

in his enterprise, but there are some very big difficulties in his way. The biggest perhaps is that before the plan can become general legislation must be brought to bear. Unhappily dwellers in towns and cities are so little disinterested that the average householder would prefer to see his next-door neighbour erect a costly apparatus (the first cost for a seventeen-chimney house is said to be about £50) rather than go to the expense himself. The large quantity of water required for a general smoke-washing would be a serious problem, not only of cost but of supply at any price, although it is quite possible this difficulty could be, as it should be, met. The cleaning out of the apparatus would be also a serious matter, for the tarry deposit due to smoke-washing is of a particularly tenacious nature.

The sewage problem next occupied the attention of the meeting, Mr. Crawford Barlow reading a paper on "The London Sewage Question." Mr. J. Cooper also read a paper on "The Sanitation of Edinburgh." The last paper read at this meeting in this section was contributed by Mr. H. C. Carver. It related to fire extinction on board ship. The author has devised an apparatus by means of which he can turn the effluent gases from the boiler furnaces into the hold of a ship where fire is raging; the gases having been previously washed and cooled. The apparatus has been tried practically, and has been found to answer remarkably well. The ordinary practice is to turn boiler steam into a ship's hold; but the spent gases from the furnace are naturally more effective, as steam condenses, and air is thus drawn in. Nevertheless, steam is better than nothing.

After the usual votes of thanks the business of the section was brought to a close.

#### ANTHROPOLOGY AT THE BRITISH ASSOCIATION.

AFTER the President's address, on Thursday, August 4, Mr. E. W. Brabrook read a paper on the Organization of Local Anthropological Research. The writer, as the representative of a joint committee of delegates from the Society of Antiquaries, the Folklore Society, and the Anthropological Institute, communicated a plan for an ethnographical survey of the United Kingdom, by which observations should be made simultaneously in selected localities on the ancient remains, the local customs, and the physical characters of the people. The matter is one that will not brook undue delay, as the evidence is fast slipping out of our grasp.

The Rev. Frederick Smith read a paper on the Discovery of the Common Occurrence of Palæolithic Weapons in Scotland. The author has made patient and long-continued search in modern and ancient gravel beds of existing rivers, in "Kame" deposits, and finally in certain phases of boulder clay; and he finds abundant evidence in the shape of glaciated, broken, and crushed specimens of the weapons of palæolithic man. He has collected at least 350 specimens, which he believes to be definite evidence of the long-continued sojourn of palæolithic man north of the Border.

A paper on Cyclopean Architecture in the South Pacific Islands was read; also the Reports of the Anthropometric Laboratory Committee, and of the Anthropological Notes and Queries Committee.

In the afternoon the following papers were read:—Dr. L. Manouvrier, On a Fronto-Limbic Formation of the Human Cerebrum; Prof. G. Hartwell Jones, The Indo-Europeans' Conception of a Future Life and its Bearing upon their Religions.

On Friday, Mr. J. Graham Kerr exhibited a collection of weapons, articles of clothing, and a fire drill, used by the Toba Indians of the "Gran Chaco." He accompanied the exhibition with a few explanatory remarks. The specimens had been obtained from a tribe of the Tobas on the banks of the Rio Pilcomayo. Amongst weapons the chief were bows and arrows, the former being noteworthy from their reinforcement by a back string. The arrows were of cane, with long wooden points made of cascarandá. An arrow with an iron head was also shown, the head being formed of fencing wire beaten out.

Mr. J. Montgomerie Bell exhibited a collection of flints from the North Downs of Kent, which he called "pre-palæolithic." The peculiarities of these flints is that they are not shaped into particular forms by the will and skill of the workman, as

palæolithic flints are, but they are simply stones taken from the ground and used almost in the state in which they are picked up; only the edges are altered; they are chipped flints rather than shaped flints; used tools, not made tools. Mr. Bell explained the reasons which had convinced him of their authenticity; namely, that the chipping is regular and purpose-like, such as Nature is not likely to have hit upon; it is sometimes within a hollow curve, where natural agencies could not act; the edges of many unbulbed flints have far more regular marks of wear, which is the true indication of use by man, than many bulbed flakes possess, whose edges have undoubtedly been used; and lastly, there is a sequence in the types which leads into the types of the river-valley period.

Mr. J. Theodore Bent read a paper on the Present Inhabitants of Mashonaland and their Origin. The inhabitants of this country are an oppressed and impoverished race of Kaffirs, who dwell amongst the rocks and crannies of the mountains. Their recognized name—Makalanga—means "the children of the sun," and there were traces of a higher civilization amongst them. Their origin is obscure, but references to them by early Arabian writers prove beyond doubt that a similar people inhabited the country one thousand years ago. Each tribe has its totem. Their religion has a monotheistic tendency, but they sacrifice to ancestors, and sacrifice goats to ward off calamities. Their manners are courteous and refined, and their skill in music is considerable.

