Miss Weld read a paper on the possibility of a common language between man and beast, in the course of which she mentioned that she had herself reduced a large and savage dog to a state of the most abject terror by imitating some of the deeper tones of his growl.

The Rev. G. Hartwell Jones read a paper on the relation between the body and mind, as expressed in early languages, customs, and myths. The conclusions at which the author arrived were that (1) the primitive condition of the pioneers of civilisation was no higher than that of modern savages; (2) the parallels presented by words and ideas in countries widely separated from one another cannot be satisfactorily explained by mere coincidence; and (3) the civilisation of Western Europe viewed as a whole began in contact with the East.

The following papers were also read:—Prof. A. Macalister, on the heredity of acquired characters; Prof. Arthur Thomson, notes on skin, hair and pigment; Dr. Louis Robinson, the anthropological significance of ticklishness; H. Ling Roth, on the presence of Negritoes in Borneo; Prof. B. Windle, on mythical pygmy races; report of the Mental and Physical Condition of Children Committee.

Monday, August 13.—A paper by Prof. J. Kollmann, on pygmies in Europe, was read. Near Schaffhausen, in Switzerland, a prehistoric settlement has been discovered, in which the remains of two races were found interred side by side. The average stature of one of these races was that of Frenchmen of the present day, but the average height of the other race was only 1424 mm., and they must be looked upon as pygmies of the Neolithic period in Europe. There have recently been discovered some living pygmies in Sicily and Sardinia, and in the author's opinion these small types must be regarded, not as diminutive examples of normal races, but as a distinct variety of mankind which occurs in several types dispersed over the globe; and he believes that they have been the precursors of the larger types of man.

The present state of prehistoric studies in Belgium was described in a paper by Count Goblet d'Alviella. The manufacture of flint implements appeared to have been an important industry, extending all over Belgium, and there have been recent discoveries of megalithic monuments, the existence of which was till lately denied.

General Pitt-Rivers described the explorations of British camps and a long barrow near Rushmore. The skeletons of upwards of twenty-five persons found in and around the barrow give evidence of a people of small stature with long, narrow skulls. They belonged to the polished stone age.

The following communications were also received:—Dr. E. B. Tylor, on some stone implements of Australian type from Tasmania; H. Ling Roth, on Tasmanian stone implements; Dr. Émile Cartailhac, on the art and industry of the Troglodytes of Bruniquel, France; Dr. Émile Cartailhac, on a new ivory statuette of a woman in the reindeer period; Dr. Émile Cartailhac, on the close of the stone period on the borders of the Mediterranean; Prof. Max Lohest, observations relative to the antiquity of man in Belgium; General Pitt-Rivers, on a new craniometer; Dr. J. G. Garson, on the long barrow skeletons from near Rushmore; Dr. R. Munro, notes on ancient bone skates; Prof. A. C. Haddon, exhibition of lantern slides illustrating the people of Western Ireland and their mode of life; report of the Glastonbury Exploration Committee.

Tuesday, August 14.—Mr. Theodore Bent read a paper on the natives of the Hadramut. This valley was formerly the great centre from which frankincense and myrrh were exported to Europe by caravan routes across the desert, and the modern inhabitants of this district are quite distinct from the Bedouins of northern Arabia; they have many curious customs and a religion of their own, and are in all probability an aboriginal race.

Mr. J. Gray contributed a paper on the distribution of the Picts in Britain as indicated by place-names. The evidence of place-names shows that probably the whole country from the north of Britain to the south of Gaul was at one time or another occupied by the same race. The pre-Pictish inhabitants were Iberians, and prevailed mostly in Ireland, South Wales, Cumberland, and South Scotland.

The following communications were also received:—Mrs. H. Stopes, on three neolithic settlements in Kent; Lionel Decle, on the native tribes of Africa between the Zambezi and Uganda; Prof. Max Kovalevsky, on the Lex Barbarorum of the Daghestan; J. D. C. Schmeltz, on snails and mussels in the housekeeping of the Indoneses; Basil H. Thomson, on the ancient religion of Fiji; B. P. Kehlpannala, on ceremonies observed by the Kandyans in paddy cultivation.

Wednesday, August 15.—Prof. L. Manouvrier described the brain of a young Fuegian, and pointed out that the external morphology of this brain showed little or no distinction from that of a European.

The Rev. Lorimer Fison read a paper on the classificatory system of relationship. The Fuegian system of relationship divide the sexes in any one generation into groups of non-marriageable persons and other groups of marriageable persons, and it was shown that precisely the same groups appeared as the result of the division of the community into two exogamous intermarrying divisions such as are found in Australia. The inference was that wherever the classificatory terms appeared these divisions had existed in the past.

