izations by which these stores of knowledge are bound together, we are apt to conclude that where so much has been wrested from the unknown there can be little left for new discoverers. The true view, of course, is that which regards our present knowledge as a sphere floating in the infinite of the unknown. As the sphere enlarges so it touches upon more points of the unknown. As our knowledge grows so also does our ignorance increase.

We have only to consider the chemical processes as carried out by plants and animals to realize how crude and clumsy our own present methods are. There is still plenty for the chemist to do and the prospect which lies before us is not only rich in promise for the material welfare of mankind, but one which in its realization must affect profoundly man's view of the universe and of his relation to it. Few of us can remember the intellectual stimulus which followed Wohler's discovery that a compound which seemed peculiarly to represent the product of vital forces could be reproduced within the laboratory, but most of us, I firmly believe, will witness the breaking down of the line which now separates living matter from dead matter. With it will come an intellectual revolution the result of which can only be to bring the whole world closer to 'the God of things as they are.'

ARTHUR D. LITTLE

ANTHROPOLOGY AT THE NEW YORK MEETING

THE joint meeting of Section H of the American Association for the Advancement of Science, the American Anthropological Association and the American Folk-Lore Society held at Columbia University, New York City, December 27, 1906–January 1, 1907, was notable for the number of working anthropologists present as well as for the length and excellence of the program. Coming, as it did, so soon after the International Congress of Americanists in Quebec, fear had been expressed that the New York program might be but the gleanings of a field already thoroughly harvested. That new fields were entered may be readily seen by a survey of the program, which included fifty-six numbers in addition to the addresses of the president of the Folk-Lore Society and of the retiring vice-president of Section H.

BUSINESS AND SOCIAL FUNCTIONS

The Council of the American Anthropological Association and the Sectional Committee of Section H held a joint business meeting on December 27, at which the retiring vice-president of Section H, Dr. George Grant MacCurdy, presided.

Professor William H. Holmes presented an official communication from the Anthropological Society of Cologne, Germany, inviting the American Anthropological Association and members of Section H to take part in the International Congress of Anthropology to be held at Cologne[1] in August, 1907; and recommended that the chair appoint a committee to further the interests of the Cologne Congress. On formal motion to that effect the chair appointed the following committee: W. H. Holmes (chairman), Franz Boas, Chas. Peabody, W J McGee, F. W. Putnam, A. L. Kroeber, K. von den Steinen, G. B. Gordon, G. A. Dorsey, C. V. Hartman, J. C. Merriam, G. F. Wright, J. W. Fewkes, S. Culin, David Boyle, A. Hrdlicka, F. M. Palmer, C. A. Peterson, S. Hagar and G. G. MacCurdy (*ex officio*).

The question of the advisability of changing the name of Section H, Anthropology, so as to read 'Section H, Anthropology and Psychology' came up for discussion. On motion the chair appointed a

[1] Place of meeting has recently been changed to Strasburg; the date is August 4–8.

special committee with power to act and to submit their action for the approval of the Council of the American Association for the Advancement of Science: Franz Boas (chairman), W. H. Holmes, A. L. Kroeber and J. McK. Cattell. The resolution submitted to the council by this committee is as follows:

First. The recommendation of the Committee on Policy to change the designation of Section H from 'Section of Anthropology' to 'Section of Anthropology and Psychology' is approved.

Second. The Committee recommends to the consideration of the Council and of the Committee on Policy the desirability of a better coordination of the sections and of the affiliated societies, particularly the desirability of having the president and the secretary of one of the affiliated societies act at the same time as sectional vice-president and sectional secretary. The Committee also recommends to the Council and to the Committee on Policy a consideration of the question whether, in view of the close affiliation of scientific societies, the discontinuance of sectional meetings and of the sectional organization may not be desirable.

In harmony with the foregoing resolutions, the section deviated from its custom in regard to officers and named for vice-president the president of an affiliated society, the list of sectional officers elected, subject to the approval of the General Committee of the American Association for the Advancement of Science, being:

Vice-president—Franz Boas.
Member of the Council—W J McGee.
Member of the Sectional Committee to serve five years—W. H. Holmes.
Member of the General Committee—M. H. Saville.

