. Dixon, F.R.S., Prof. J. Burnett, and Prof. W. R. Morfill.

THE Ottawa correspondent of the *Times* states that Mr. Andrew Carnegie has given 20,000*l.* to the general funds of the McGill University, Montreal. The offer was made upon the condition that 100,000*l.* should be raised from other sources, and this has been done largely through the generosity of Lord Strathcona.

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At the inauguration of Dr. A. L. Lowell as president of Harvard University on October 6, the honorary degree of Doctor of Letters was conferred upon the Right Hon. James Bryce, the British Ambassador to the United States, and the following representatives of British universities:—Prof. W. A. Herdman, F.R.S., Dr. W. N. Shaw, F.R.S., Dr. G. A. Gibson, Prof. J. Biles, and Mr. J. Willis Clark.

THE opening meeting of the autumn session of the Eugenics Education Society was held last week in the Caxton Hall, Westminster, when Lieut.-Colonel C. H. Melville delivered a lecture on eugenics and military service, in the course of which he stated that one of the objects of eugenics was to improve the individuals of the present generation. He contended that military service, by strengthening character, was a positive benefit to the individual, who was physically improved by better food and housing, while moral advantages accrued from discipline and association with comrades.

THE Board of Education has published (Cd. 4875) the fifteenth volume of reports from the universities and university colleges which participated in the year 1907–8 in the annual grant, now amounting to 100,000*l.*, made by Parliament for "University Colleges in Great Britain," and from the three colleges in Wales which received a grant of 4000*l.* each. For the first time a report is included from the London School of Economics, which was in 1907 awarded a grant of 1150*l.* The individual reports are exhaustive and full of information on every matter of importance in connection with higher education in the districts served by the participating institutions; but the value of the bulky Blue-book to students of educational administration is impaired seriously because nothing is attempted by the Board of Education in the direction of summarising the scattered information, or of tabulating the facts concerning the various colleges, so that it may be possible rapidly to compare, say, the local support for higher education in various parts of the country, the cost of such education per head in different districts, and so on. The attention of the Board may be directed to similar reports issued by the U.S. Bureau at Washington, in which reference and comparison is made easy for the student.

AN examination of the calendars of the newer universities shows how completely their governing bodies realise the importance of providing, in addition to the more ordinary courses of academic training in arts, pure science, medicine, and law, lectures and laboratory and workshop practice in the higher branches of technology of special importance in the districts in which their universities are located. The current calendar of the University of Leeds, for instance, shows that its students may attend technological courses, and, if they so elect, graduate in, civil and mechanical engineering, electrical engineering, mining, gas engineering, fuel and metallurgy, applied chemistry—whether having reference to leather or colour manufacture or dyeing—and agriculture. The textile industries, too, are catered for in a very complete manner. Facilities for research work also are provided in each of these departments. Similarly, the new calendar of the University of Sheffield gives full particulars of the faculty of applied science in the University. This department provides lecture and laboratory courses of instruction in the subjects of applied science required in the engineering, metallurgical, and mining industries, and awards degrees in engineering and metallurgy. It is a noteworthy sign of the times, also, that each university has a professor of education, and that modern attempts to place educational methods upon a scientific basis are receiving encouragement.

THE report of the principal of the Bradford Technical College for the session 1908–9 shows that the total number of students in attendance during the session was slightly greater than in 1907–8. In the day classes the total reached 221, fifty of these being apprentices. The total number of students in the evening classes was 887; 324 were concerned with the textile industries, 169 with chemistry and dyeing, and 394 with engineering. Of the 171 day students other than apprentices, it is satisfactory to find that more than a hundred had previously attended secondary schools. The standard of the entrance examination, which admits new students to the diploma courses, is being raised gradually, and should soon secure adequate