Mr. J. Graham Kerr read a paper on the Tobas of South America. These Indians are nomadic in their habits, and live entirely on the products of the chase. They believe in the existence of numerous minor evil spirits who cause diseases, accidents, and other misfortunes, but the author had not discovered that they had any notion of a supreme deity.

Mr. Alfred P. Maudslay read some notes on native buildings at Chichen Itsa, Yucatan, and the customs of the Maya Indians. The author gave an account of some excavations of a burial mound in the Vera Paz of Guatemala, and the discovery of small jars containing the bones of little fingers, probably deposited by mourners. The earliest notices of the great Maya ruins at Chichen Itsa were discussed, and extracts were given from a document recently discovered in Seville, in which are described the ceremonies performed by the Mayas at the time of the Spanish conquest.

The other communications received were:—Prof. L. Manouvrier, on a method of valuation of proportional dimensions in the description of the brain; H. Bellyse Baildon, notes on some of the natives of British New Guinea; Miss A. W. Buckland, on the philosophy of holes; report of the North-western Tribes of Canada Committee.

SCIENTIFIC SERIALS.

American Journal of Science, August.—On certain astronomical conditions favourable to glaciation, by G. F. Becker. The elements of the earth's orbit undergo slow variations, some of which affect climate. These are the time of perihelion, which affects the length of the two great seasons; the eccentricity of the earth's orbit, and the obliquity of the ecliptic. The winter of the period of maximum eccentricity in the rigorous hemisphere would be intensely cold as compared with that of the period of zero eccentricity, but the difference would be most marked in the tropics. The summer would be intensely hot, and also wet. On the whole, the period would be most unfavourable to glaciation; the snowfall being the smallest, and the warm rainfall the largest that can occur with the present obliquity. A difference of 1° 9′, however, in the obliquity would make the area to the north of the Tropic of Capricorn 1,800,000 square miles greater than it is to-day, this area being rather more than the combined areas of the Mediterranean and the Gulf of Mexico. The area of evaporation supplying precipitation to the northern latitudes would thus be increased, and the conditions would be favourable to glaciation. Thus a glacial age would be due to the combination of a low eccentricity and a high obliquity, more than to any other set of circumstances pertaining to the earth's orbit. The epochs of such combinations should be deducible from astronomical data.—Development of the lungs of spiders, by Orville L. Simmons. The connection between Limulus and the Arachnida can only be established by a study of the development of the lungs and tracheæ of spiders. The lungs arise as infoldings upon the posterior surface of the appendages of the second abdominal somite, in the same manner as described by Kingsley for the gills of Limulus. The tracheæ develop from the next pair of limbs. The lung-book condition is the primitive, the tracheæ of the Arachnids being derived from it. No ground is left for those who regard the "Tracheata" as a natural group of the animal kingdom.—The generation of chlorine for laboratory purposes, by F. A. Gooch and D. A. Kreider. Chlorine may be conveniently generated by the action of hot hydrochloric acid in a half-strength solution upon lumps of potassium chlorate. These

are placed in the upper chamber of a side-neck test tube constricted in the middle. The tube is fitted with a funnel tube reaching to the bottom, and immersed in a flask filled with hot water. When the acid is at 81° the percentage of chlorine in the gas given off is 84. The chlorine dioxide may be destroyed by passing the gases through a wash bottle containing a saturated solution of $MnCl_2$ in strong hydrochloric acid at 90°, and may be still further eliminated by passing the gas through a hard glass tube filled with asbestos and heated.

The Quarterly Journal of Microscopical Science for March contains studies in mammalian embryology (iii.). The placentation of the Shrew (*Sorex vulgaris*, L.), by A. A. W. Hubrecht. (Plates 31 to 39.) The author shows that the placenta is essentially an embryonic neo-formation, which is permeated by maternal blood that circulates in spaces devoid of endothelium. This embryonic neo-formation is preceded by a considerable proliferation of maternal epithelium, which, however, does not enter into the constitution of the ripe placenta, but affords facilities of fixation and nutrition for the embryonic neo-formation in its earliest stages. The discoid placenta is, in the later stages of pregnancy, the only connection between fœtus and mother.—On some further contributions to our knowledge of the minute anatomy of *Limnocodium Sowerbii*, by R. T. Gunther. (Plate 40.) Some further details regarding the structure of the tentacles, the sense organs, and the male reproductive organs are added to those already recorded by Allman and Lankester. Allman placed this medusa among the Leptomedusæ; Lankester, on the contrary, referred it to the Trachomedusæ. The author writes: "*Limnocodium Sowerbii* is a medusa descended from Leptomedusan ancestors, which has developed sense organs, with an endodermal axis independently of the Trachomedusæ." Allman's paper on *L. victoria*, in which he adopts Lankester's specific name of *Sowerbii*, was published in July 1880, not in 1881, as stated in the list of authors quoted.—Note on the mesenteries of Actinias, by A. Francis Dixon.