The officers of the American Anthropological Association are:

President—Professor Franz Boas, New York.
Secretary—Dr. George Grant MacCurdy, New Haven, Conn.
Treasurer—Mr. B. Talbot B. Hyde, New York.
Editor—Mr. F. W. Hodge, Washington.

A number of social functions were arranged by the local executive committee for the American Association for the Advancement of Science and the affiliated societies.

The president of Columbia University received in Earl Hall from nine to eleven o'clock on the evening of December 27.

A luncheon was given at the College of the City of New York, 138th Street and Amsterdam Avenue, on December 29, with addresses preceding, and an inspection of the new buildings following.

An invitation was extended by the board of trustees of the American Museum of Natural History to be present at the ceremonies attending the unveiling of the busts of ten American men of science presented to the Museum by Mr. Morris K. Jesup, which took place on the afternoon of the twenty-ninth. In the absence of Mr. J. Pierpont Morgan, Professor Henry F. Osborn presided. The presentation on behalf of Mr. Morris K. Jesup was made by Dr. Hermon C. Bumpus; and the acceptance on behalf of the trustees, by the Honorable Joseph H. Choate. Brief memorial addresses were made: Benjamin Franklin, by Dr. S. Weir Mitchell; Alexander von Humboldt, by His Excellency Baron Speck von Sternburg;[1] John James Audubon, by Dr. C. Hart Merriam; John Torrey, by Dr. Nathaniel L. Britton; Joseph Henry, by Dr. Robert S. Woodward; Louis Agassiz, by the Rev. Edward E. Hale;[2] James Dwight Dana, by President Arthur T. Hadley; Spencer Fullerton Baird, by Dr. Hugh M. Smith; Joseph Leidy, by Dr. William K. Brooks; Edward Drinker Cope, by Dr. Henry F. Osborn.

[1] Address read by Count Hatzfeldt, first secretary of the embassy.

[2] Letter read in the absence of Dr. Hale.

On the evening of the twenty-ninth there was a reception at the American Museum of Natural History by the trustees of the museum and the New York Academy of Science, with an exhibition of scientific progress by the Academy, including demonstrations and short addresses.

A dinner and smoker was given by the American Ethnological Society on Friday evening, December 28, at the Explorer's Club, 23 West 67th Street, to the American Anthropological Association. After the dinner those present were invited to the Knabe Building to inspect an archeological collection made by Professor M. H. Saville in Ecuador for Mr. George G. Heye.

ADDRESSES AND PAPERS

Dr. A. L. Kroeber's address as president of the American Folk-Lore Society was on the 'Musical Systems of the Indians of California.' Myth, ceremony and song are fused into one among the Mohave. The Indian music of California is noted for its simplicity. The elements are few and repeated endlessly; but the repetition is accompanied by slight variations that may be detected by the accustomed ear. The elements with variations were shown by means of lantern slides and the phonograph. Dr. Kroeber's studies included the Mohave Yelak, a myth told in song (25 songs), the Mohave Nyohaiva (6 songs) and the Mohave Raven (4 songs). He also gave by way of comparison a Kwakiutl song, a Yurok Deerskin Dance Song and a Yuki Creator Song.

The address of Dr. George Grant MacCurdy, retiring vice-president of Section H, was on 'Some Phases of Prehistoric Archeology.' Two phases only were discussed—the *eolithic question* and *paleolithic mural decorations*. This address has already appeared in SCIENCE.[3]

[3] January 25, 1907, pp. 125–139.

The program was arranged so as to group related subjects in a single session. One session, for example, included only papers on Folk-Lore, the president of the Folk-Lore Society presiding. At another papers of interest to students of economic and social sciences were read, the members of Section I being present and taking part. The Saturday afternoon program was devoted to the reports of standing committees and was of unusual interest to professional anthropologists.

