PROCEEDINGS OF THE SECTION OF ANTHROPOLOGY.

THIS section is, perhaps, the one that is of most general interest, and was, as usual, well attended. The papers presented were of a varied character, and an encouraging increase in the consideration of what may be called 'psychological anthropology' was noticed.

One of the most important papers was presented by Dr. Daniel G. Brinton of Philadelphia. The paper had for its object the determination of the phonetic elements in the Mexican and Maya languages. The European conquerors found these races familiar with the art of writing, and possessing volumes of tradition, besides stone and hard-wood inscriptions. In spite of destruction and neglect, there are enough of these remains to form a respectable *corpus inscriptionum Americanum*. The important question concerning the languages of the Mayas and Aztecs is, To what extent were they phonetic systems? Did they appeal to the meaning, or the sound, of the word? In answering this question, one must remember that the arrangement to the eye of phonetic symbols is an arbitrary one, and that the sound represented may be a word, a syllable, or a sound-element. One must not approach the subject with the expectation of finding any usual arrangement, but must remember that the orders of space and of time do not agree. Some languages are read from right to left, others from left to right; some from above downwards, and some alternately from left to right and the reverse. The only requisition of a phonetic system is that a written symbol shall in some way represent a spoken sound or combination of sounds. Naturally, the most frequently occurring sounds will be the ones most apt to acquire a symbol. The process by which they do so is quite similar to that by which the Cherokee Indian Se-Quo-Yah gave to his nation a written alphabet. He simply listened for the syllabic sounds used by his tribe, and had each represented by a single symbol, taken from or suggested by an English spelling-book. Suffixes and affixes very naturally would soon be represented by a written symbol. In examining the Maya language from this point of view, one finds, for example, the picture of the sun with its rays, indicating the sound of its name (*kin*). We find in the expressions for 'east' and 'west' (*lakin* and *chikin*) that the final syllable is represented by the sun-picture. Turning to the Mexican language, our material is more abundant, and has been better utilized. This language (*Nahuatl*) was thoroughly studied by the Catholic priests. They found that the native phonetics were partly syllabic and partly alphabetic, somewhat as though one would write 'cat' by a picture of a chair, an axe, and a table, each sign representing the initial sound of its name. It is known, that, of the five vowels and fourteen consonants composing this language, three vowels and probably three consonants had reached the stage of being expressed by simple letters: *a* was represented by the sign for *atl* (water); *e*, by *etl* (bean); *o*, by *otli* (footprint); *p*, by *petl* (mat) or *pau* (flag); *t*, by *tetl* (stone) or *tentle* (lips); *z*, by *zo* (lancet). These are exceptions, however, and many phonetics are syllabic. What may be called the 'rebus' mode of writing is, however, the characteristic one. The lover who wooed his bride by sending his message in the form of the picture of a rose, a low mound, an eye, a loaf of bread, and a well, meaning 'Rose Hill I love well,' was going back to the language of the ancient Mexicans. In the Mexican form the order of the rebus signs was immaterial.

In addition to the above illustrations of what can be accomplished in this direction, Dr. Brinton presented some interesting results obtained by Mrs. Nuttall Pinart, and closed with a plea for the scientific study of this group of languages, and the assurance that many unique aspects of the problem of language were there concealed.

A novel and ingenious method of getting an insight into the unconscious mechanism of authorship was described by Mr. T. C. Mendenhall, under the title 'Characteristic curves of composition.' The method consists in counting the number of words of each length, from one letter to fourteen, fifteen, or as long as were found, and plotting the result on a curve, in which the abscissae represented the number of letters in the word, and the ordinates the number of words per thousand of each length. It was shown that while the curve resulting from each thousand words was not entirely regular, that resulting from five thousand was much more regular, and that from ten thousand almost entirely so. The inference from this was, that the phenomenon which the curve represented was a regular one, and that it was an expression of the peculiar vocabulary of the author. Moreover, by comparing the respective curves, one would be able to judge whether two works were written by the same author, and perhaps even decide the controversy whether Bacon wrote Shakspeare. Mr. Mendenhall's method was to count a thousand words at a sitting, and then turn to another part of the book. One soon acquired the art of counting at a glance the number of letters in each word, and, with an assistant to record the result, one thousand words could be counted in a half-hour. Curves derived from

Dickens ('Oliver Twist') and Thackeray ('Vanity Fair') were remarkably similar, thus suggesting that the subject-matter might cause the peculiarity of the curve, while those from John Stuart Mill ('Political economy' and 'Essay on liberty') differed from them in having more long words and fewer short ones, though words of two letters (prepositions mainly) were most abundant in Mill. The average length of the novelist's words was 4.38, and that of the philosopher 4.8.

