

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.

After some remarks by Prof. Merivale, the Chairman, and Mr. Symons, the Conference passed on to Section B.

In Section B the Chairman introduced the subject of the conditions of the atmosphere in manufacturing towns, and Mr. Mark Stirrup (Manchester) and Mr. Watts (Rochdale) said that observations and experiments were being made thereon in their respective districts.

Mr. De Rance (Section C) stated that the 18th Report of the Committee on Underground Waters had been read that morning; that the Committee thought it should be reappointed, and that a volume containing abstracts of the previous Reports should be published. The Committee on Coast Erosion hoped to conclude its labours next year. The Committee on Erratic Blocks continued to do good work. The Local Societies could do much to assist this Committee by noting the position of boulders, and by preserving them from destruction. Prof. Lebour (Section C) postponed his remarks on Earth Tremors.

Mr. Watts (Rochdale) spoke upon the denudation of high-lying drainage areas, and some observations he had made on the amount of material brought down by flood waters, and the degree of protection given by heather, grass, and peat. Dr. H. R. Mill said that something had recently been done in Germany to ascertain the amount of sediment in river water. He thought it very desirable that a series of observations should be made to determine the relative values of woodlands and heather in protecting land, and was inclined to suggest the formation of a Committee for that purpose. Mr. Watts said he would be glad to give information as to the methods followed in Rochdale.

*Geological Photography.*—Mr. Arthur S. Reid (East Kent) said that Mr. Jeffs had asked him to speak on the work of this Committee. The number of photographs amounted to about 700. He exhibited a specimen volume of photographs, and explained the way in which they were mounted and bound. He thought it important that some uniform plan of photographing geological subjects should be adopted, and that the plates used should be orthochromatic or isochromatic. Mr. W. Gray then spoke of the photographic work done by the Belfast Naturalists' Field Club, and Dr. Stacey Wilson of that of the Birmingham Philosophical Society; Mr. J. Barclay Murdoch mentioned the course proposed by the Geological Society of Glasgow, and the Chairman recommended the use of orthochromatic plates.

The Chairman invited remarks on the destruction of native plants and of wild birds' eggs. The Rev. E. P. Knubley (Yorks. Nat. Union) alluded to the Report presented to Section D on the disappearance of native plants and its causes. Mr. Watts said that two or three members of the Rochdale Society proposed to work at this subject. Mr. Mark Stirrup had a short paper by Mr. Leo. H. Grindon on the disappearance of wild plants in the neighbourhood of Manchester. The Chairman thought it might be read at the second conference. Mr. Cuthbert Peek remarked on the great difficulty of obtaining a conviction in cases in which ferns and other wild plants had been taken from private grounds.

*Destruction of Wild Birds' Eggs.*—The Rev. E. P. Knubley said terrible damage had been done by the destruction of birds' eggs. It was a serious matter, but it was very difficult to know what to do in regard to it. For instance, take the case of the great skua, which nested in the Shetland Islands; in 1890 it is said that not a single chick was reared on the whole of the Foula colony. Every egg was taken, and in 1891 all the eggs of the first laying were taken by the inhabitants and sold to dealers. Other rare birds which nested in the Shetland Islands were also persecuted. He had it on good authority that last year not more than two or three nests of the red-throated diver got off their young; and the black-throated divers were not more fortunate. One shilling apiece was given by dealers for the eggs of the red-throated diver and 10s. a brace for those of the black-throated diver. The whimbrels, which also nested on the same islands, had been reduced to about twenty pairs, and were likely to disappear. The red-necked phalarope was very much in the same circumstances. The dealers gave a commission to a local man, who was to get about 3*d.* a dozen for every egg collected of all sorts and kinds. The local men in turn got the herd boys to sweep the country of every egg they could lay hands on, big and little, and for these they got about 1*d.* a dozen. That was one way in which parts of Scotland had been regularly swept, and that in spite of such protection as the

owners could afford. They had men who followed about strangers all day, but the natives took the eggs at night. Then, again, one might mention that one heard that in Edinburgh there was a gentleman who made it his boast that he had over 100 eggs of the golden eagle. What was to be done with a case of that kind? In some parts of England things were not any better. The nesting stations of the lesser tern which existed on the Fifeshire coast, the Lincolnshire coast, and at Spurn, in Yorkshire, would shortly disappear altogether. The oyster catcher and the Arctic tern had practically ceased to nest on the Lincolnshire and Yorkshire coasts, and the ringed plover was much scarcer than formerly. The redshanks and greenshanks had in many parts also been persecuted to the death. The nests of the bearded reedling, whose breeding station in the British Islands was the Norfolk Broads, had been to his own knowledge systematically poached for sale for a number of years. The only hope seemed to him to be in the creation of a public feeling against the extermination of these birds. It would be difficult to advocate anything like legislation. The most practical plan he had seen was this—that the Imperial Legislature should grant powers to the County Councils to protect known nesting-places in their districts for certain months of the year, say from April 1st to June 30th. Such a plan would be simple, and might be effective; but for one thing they should endeavour to do all in their power to help the owners and occupiers of land to protect the birds and their eggs during the breeding season. They might also see if they could not enlist the aid of the gamekeepers, who, with the farmers and proprietors, were beginning to find out that all birds were not their enemies. Collectors and dealers should also be discouraged. Just as he came there that day he had been told that 200 eggs of the stormy petrel had been taken from one island on the west coast of Ireland and given to one dealer.