Brief abstracts of the papers read are given in so far as material at the disposal of the secretary will permit.

Dr. C. Hart Merriam read three papers: 'Totemism in California,' 'The Yummĕ or Mourning Ceremony of the Mé-wuk' and 'Mé-wuk Myths.' That totemism exists in California seems to have escaped the notice of ethnologists. It is in reality quite general. Totems are chiefly animal. They are rarely natural objects. Among certain tribes the totem governs marriage. In the northern division of the Mé-wuk it has a marked influence over the individual. The means by which the individual is led to recognize his totem was given in detail. Dr. Merriam described under three heads the annual mourning ceremony of the Mé-wuk which he saw on October 10 and 11, 1906, illustrating by means of diagrams the round house in which the ceremony occurred. The last paper by Dr. Merriam was a description of certain myths of the Mé-wuk Indians in which the coyote, bear, deer, lizard, mouse, condor, turkey-buzzard, robin, sand-hill crane and other animals played a prominent part.

Dr. Clark Wissler presented some 'Notes on the Blackfoot Myths.'

The myths of the Blackfoot are classified under the following heads:

1. Old Man Series.
2. Culture Hero.
3. Ritualistic Origin Myths.

4. Moral and Entertainment Tales.

A comparison of the myths of these groups with the published mythologies of the Arapaho and Crow indicates a very close relation between the mythologies of the Arapaho and the Blackfoot. Of eighteen myths in the Old Man Series, eleven have direct parallels among the Arapaho and five among the Crow. Of twenty-seven moral and entertainment tales, ten have direct parallels among the Arapaho and two among the Crow. Of fourteen culture hero tales, four have direct parallels among the Arapaho. Thus, out of fifty-nine tales, twenty-four were directly parallel to Arapaho and seven to Crow tales. All the ritualistic origin myths seem to be peculiar to the Blackfoot, and may be regarded as their own contribution to their mythology.

Mr. Edward Sapir's 'Notes on the Takelma Indians of southwestern Oregon' are to be published in the *American Anthropologist;* while Mr. Frank G. Speck's 'Notes on Chickasaw Ethnology' are to appear in the *Journal of American Folk-Lore.* Mr. Speck read a second paper, entitled 'Outlines of Culture in the Southeastern States.'

In her 'Report on the Book on Maryland Folk-Lore,' Miss Anne Weston Whitney gave extracts from the material that is to form a forthcoming volume of memoirs of the American Folk-Lore Society. The compilation of the memoirs has been assigned to various members of the Baltimore Branch. Negro folk-lore predominates—witchcraft, death, hoodoo, conjuring, spells, etc., and the beliefs connected therewith, comparison being made between negro folk-lore of Maryland and that of negroes elsewhere, as Jamaica and Africa.

Mr. Stansbury Hagar's paper on 'Cherokee Star Lore' is to be printed in the *American Anthropologist.*

'Philippine Märchen' was the topic chosen by Mr. W. W. Newell, who spoke of an interesting collection of material that came to him from various sources in the Philippines. Though interesting, the derivation is largely European, especially Spanish.

'Recent Activity in Folk-Lore in Missouri' was one of the themes discussed by Professor W J McGee. He said that a branch of the American Folk-Lore Society had just been organized in Missouri, largely at the instance of Dr. A. L. Kroeber and through the energy of Professor H. M. Belden, of the University of Missouri. The members and officers are drawn from different sections of the state, especially Columbia, St. Louis and Kansas City; the headquarters will be in Columbia at the state university. It is the purpose of the organization to record existing traces of aboriginal lore in conjunction with the English, German, French and Spanish folk-lore which are interestingly combined in the remarkably composite population of the state.