June.—Contains studies on the comparative anatomy of sponges (vi.). On the anatomy and relationships of *Lelapia australis*, a living representative of the fossil Pharetrones, by Arthur Dendy. (Plate 13.) By far the most interesting feature of this species is the very remarkable reticulated fibrous character of the skeleton, which appears to have hitherto escaped notice. This character is unknown in any other living calcareous sponge, while it forms the most prominent feature in the large fossil group "Pharetrones" of Zittel, hitherto regarded as extinct. *Lelapia australis* may therefore be regarded as the only known living representative of this important group. The author sums up his interesting and important paper by introducing the family Pharetrones into the system of recent Calcarea, and regards Lelapia as a very specialised type of Grantidæ.—The structure of the bill and hairs of *Ornithorhynchus paradoxus*, with a discussion of the homologies and origin of mammalian hair, by Ed. B. Poulton. (Plates 14, 15, and 15A.)—A contribution to our knowledge of the Oligochæta of tropical Eastern Africa, by Frank E. Beddard (plates 16 and 17), describes eight new species belonging to the genera *Eudriloides*, *Polytoreutus*, and *Gordiodrilus*, and describes the new genera *Pareudrilus*, *Alluroides*, and all the species collected in Zanzibar and Mombassa.—A further contribution to the anatomy of *Limnocnida tanganyicæ*, by R. T. Gunther. (Plates 18, 19.) The author bases his researches on material caught and fixed in osmic acid by Mr. A. Swann, on the shores of Lake Tanganyika.—Notes on the minute structure of *Pelomyxa palustris* (Greeff), by Lilian J. Gould. (Plates 20 and 21.) The appearance of "a central mass of doubtful significance" is noted; the "glanzkorper" of Greeff were found to stain with several reagents, and the rod-like bodies appear to be certainly bacteria.

The Mathematical Gazette, No. 2.⅓ (Macmillan, July.)—W. J. Greenstreet gives a summary of Herbart's views of the place of mathematics in education. The key-note to Herbart's position is "no one can be expected to think himself into the strict uniformity of nature, who has had no training in the rigorous discipline of mathematics and its deductions." G. Heppel takes for the first of his mathematical worthies Edward Wright, who was "probably born about 1560, and died in 1615." In the matter of the New River, Wright appears to have afforded an illustration of the Virgilian "Sic vos non vobis," as he conceived the project, but was ousted by Sir Hugh Middleton. Further interesting particulars of this too-little-known mathematician are given by (De Morgan?) in the *Penny Cyclopædia*, and in Ball's "History." E. P. Rouse contributes a note on the "Director circle of a conic inscribed in a triangle." Solutions of questions, and questions and short notes complete a good number.

Bulletin of the New York Mathematical Society, vol. iii. No. 10. (New York: Macmillan, July.)—Prof. A. Vasiliev (pp. 231–235) furnishes many items of interest in his note, Lobachèvsky as Algebraist and Analyst. In this it is shown that Lobachèvsky's genius was not confined to geometry only. In Macfarlane's "Algebra of Physics" (pp. 235–242), Dr. Chapman analyses the Principles of the Algebra of Physics, and the paper on the Imaginary of Algebra, by that mathematician. Dr. G. A. Miller supplements his note in the April number by a note on the substitution groups of eight and nine letters (pp. 242–245). Prof. Webster (pp. 245–248) reviews Byerly's elementary treatise on Fourier's series and spherical, cylindrical, and ellipsoidal harmonics, and at the outset discusses "a rather singular review (of the book) in a leading New York paper, in which a number of curious statements are made." Prof. D. E. Smith's review of Cajori's history (see NATURE, No. 1288, p. 235) is the subject of a critique, by Prof. Halsted, to which Prof. Smith replies (pp. 249–251). The concluding notice is on orthogonal substitutions, by Prof. H. Taber (pp. 251–259). A long list of publications, notes, and an index closes vol. iii.