Prof. A. C. Haddon contributed a paper on the Value of Art in Ethnology. In order to study such an intricate subject as Decorative Art from the point of view of the Biologist it is necessary first to confine one's attention to savage art where the problems are presented in a simpler form. In taking a definite area into consideration, such as British New Guinea, one finds that there are several distinct and well-defined artistic provinces. The Torres Strait district was characterized by the prevalence of straight and angled lines to the exclusion of curved lines and the representation of animal forms, the latter being associated with totemism. In the Gulf District the human face and form is the basis of almost all their art. In the Port Moresby District decoration is in the form of panels and mainly straight and angled lines; whereas in the South Cape and Archipelago District there is a wonderful richness of design in which curved lines are abundant.

It is well known that in this latter district there has been a great mixture of race. It would appear that homogeneous peoples have a uniform style in their art, but that race mixture tends to varied artistic treatment.

Dr. J. S. Phené read a paper on the Similarity of Certain Ancient Necropoleis in the Pyrenees and in North Britain. At Luchon, a spot where the traditions of the Pyrenees were most concentrated, remarkable customs had till recently been practised. The locality abounded with interments of a peculiar kind, more or less surrounding a central mound, serpentine in form, the head of which had been cut away and a small church erected in the cavity. The walls of this antique little church are covered with votive tablets of early Christian and pagan Roman times. Almost all the features shown had been discovered by the author in Somersetshire, Bedfordshire, Argyleshire, and Peebleshire.

The following papers were read:—A Contribution to the Ethnography of Jersey, by Dr. Andrew Dunlop. Notes on the Past and Present Condition of the Natives of the Friendly Islands, or Tonga, by Mr. R. B. Leefe. Damma Island and its Natives, by Dr. F. Bassett Smith. The Reports of the Mashonaland Committee, and of the Canadian Committee were also read.

In the afternoon a discussion on Anthropometric Identification was opened by Dr. Manouvrier, who described the system of measurements introduced by M. A. Bertillon into the French Criminal Department, and showed the manner in which they were made. He said that by its means the identification of criminals was made absolutely certain. Dr. Benedikt of Vienna also bore testimony to the efficiency of M. Bertillon's system and strongly advocated its introduction into Great Britain. Dr. Garson referred to Mr. Galton's method of identification by means of finger marks.

As a result of this discussion the Council have been requested to draw the attention of Her Majesty's Government to the subject.

A discussion on the subject of Criminal Anthropology was opened on Saturday by Dr. T. S. Clouston, who reviewed the work done in this and other countries, and pointed out the failure

of the workers to agree on any anatomical, physiological, or psychological data for establishing a criminal type.

If inquiry established physical, hereditary, and psychological bases of criminality, the State would have to treat the criminal from a point of view entirely different from the punitive method. The essential likeness of the epileptic and the criminal brain is one of the most striking of Dr. Benedikt's observations. What were to the doctor symptoms of disease were to the policeman and the magistrate proofs of criminality. In the rich family the physician looked after the case, in the poor family the policeman and the gaoler. Yet both cases were equally phases of brain development due to hereditary weakness.

Dr. Benedikt emphasized the importance of studying criminals of different types. They must study the classes from which the criminals came, and must not confuse the poor and miserable with the criminal classes.

On Monday Sir William Turner exhibited the coiffure of a Kanaka labourer who had been employed on a sugar plantation in Queensland. The mode of dressing the hair in locks, each of which was tied round with a narrow ribbon formed of vegetable fibre, was described. 834 such locks were present in the coiffure, and it was estimated that about 120 hairs were in each lock, making in all about 100,000 hairs in the coiffure.

Prof. Struethers read a paper on the Articular Processes of the Vertebrae in the Gorilla compared with those in Man; and on Costo-vertebral variation in the Gorilla.

Mr. J. P. Mansel Weale made a communication on the probable derivation of characteristic sounds in certain languages from the noises made by animals.

Dr. Louis Robinson read a paper on the prehensile power of infants. Long-continued experiments had proved that the muscles of the hands and arms of a newly-born infant are far stronger in proportion to weight than those of most healthy adults. In many cases a newly-born child would hang and support its weight with ease for a minute, and some for thirty seconds longer. Several infants less than a week old hung for over a minute and a half, a few others a fortnight old for nearly two minutes, and one child of about three weeks old for two minutes thirty-five seconds. If the child were in a good temper to begin with it would hang quite placidly until its fingers began to slip, when it at once evinced distress, and screamed lustily as if from a fear of the consequences of falling. An examination of the foot of an infant showed that it was much more hand-like than that of the adult. The heel was much narrower than in after life, and the fore part of the sole, instead of presenting a rounded smooth surface, was flat or even concave, with creases like those of the palm of the hand. The author was not aware that any explanation could be given of these lines, so characteristic of a prehensile organ, on the foot of the human infant, other than that they were vestiges of an arboreal state of existence. He believed that it was due to the habit of the young clinging to the body of a parent who would require to use all her limbs for climbing.

Dr. Hepburn read a paper on the Integumentary Grooves on the Palm of the Hand and Sole of the Foot of Man and the Anthropoid Apes.