In 'Notes on Puebloan House Construction,' by Mr. Frederick S. Dellenbaugh, the query was made as to how far house construction alone could be depended on in tribal or race classification. By itself the house frequently gave small indication of culture or race affiliation. The Icelander, of purely European ancestry, exhibited in his houses none of the architectural skill of his race. Conditions were against it. A turf or peat house was the easiest thing for him to build. The Iroquois made a flimsy bark house, yet ranked high in culture. Conditions favored bark construction. In the southwest conditions forced other, more permanent forms, from all peoples. There gypsiferous clays and stone slabs were at hand everywhere; bark was scarce. Different people, therefore, may build in the same way, while similar people

may build in different ways. Without other evidence, house construction is an uncertain guide. Sites, too, were chosen for physiographic reasons and site can not be used as a gauge for race or tribe. Because houses and villages were built in cliffs, we can not deduce a race of cliff-dwellers, any more than we can deduce a particular race of forest-dwellers because we find houses in the woods. House construction and house site in themselves indicate no racial differences, or even cultural differences. An otherwise advanced tribe is sometimes prevented from constructing permanent houses by superstition, as the Navajos, who would not live in a house where a death has occurred.

The Colorado River seems to be a line of demarkation between villages of the terraced many-roomed village and the one-story few-roomed type. Here is perhaps a suggestion that the Apache and Ute entered the country from the north, driving the sedentary groups before them. The canyons of the Colorado then were utilized by the latter to hold the roving tribes at bay. Indications of fortifications are found at all fords and passes.

Puebloan houses seem sometimes to have been built to imitate the site, as in the case of the village of Wolpi, where the breaks and angles of the cliffs on which it stands are reproduced in the walls till at a little distance it is difficult to separate the natural from the artificial.

Puebloan construction was mainly of two materials: stone and clay. The stone was (1) *slabs,* (2) *blocks.* These were laid generally with clay mortar, but sometimes there was no mortar, and the stones were put together so neatly as to look like a fine mosaic. Where mortar was used the wall was frequently plastered outside with clay and sometimes whitewashed.

The clay construction was of, at least, five kinds: (1) *Adobe bricks,* either round balls or the ordinary block form so well known. Clay mortar was used. (2) *Cajon,* a form of ramming wet clay into frames. (3) *Single wattle,* plastered on one or on both sides. (4) *Double wattle* with wet clay rammed between. (5) *Jacal,* a wall of upright stakes or rods, plastered with clay on one or both sides. This last construction was also in use east of the Mississippi. In some early Puebloan construction the jacal was used for upper stories, while the lower were of adobe bricks or of stone.

Physiography controls house construction more than does race or culture. In addition there are the factors of daily habit and superstition. The Lapps, after centuries of close contact with a highly developed people, still dress in their primitive way and live in lodges covered with earth.

In 'The Archeology of Manabi, Ecuador' and 'Notes on the Andean Cultures' Professor Marshall H. Saville gave an interesting account of a successful expedition to those regions. He obtained an unrivaled collection of so-called stone seats from the environs of Monte Cristo in the coast region of Manabi. The entire absence of stone implements except hammer-stones was noted. Objects of copper are also rare. There are very few ruins in Ecuador, this being especially true of Manabi. In the interior or Andean region only two ruins are known. The present language here is Quichua, but Inca influence is very slight on the archeology of the district. As one goes north the Inca influence becomes less and less apparent. Most of the antiquities found in the Andean district came from near Rio Bamba. Many fine examples of pottery decorated by the so-called lost color process that characterizes a certain group of Chiriquian pottery as described by Holmes were obtained at Rio

Bamba. This ware is also found in northern Ecuador and southern Columbia. The valuable collections made by Professor Saville belong to Mr. George G. Heye, of New York, who bore the expenses of the expedition. The report on Manabi will be published privately very soon.

In 'Notes on the Occurrence of the Mineral Utahlite as a Prehistoric Gem,' Professor Henry Montgomery described the mineral as a hydrous phosphate of aluminum somewhat similar to turquoise and capable of being highly polished. Although rare, its occurrence has been noted in certain prehistoric ruins.