Memoires de la Société d'Anthropologie de Paris, tome i. (3ᵉ serie), 2ᵉ fascicule.—Recherches Ethnologiques sur le Morvan, by Ab. Hovelacque and Georges Hervé. The district known as Morvan includes parts of four Departments—Yonne, Côte-d'Or, Nièvre, and Saône-et-Loire; it is distinguished from the surrounding country by the volcanic nature of the soil, and the central portion, or Upper Morvan, has a mean elevation of 600 to 700 metres (about 2000 feet) above sea-level. The climate is exceedingly inclement, the temperature cold and variable, the winters long and severe. Morvan is essentially Celtic, and the primitive inhabitants have been very slightly influenced by contact with the people around them. The stature indicates two ethnic elements, the one moderately tall—the Kymric; the other shorter—the Celtic, such as we find distributed over a great part of Central Europe. About two-thirds of the population of Morvan have grey or sometimes blue eyes; the others have brown eyes, light rather than dark. Usually the children have auburn hair, and the adults dark brown hair.

Memoires de la Société d'Anthropologie de Paris, tome i. (3ᵉ serie), 3ᵉ fascicule.—The Anthropology of France—Dordogne, Charente, Creuse, Corrèze, Haute-Vienne—by Dr. R. Collignon. The author has turned to good account the observations made during recruiting operations in the five departments mentioned in the title. The mean stature shows greater variation than in any other part of France, the maximum being 1·667m., while a minimum of 1·568m. was observed at Saint-Mathieu (Haute-Vienne). All the tall cantons are grouped at the circumference of the five departments, and the people of short stature are collected in groups in the centre. As the result of his investigations, the author shows that in this district we have three great groups: first, the brachycephalic—some dark, others fair—tall or short; second, dolichocephalic and fair; third, dolichocephalic and dark. This last group may be further subdivided into some three types: the first, platycephalic, with a disharmonic face; the next, dolichopsic, with a high head; the last, somewhat rarely met with and characterised by prognathism, a low and retreating forehead, black hair, and narrow face. The dolichocephalic brunettes are nearly allied to the Cro-Magnon type, while those who are prognathous, and who have the long narrow face, are perhaps distant relatives of the men of Canstadt and Spy, possibly also they may be distantly allied to the swarthy inhabitants of the south Algerian oasis.

Bulletins de la Société d'Anthropologie de Paris, tome v. (4ᵉ serie), No. 1, January; No. 2, February.—In a paper on the various forms of the teeth of different races, Dr. F. Regnault says that the canines of the lower races of man differ from those of the higher races, in that the crown of the tooth is larger in comparison with the neck, and that, like those of the apes, they terminate in a sharp point, which is usually much worn. M. Emile Schmit, in a paper on the "Boves" of Champagne, describes two of these curious subterranean

chambers, excavated in the chalk, and approached by low narrow passages of some length.—A paper by M. Zaborowski, on ten crania from Rochefort, is continued from the January to the February number. M. Zaborowski argues in favour of the primitive ethnical identity of the blondes, wherever they are found in a state of purity, whether in the Caucasus, in England, or in Charente-Inférieure.—M. Zaborowski also contributes a paper on the circumcision of boys and the excision of girls as initiation ceremonies. He traces the origin of the custom in Asia and Europe to the influence of ancient Egypt.—M. de Saporta describes certain popular medical practices in Provence. In cases of delirium or meningitis, if the warm body of a recently killed pigeon is not available, they have recourse to a fried egg, which is placed, burning hot, on the forehead of the patient. M. de Saporta does not think that any supernatural virtue is attached to these practices.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 31.—"On the Effect of Magnetisation upon the Dimensions of Iron Rings in Directions perpendicular to the Magnetisation, and upon the Volume of the Rings." By Shelford Bidwell, F.R.S.

A recent communication (*Roy. Soc. Proc.* vol. lv. p. 228) to the Society contained an account of some experiments relating to the effects of magnetisation upon the dimensions of two iron rings, one of which was annealed and the other hardened. The rings had the form of short cylinders about 6 cm. in diameter, 3 cm. in height, and 0·4 cm. in thickness. The experiments in question were concerned with the circumferential variations which took place along the lines of magnetisation; those to be here described deal with the concomitant variations in the height of the cylinders (width of the rings) transversely to the magnetisation. On the assumption that variations similar to the latter occur at the same time in the thickness of the metal, it is possible to deduce the changes in the volume of the ring which attend magnetisation.