Mr. E. B. Poulton, Oxford, said that if they discouraged the purchase of eggs, the trade of the dealer would soon cease.

Mr. G. J. Symons said it was an old saying that there would be no thieves if there were no receivers; and possibly there would be no dealers if there were no collectors. They should discourage as much as they could this spoliation of the nests of rare birds.

Mr. Mills, Chesterfield, thought it would do good if some small recognition were given to gamekeepers to assist in protecting the nests of the birds.

The Chairman asked if it would not strengthen the hands of Mr. Knubley if the meeting was to pass some resolution on the subject.

Sir Douglas Galton hoped any resolution of the kind would make an appeal to egg-collectors.

A Delegate suggested that it might do some good if the name of the Edinburgh gentleman with the 100 eggs of the golden eagle were published.

Mr. Whitaker suggested that the gentleman with the eggs should have the feathers of the birds also presented to him with the addition of a little tar. (Laughter.)

Mr. Knubley said he would submit a resolution at the next conference.

In Section E the Chairman remarked that last year there had been a discussion on the cost and antiquity of ordnance maps. Sir Douglas Galton said that a Departmental Committee was inquiring into the matter. Mr. Sowerbutts spoke of the badness of the teaching of geography in schools, giving examples from examination papers.

*Flameless Explosives.*—Prof. Merivale (in Section G) said he had nothing to report. The Durham strike had interfered with their arrangements, the proposed laboratories having been utilized as stables.

Under Section H Dr. Garson reported that there had been no applications to the Committee last year for aid in connection with anthropological exploration. He contended, however, that local bodies, when they meant to make such explorations, should give them notice. Valuable hints could be given them as to how they should proceed. Notice was also taken by Dr. Garson of certain anthropometric inquiries which were being conducted as to the effects on the health and physique of the public school system.

The Secretary, at the request of the Chairman, read an extract from a letter of Mr. Kenward, of Birmingham, giving particulars of an anthropometric laboratory established at Birmingham, like that of Mr. Francis Galton at South Kensington. Mr. Watts and Dr. Garson added a few remarks. The Chairman proposed

that a claim should be made for the usual grant towards carrying on the work of the Corresponding Societies Committee, and the Conference adjourned.

#### SECOND CONFERENCE.—August 9.

The Corresponding Societies Committee was represented by Prof. R. Meldola (Chairman), and Messrs. Symons, Whitaker, Cuthbert Peek, Garson, Poulton, Rev. Canon Tristram, Sir Rawson Rawson, and T. V. Holmes (Secretary).

The Chairman made a proposal that in future some subject in which the delegates were generally interested should be brought as a short paper before the conference, such as the management of local museums, and the relations of County Councils to technical instruction, and the working of the Technical Education Acts. This was considered an excellent suggestion. Mr. Symons mentioned that he had arranged with Mr. Griffiths that delegates on the first day of the meeting of the British Association should be supplied with copies of the reports on subjects in which they were interested. This would give them longer time than they had at present to make themselves acquainted with the work which was being done. Mr. Robert Brown thought it would be a good thing if the printed report of the proceedings of the conference of delegates could be sent to the delegates earlier than at present. After some additional remarks from Mr. Cushing and the Chairman, the meeting proceeded to sectional work. In connection with the meteorological work in Section A, Mr. Symons spoke of the value of making observations on the temperature of underground waters, especially when new wells were being formed; and Mr. Whitaker remarked on the equally important point of the fluctuations of water in wells.

In Sections B and C there was nothing to bring before the Committee. When the work of Section D was reached an interesting discussion took place on the disappearance of native plants. Mr. Mark Stirrup began the discussion by reading a short note from an eminent Manchester botanist on the state of the district in that respect round Manchester. Mr. Sowerbutts, Manchester, said he believed the gentleman from whom the notes had been read was largely responsible for the eradication of rare plants round Manchester, inasmuch as he published a very charming book indicating where they were to be found. (Laughter.) Mr. Coates, Perthshire, said their Naturalists' Field Club, in publishing accounts of excursions or notices in papers of rare flora, only indicated generally where these were to be found. And Mr. W. Gray said that the Belfast Nat. Field Club acted in a similar way.