In the discussion following this paper it was suggested that perhaps the characteristics of the language might be thus represented, and that, before describing certain characteristics as peculiarities of authorship, one must show that they are not due to the language, to the subject-matter, to the form or the fashion. Mr. Mendenhall's method is highly suggestive, and some interesting applications of it may be expected.

Mr. F. W. Putnam presented an interesting communication exhibiting photographs of specimens which show the method of making bone fish-hooks. These specimens and the hooks came from mounds in the Little Miami valley. They show that the process consisted in first boring a hole in the bone at the point which was to form the bottom of the bend of the hook. A cut was then made to either side from this hole, forming the inner surface of the hook, which was completed by rubbing down the piece into shape. Pieces of bone at each stage of the process have been found.

Rev. J. Owen Dorsey gave an account of a secret organization among the Osage Indians, the knowledge of which was obtained by gaining the confidence of some of the members. Similar societies can also be traced among the Kansas and Poncas. There are also close analogies with the Omaha dancing societies, in which secret observances are closely interwoven. There are seven degrees in this secret society. The first is called *Ni-k'ü-wac-u*, 'Songs of the giving of life.' The others are as follows: 'Songs of the bird, or dove,' 'Songs of the rushes,' 'Songs of the sacred bag,' 'Songs of the pack-strap' (the name of the sixth is forgotten), and, lastly, 'Songs of the return from war.' The initiation of a woman consists in her reception by the head of the gens, who makes her take four sips of water, emblematic of the river flowing by the tree of life. Cedar twigs, symbolizing the tree of life, are then rubbed between his hands, after which he strokes the woman from head to foot twelve times, — that is thrice in the direction of each of the four winds, — pronouncing the sacred name of a higher power each time that he rubs her with the cedar. The candidate is also tattooed with the round spots on the forehead among the Osages; but one such spot is given among the Omahas and Poncas. The initiation fee is a dozen horses, two copper kettles, several hogs, and a bountiful supply of beef for a feast, of which all the members partake. Each gens of the tribe has a mythical tradition of its origin, which is chanted by the old man who acts as priest. It takes four days and nights to chant the entire tradition of any one gens. Parts of these traditions Mr. Dorsey was able to record. One translates thus: "The first of the race was saying 'Ho, younger brother! the children have no bodies. We shall seek bodies for our children. Ho, younger brother! you shall attend to it.' They stood for the first time on the first upper world. There they were not human beings. One was saying 'Ho, younger brother! the children have no bodies. We must seek bodies for our children.'" Mr. Dorsey showed the chart on which the various designs which are interpreted symbolically were represented. The peculiarity of the symbolism there represented, and yet its general resemblance to similar European customs, is a strong evidence of the fact that the human mind everywhere works in the same direction. Other traditions and customs were given by the author, which brought out the high moral and political instincts of the Osage Indians.

Professor Edward S. Morse made additional contributions to his study of ancient arrow-releases. After describing the evolution of the release by the way of five stages, the last two of which represented the strongest phases, and are still in use, especial stress was laid on the fact that amidst all the change of religious rites, social customs, political organization, and so on, the apparently trivial act of slipping the arrow from the bow has remained unchanged. The persistency of this custom is in contrast to almost all other similar habits. Methods of release practised today may be traced back as far as three thousand years.

Mr. J. W. Sanborn related his observations upon the Iroquois league. The league was founded mainly on the law governing intermarriage. A warrior in one clan could marry only with certain other clans. The chief always ruled over his mother's clan, and did not succeed his father. The speaker affirmed that the league was in existence long before the days of Columbus, and was enthusiastic in his opinion of its efficiency.

Mr. H. C. Stone described the 'Eyah Shah, the sacrificial stone of the Dakotas.' The Dakotas worship the bowlders scattered among the hills, and expect to be aided by them in times of distress. But the peculiarity of the 'Eyah Shah' was that it was a place of worship from year to year.