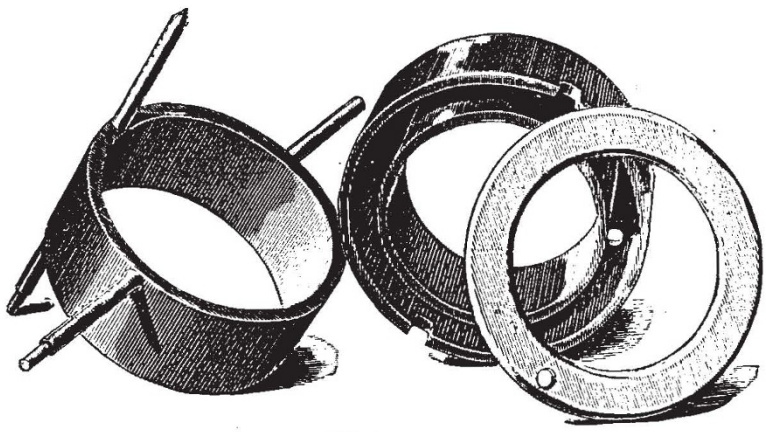

FIG. 1.

Fig. 1, from a photograph, shows how the rings were prepared for the experiments. Four brass rods were hard-soldered to the iron, two of them being in a line with a diameter, while the other two were attached to the edges, opposite to one another, and parallel to the axis of the ring. The ring was inserted in a wooden case, also shown, through holes in which the four brass rods projected. Insulated wire for carrying the magnetising current was wound over the wooden jacket.

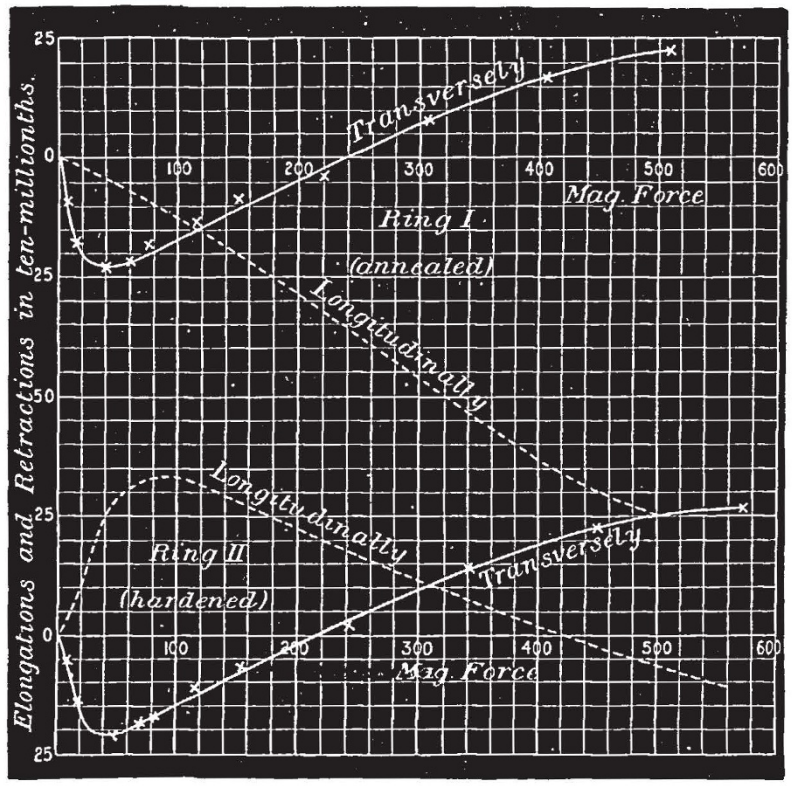

FIG. 2.—The curves marked "longitudinally" relate to circumferential changes, *along* the lines of magnetisation. Those marked "transversely" relate to changes in the width, *perpendicularly* to the magnetisation.

For the new experiments the ring was placed in a horizontal position, one of the edge rods resting upon a brass socket on the adjustable base of the instrument, and the other, which had a chisel-shaped end (not shown in the figure), actuating the lever. To counterbalance the weight of the ring a horizontal arm, carrying a sliding weight, was fixed to the lower rod.

The annealed ring will, as before, be distinguished as Ring I. and the hardened one as Ring II.

The changes observed in the widths of the two rings (transversely to the magnetisation) are indicated in the curves of Fig. 2. It will be seen that they are quite similar in the two cases, little or no effect being produced by annealing. Under gradually ascending forces both rings first become narrower, then recover their original width, and ultimately become wider than when unmagnetised.

As was shown in my last paper, the effects along the lines of magnetisation are very different in the two rings. The annealed ring (Ring I.) begins to contract circumferentially with the smallest forces, and continues to contract with the large ones; while the hardened ring expands with small forces and contracts with large ones. These effects are indicated in the figure by the dotted curves.

By combining the results of the old and of the new experiments we can ascertain the nature of the changes produced by magnetisation in the volumes of the rings. These are indicated