Mr. Edgar L. Hewett's two papers were on 'The Art of Glazing among the Ancient Pueblos' and 'The Relation of Pueblo Indians of the Rio Grande Valley to the Ancient Cliff Dwellers of the Adjacent Plateaus.' As regards the art of glazing in pre-Columbian times, so many specimens have been found that they can not be considered as intrusive. The ruins in question are certainly pre-Spanish. The glaze has been examined by Washington chemists and found to be saline. It may have originated accidentally about salt works. Immediate firing after applying a saturated solution would produce the glaze, which seems to have been used for decorative purposes solely. The Jemez Plateau is the chief center for glazed ware. Mr. Hewett's second paper is printed in *The American Anthropologist.*

'Recent Archeologic Work in Missouri' was the title of Dr. W J McGee's second paper. During 1905 Mr. D. I. Bushnell, of St. Louis, with two or three associates explored certain mounds on the Illinois side of the Mississippi which yielded abundant relics described in a special publication; later in the season the same gentleman had a number of additional mounds, also in Illinois, excavated by Mr. Gerard Fowke, who found moderately abundant relics not yet fully described. During the summer of 1906 Dr. C. A. Peterson, president of the Missouri Historical Society, with several members of the association (including the writer) made a number of archeologic reconnaissances in both Missouri and Illinois, in the course of which certain caves and mounds were examined—one of the trips being to an alleged aboriginal mound larger than Cahokia or Etowah, near Mascoutah, Illinois, which was found to be a paha with a few small earthworks on its summit. The most noteworthy event of the year was the creation of the St. Louis Society of the Archeological Institute of America with W. K. Bixby as president and Professor F. W. Shipley as secretary, which resulted in the commencement of a systematic survey of the antiquities of the state. Under the auspices of this society (including a subsidy from the institute and a special contribution by President Bixby), Mr. Gerard Fowke reconnoitered the lower valleys of the Gasconade and Osage with a portion of the valley of the Missouri in the central part of the state—the territory comprising what may be known as the Osage district; subsequently detailed surveys were made and over sixty mounds were excavated. In general the mounds are poor in artifacts though rich in much-decomposed osseous remains; the most notable type of artifact is represented by vaults or chambers of well-laid stone, found in a number of mounds.

Professor George H. Perkins showed a number of specimens to illustrate his paper on 'Pottery and Bone Objects found in Vermont.' Entire jars have very rarely been found in New England, and of the half dozen or so which are now in existence the three largest and finest were found in Vermont and are in the museum of the university at Burlington. Photographs of

the most recently found specimen were shown. This is ten inches high, hexagonal at rim, globular below, decorated in the usual manner of Vermont pottery by indented figures and lines over the entire upper portion. It holds twelve quarts. Numerous fragments of highly decorated rims have also been found recently at what appears to have been a camp site, on Mallett's Bay, the largest of the numerous bays of Lake Champlain. At this same locality, in a stiff clay which underlies the loose surface soil many bone awls, scrapers, etc., have been found within the last two months. These objects are interesting in themselves, but they are especially so, as they are the first bone objects found in Vermont, with the exception of one or two which were obtained some years ago at another locality. Marine shells and bits of coral have also been found with these bone objects.

In 'Recent Geological Changes as Affecting Theories of Man's Development,' Professor G. Frederick Wright characterized the Tertiary as a period of stability and the Quaternary as one of great and rapid changes.

'Harness Mound Explorations' was the subject discussed by Mr. William C. Mills. The Harness Mound was opened in 1846 by Squier and Davis and again in 1885 by Professor F. W. Putnam. In these earlier explorations fifty burials were uncovered. Mills has recently found 133 additional burials. Cremation was quite generally practised. In cases where cremation took place at the grave no artifacts were found with the remains, but where cremation had taken place prior to the deposition of the remains, artifacts accompanied the latter. Mr. Mills discovered a series of post-holes surrounding the burials. Long awls made of the leg bone of the deer were described and differences noted between the bone implements from the Harness Mound and those found at Fort Ancient.