In a communication on the Contemporaneity of the Maori and the Moa, Mr. H. O. Forbes gave an account of the exploration of a cave in the neighbourhood of Christchurch, which had been closed by the landslide of a great part of the mountain at whose base it lay. From the remains of the last feast partaken of by the dwellers in this cave, it was clear that Moa eggs had been eaten by them, and therefore that the bird that laid those eggs was contemporaneous with the eaters. The ornamentation of the implements, &c., found in the cave proved that the cave-dwellers were true Maoris.

In the afternoon Dr. Garson opened a discussion on Human Osteometry, in the course of which Sir William Turner explained and demonstrated his method of taking the capacity of crania by the use of shot poured into the cavity of the skull through a funnel, the spout of which was 2 cent. long and 2 cent. in diameter. It was claimed for this method that it gave the actual capacity and did not over measure it as is the case with the plan adopted by Broca.

On Tuesday Dr. J. G. Garson exhibited some composite photographs of United States' soldiers.

Dr. Francis Warner contributed some Observations as to the Physical Deviations from the Normal as seen among 50,000 Children. The most important defects were found to be those of the cranium as indicated by the proportion among them

delicate, dull, and with nerve disorder or weakness; many of these cases are doubtless due to rickets. Small heads were especially common among girls, the only defect to which they seem specially liable. The greatest amount of defectiveness did not occur in the poorest districts; for in the wealthier parts of London 12½ per cent. showed deficiency, while in the poorer districts only 7 per cent. showed defects.

The following papers were read by Prof. A. Macalister:—On Skulls from Mobanga, Upper Congo; On some Facial Characters of the Ancient Egyptians. It was remarkable how little variety was to be found in the heads of these ancients. The hairs of the eyebrows were small, and that on the head was not woolly but wavy. The nose was well formed, usually prominent, rather high-bridged and narrow. The nostrils were narrow, and very rarely was there much of a moustache. The chin was narrow and tapered. There were no traces of holes in the lobes of the ears. Prof. Macalister also read a paper On the Brain of an Australian.

Dr. Garson read a communication On some very Ancient Skeletons from Medum, Egypt. These skeletons were somewhere about 6000 years old, and their most interesting feature was that in the upper and lower limbs they had markedly negro characters. In the pelvis they had intermediate characters between the Egyptian and the Negro, while in the head they had well-marked Egyptian characters.

The following papers were also read:—C. Phillips, On a Skull from Port Talbot, Glamorganshire; Dr. R. Munro, On Trepanning the Human Skull in Prehistoric Times; E. H. Man, On the Use of Narcotics by the Nicobar Islanders, and certain Deformations connected therewith.

The reports of The Indian Committee, of The Prehistoric Remains of Glamorganshire Committee, of The Elborton Cave Committee, and of The Prehistoric Inhabitants Committee were submitted.

In the afternoon Mr. G. W. Bloxam exhibited The Philograph—a Simple Apparatus for the Preparation of Lecture Diagrams, &c., and Dr. Louis Robinson showed a series of photographs illustrating his paper on the prehensile power of infants.

## CONFERENCE OF DELEGATES OF CORRESPONDING SOCIETIES.

FIRST CONFERENCE, AUGUST 4, 1892.

THE Corresponding Societies' Committee was represented by Prof. R. Meldola (chairman), Sir Douglas Galton, Mr. G. J. Symons, Mr. W. Whitaker, Mr. E. B. Poulton, Mr. Cuthbert Peek, Dr. Garson, and Mr. T. V. Holmes (secretary).

The Chairman, after welcoming the delegates to the seventh conference which had been held under the new rules of the Association, said during the seven years of their existence they had, he ventured to think, done some good work for the Association and for themselves. They occupied now in relation to the Association very much the same position as one of its sectional committees, and for that they were very largely indebted to Sir Douglas Galton, who had very keenly watched their proceedings, and had taken a great interest in them. The report of the committee was then submitted, and the different subjects which had engaged attention during the year were dealt with under the heading of the Association Sections to which they belonged.

In Section A the Chairman introduced the subject of Temperature Variations in Lakes, Rivers, and Estuaries, but no delegate specially interested therein being present, the Conference proceeded to that of Meteorological Photography. Mr. Clayden and Mr. Symons spoke of the desirability of photographs illustrating the damage done by whirlwinds and floods, and Mr. W. Watts (Rochdale) said that the Society he represented was taking up the subject. Mr. Symons mentioned the Helm Wind of Crossfell and the peculiar cloud accompanying it, photographs of which would be useful. Mr. Watts stated that a difficulty in photographing the effects of floods arose from the state of the weather during their occurrence, and Mr. Cushing (Croydon) exhibited photographs of a recent thunderstorm. The Chairman then remarked that Mr. Kenward (Birmingham), who was unable to be present, had sent a letter stating that for some years in Birmingham meteorological observations had been made in the building called "The Monument." Mr. Symons and Dr. Stacey Wilson discussed the mode of operations pursued at Birmingham.