The Rev. Canon Tristram, Durham, next addressed the delegates on the question of making their field clubs more useful. He strongly advocated that these clubs should combine natural history, archæology, and geology; and that their function should be, not to destroy, but to preserve all that was rare and curious in a district. Lately their field excursions in many places had been too much of a picnic party. On the subject of local museums, the Canon argued that, as a rule, these should only contain objects of local interest, and he suggested that an approach should be made to the County Councils in order to get assistance for forming and keeping such museums in order. In regard to spoliation of districts of rare plants and ferns, the Canon advocated the formation of a public opinion on this question. On the question of the preservation from destruction of the eggs of rare birds, the Rev. E. P. Knubley, Leeds, moved the following resolution, which was seconded by Mr. E. Poulton, Oxford, and agreed to:—

"The conference of delegates, having heard of the threatened extermination of certain birds, as British breeding species, through the destruction of their eggs, deprecates the encouragement given to dealers by collectors through their demands for British-taken eggs, and trusts that the corresponding societies will do all that lies in their power to interest and influence naturalists, landowners, and others in the preservation of such birds and their eggs."

On this subject Canon Tristram also spoke, and put in a strong plea for the preservation of birds of prey—pointing to the case of the mice plague in Dumfries and Lanark shires as a result of destroying the balance of nature by wholesale killing of birds of prey. The resolution brought forward by Mr. Knubley was cordially adopted by the meeting.

In Section E Mr. Sowerbutts said that he should like to be able to communicate during the year with other delegates who were interested in geographical education.

In Section H Mr. E. W. Brabrook brought under the notice of the delegates the Ethnological Survey of the British Isles, which it was proposed to undertake by a committee of the Association on the suggestion of the Society of Antiquaries, the Folk-Lore Society, and the Anthropological Institute. Schedules would be sent down to societies, and he asked the co-operation of the delegates. Mr. Brabrook agreed with Canon Tristram in thinking that archæology should be one of the subjects of study of a field club. Mr. Whitaker said that in his district the Hants Field Club always did its best to protect antiquities; and Mr. Gray said that at Belfast the Field Club not only tried to preserve ancient remains, but also photographed them. Some of these photographs he exhibited. Canon Tristram mentioned the difficulties Field Clubs sometimes had with clergymen who were over-zealous in church restoration; and Mr. Tate (Belfast) alluded to the exertions of his society on that point; while the Chairman thought the clergy were not always as black as they were painted in this matter. Mr. Brabrook made some remarks on the best mode of making an archæological survey, pointing out the best sources of information, as regards the way of carrying it out.

Finally, Mr. Sowerbutts thought better terms might be obtained from the railway companies for delegates and others travelling to meetings of the British Association. The Chairman and Mr. Symons promised to represent the matter to the Council of the Association, and the conference adjourned.

#### SCIENTIFIC SERIALS.

THE *American Meteorological Journal* for July contains the following articles:—On the appearance and progressive motion of cyclones in the Indian region, by W. L. Dallas. The object of the inquiry is to see whether the cyclones of the Indian Ocean originate from the unequal distribution of temperature over and above the earth's surface. The author favours the assumption that cyclones are a production of the upper atmosphere, and thinks that the evidence, although far from conclusive, goes to show that (1) cyclonic storms descend from and retreat to the superior layers of the atmosphere; (2) the whirl may travel along in the upper atmosphere, giving only faint indications of its presence at the earth's surface; (3) the movements of cyclones agree generally with what may be supposed to be the movements of a superior layer of the atmosphere.—S. A. Hill, a memoir, by Edna Taylor Hill.—The eye of the storm (conclusion), by S. M. Ballou. The cause of the clearness of the eye is attributed by the author to the deficiency of the air at the outer edge of the calm, owing to the deflective force of the earth's rotation and the upward and outward movements of the air before reaching the centre; the deficiency being supplied by a gradual settling of the air over the whole area, thus dissolving the cloud stratum and showing the blue sky. The author admits that the discussion of the subject shows the need of more observations concerning the phenomenon.—Recent efforts towards the improvement of daily weather forecasts, by H. Helm Clayton. The author states in a clear and interesting form the various rules which have hitherto been established, and draws attention to a law of averages discovered by Francis Galton, which might with advantage be used in weather forecasting, for, although only applied by Mr. Galton to heredity, it is probably universal. For example, if a storm during a given twelve hours has moved with a velocity below the average, the probability is that it will move with a velocity one-third nearer the average during the next twelve hours.—The other articles are—on the sea breeze, by W. C. Appleton, and temperature sequences, by H. A. Hazen, being an inquiry as to whether, if the temperature has been high or low for a certain period, we may anticipate the contrary condition shortly. The inquiry does not seem to have led to any result which could be turned to practical use.

*Bulletin of the New York Mathematical Society*, vol. i., No. 10 (New York, the Society, 1892).—The opening article is a review (pp. 217-223) of "An Elementary Treatise on the Differential Calculus by Joseph Edwards" (2nd edition, Macmillan, 1892), by Miss C. A. Scott. Whilst the reviewer praises the "lucid and incisive style," the well-chosen words and the well-balanced sentences, she does not fail to make a slashing attack upon details, and to point out "certain specially vicious features." There is considerable force in Dr. Scott's