Mr. Alanson Skinner gave the results of his 'Recent Discoveries at a Prehistoric Indian Village Site at Mariner's Harbor, Staten Island.' In the spring of 1903 recent railroad excavations at Mariner's Harbor, Staten Island, N. Y., exposed a prehistoric site of the Hackensack Indians, a local branch of the Leni Lenape. Shell pits and burials were found, and up to the spring of 1906 these were opened whenever exposed and many skeletons were found. Pottery was abundant, and this, usually in Algonkin style, often showed Iroquoian influence. Grooved axes occurred, but no celts, and no implements were found with burials.

Saturday morning's program being of interest to students of social and economic science, members of Section I accepted an invitation to be present and take part. Professor Franz Boas opened the session with a paper on 'Heredity in Head Form.' Dr. Robert Bennett Bean followed with 'Some Racial Peculiarities of the Negro Brain,' it being a résumé of his studies recently published in the *American Journal of Anatomy*.[4] In 'Brain and Education,' Dr. Thomas M. Balliet traced the development of the sensory, motor and association centers.

'Selection and Elimination by Immigration' was discussed by Dr. Maurice Fishberg. From available data, collected during the enrollment of soldiers for the civil war, it appears that immigrants to the United States are, on the average, taller than the people in the countries from which they come. It was found that natives of England, Scotland, Ireland, Germany, France, etc., were, on the average, about one inch taller than the soldiers in armies of the countries of their birth. Not only were the immigrants from foreign coun-

[4] September 1, 1906, pp. 353–432.

tries superior to their compatriots at home, but native Americans who enrolled in other than their native states, were on the average taller than those who enrolled in their native states. Measurement taken by the author showed that the Jewish immigrants to the United States are also taller than their co-religionists in eastern Europe. While there are no definite measurements, still it appears superficially that the Italian and Slavonian immigrants are also a selected class physically. This phenomenon is deserving of careful study by anthropologists. It has been attributed to 'social selection' or selection by immigration, and is said to be due to the fact that it is generally the stronger, the more energetic and adventurous who venture to leave the country of their birth, their friends and relatives and travel thousands of miles in search of a possible improvement of their condition. The diseased, the weakly and the defective lack the amount of courage and perseverance necessary to undertake a long journey with small funds.

Not all those who come to the United States remain here. Over twenty per cent. of all the immigrants return sooner or later to their native countries. The author observed that most of those who return to their homes are individuals who, by reason of some physical or mental peculiarity, could not adapt themselves to the conditions in the United States. On the whole, there appears to be going on a process of elimination of many of those immigrants, who for various reasons, are unable to gain a foothold in their new homes. Among those who are compelled to return to Europe—and there are said to be about 300,000 returning annually in the steerage —there are many who would be classed as undesirable immigrants by the immigration authorities, but who in some manner passed through the inspection at Ellis Island. Our social, political and industrial conditions eliminated all these sooner or later.

'Certain Aspects of Human Heredity,' the third paper to be presented by Dr. W J McGee, closed the morning's program. Among the Ainu of Japan (of whom a group participated in the Universal Exposition of 1904) two fairly distinct ethnic types prevail, dividing—so far as known—on lines of sex; the males being of Caucasian aspect in color, pelage, features, stature, etc., while the females approach the Malayan type. Among the Cocopa Indians of the Lower Colorado there is a notable variability in stature, ordinarily divided on sex lines, the males ranking among the tallest and the females among the shortest of the North American tribes; in this respect contrasting strongly, *e. g.*, with the Pueblo peoples, among whom both sexes are below, and the Seri Indians, among whom both sexes are above the medium stature. These and other phenomena lead to a consideration of hereditary tendencies of which some incline either to 'regression toward mediocrity' as shown by Galton or 'reversion to type' as shown by Mendel, while others appear to incline toward increasing and even cumulative variability in special characteristics.

At the afternoon session of Saturday, reports of certain standing committees were read. The report of Professor Franz Boas for the committee on the concordance of American mythologies was adopted, with the recommendation that the committee be continued with power to publish.

Dr. Charles Peabody reported for the Committee on American Archeological Nomenclature. The committee was empowered to print Dr. Peabody's report in full and distribute copies to members of the association in order to form a basis for discussion and final action.