The name means 'red stone.' The stone is a specimen of hornblende, but not red in color. It is decorated by means of a painted design.

Dr. John C. Branner presented some notes on a Brazilian language. The language, which is unlike any other Brazilian tongue, is spoken by a small and rapidly disappearing tribe in the province of Pernambuco. Some of its peculiarities are the use of a dual number; the grammatical distinction between objects belonging to the speaker and those belonging to others; the position of the accusative case at the opening of the sentence; the absence of labial sounds (due perhaps to the use of lip ornaments); and the presence of several sounds not found in the Portuguese language.

Mr. George F. Kunz read a paper on four gold and five silver ornaments from mounds in Florida. One of the gold ornaments weighed 75½ pennyweights, another 60, and two 19½ and 10 pennyweights each respectively. For North American gold-finds they are remarkable. They were suggested to be of Georgia gold origin. An eight-inch ornamented circular shield of gold, a very elaborately ornamented wire gold nose ring and other gold objects from the United States of Columbia, were also described.

At the last meeting of the section the members were agreeably surprised by the startling paper of Mrs. Nuttall Pinart, containing some analyses of Mexican inscriptions. The great novelty of her interpretation consists in interpreting the Mexican symbols as phonetics and not as ideograms, thus completely revolutionizing the current conceptions on this subject. Her method has been applied to the deciphering of certain calendar and sacrificial stones of Mexico, and was suggested by the presence on these of certain phonetic symbols occurring in picture-writings. This so-called calendar stone Mrs. Pinart believes to be the market stone of the City of Mexico. It regulated the times of holding the market days; and perhaps the division of the Mexican year rested upon these times. It also gives evidence to the existence of a communistic government. The means by which these striking results have been obtained can be illustrated by the following case. From the words *tetl* ('stone') and *isctli* ('face' or 'surface') and *pan* ('upon') we obtain, by combination according to the rules of the Nahuatl grammar, the word *teiscpan*, meaning 'publicly,' the name of which, *teiscpanca*, means 'something evident and manifest to all.' Dr. Brinton, who read Mrs. Pinart's communication, remarked upon it, that it was of epoch-making importance, and that if, as is probable, her method should be justified, we will have a new key for unlocking the mysteries of Mexico. It may be well to add that this rebus-writing was an artificial system used by the priests, and that the solution of the problem consists in showing that this secret writing, read as a combination of phonetics, becomes intelligible as a piece of Nahuatl language; just as though a secret language were made by using words the several parts of which formed other words, e.g., 'carpet' would be the picture of a car and of a pet.

The section was much interested in Professor Putnam's general sketch of the recent progress and significance of mound excavations. The usual view that regards all mounds as nearly identical in character and origin was discountenanced, and, in opposition, it was held that only a careful and detailed examination of a large number of mounds would supply the requisite data for a consistent picture of the mound-builders and their works. Nor are we justified in regarding the single characteristic of mound-building as a sufficient basis for considering the builders as belonging to the same race. The character of the mounds, their contents, their apparent purposes, all force upon us the conclusion that we are dealing with different anthropological races and with peoples of different times. One can even find mounds which seem to have been used for a second time while the first mound had been forgotten or at any rate ignored. So, too, with the question of age. Some mounds are evidently of recent origin, while others form a group which may be called ancient. Professor Putnam illustrated his remarks by off-hand sketches of the plans of various mounds which have been excavated under his direction and that of Dr. Metz, in the Lower Miami valley.

On the whole, the organization of the section of anthropology leaves much to be desired. Its popularity is at once a good and an evil; its good consists in attracting general attention to the variety and importance of the problems connected with man; its evil, in that this variety and interest are apt to give admittance to papers of too vague and pointless a character, which have no place in the sciences and neither bring nor suggest any thing new. It is the section that more than any other needs to be conducted on a strictly scientific plane, because its subject-matter is more open to a non-scientific treatment. There is no reason why this section should not be made to represent the high-water mark of American scholarship in the many interesting sciences that centre about anthropology.

THE American association unanimously passed a resolution expressing its gratification at hearing of Dr. Gould's proposed revival of *The astronomical journal*, and its good wishes for its success.