A similar disposition was made of Mr.

F. W. Hodge's report for the Committee on Nomenclature of Indian Linguistic Families North of Mexico. Mr. Hodge also reported for the Committee on Book Reviews. The conditions in regard to book reviews are improving. The present policy is to ask the reviewer in advance of sending the book; but reviews are not always furnished promptly. It was suggested by Professor Boas that a book be published by title immediately giving the scope of the work, a more extended review to follow later if desirable. The report was adopted and the committee continued.

Mr. Edgar L. Hewett spoke for the Committee on the Preservation of American Antiquities. He reviewed the new law, which seems to have been not only highly satisfactory but also administered to the letter. No permits under the law have been granted pending the adoption of uniform regulations, the making of which are entrusted to a committee. The announcement of regulations is expected soon. The president has already created the Petrified Forest National Park and also certain national monuments, such as Devil's Rock, El Morro and Casa Montezuma. Mr. Hewett reviewed the bill creating the Mesa Verde National Park. The report was adopted and the committee continued with power to observe the operations of the law; to represent archeologists in the interpretation of the law; to place before the proper authorities information as to desirable sites to be preserved; to facilitate applications for permits to excavate, etc., and to act as a joint committee with the committee from the Archeological Institute of America.

A resolution was passed to the effect that no distinction should be made between foreign and domestic institutions relative to permits for excavations.

Monday's program opened with an account by Dr. A. L. Kroeber of 'Recent Results of Anthropologic Investigations by the University of California.' The department of anthropology at the University of California is only six years old and owes much to the generosity of Mrs. Phebe Hearst. Its object is threefold: (1) the formation of collections, (2) publication and (3) instruction. The department has undertaken two surveys of California, one being anthropological and ethnological and the other archeological. In discussing the latter reference was made to two papers recently published by Professors F. W. Putnam and J. C. Merriam in the *American Anthropologist*.[5] Dr. Kroeber also referred to the discovery of a Quaternary cave in a new region and to the numerous shell mounds on the Bay of San Francisco, probably one hundred in all. Only a few of these have been explored. In some instances the lowest shell deposits are below the level of the sea.

The ethnological survey is to cover the whole state. Among the special researches may be mentioned Dr. Dixon's work on a linguistic stock that is fast disappearing. In studying the three distinct culture regions special attention is given to environmental differences.

Additional evidence of anthropological activity in California came in the form of a paper by Miss Constance Goddard DuBois on 'The Sandpainting among the Luiseños and Diegueños Mission Indians of Southern California,' which is to be published in bulletin form by the University of California. The sandpainting forms an integral and important part of some of the chief ceremonials of the religion of Chung-itch-nish, which religion was first described by Boscana in 1825, and has remained almost unknown since his day. It came to the mountain Indians of San Diego County from the coast Indians, and

[5] April–June, 1906, pp. 221–235.

to them from the islands of the ocean. Since it was given later by the Luiseños to their neighbors the Diegueños, the religious ritual in both tribes is the same. The sandpainting is therefore found in both; but has been most fully described among the Luiseños.

It was used in Mah-ne, the initiation ceremony for boys when the Datura juice mixed with water was drunk from the sacred stone bowl; in Wu-kún-ish, the girls' *fiesta;* in Ah-nut, the ant-ordeal; and in Ú-nish Ma-tá-kish, the ceremony for burying the feather head-dress, etc., belonging to a toloache initiate after his death. A central hole was dug, and the sand removed from it was used to make a heaped-up circle of a size varying in the different ceremonies. This was painted by sprinkling with powdered paints, the outer edge white; the middle, red; the inner edge black; which circles signified the Milky Way, the Sky and the Spirit of man, the Indian words all meaning spirit; the Milky Way being the Spirit to which the spirits of men go at death.

Three included rows of nine points each in succession make a geometrical figure colored in the same order, white, red and black; and the circle about the hole is similarly painted.

Small heaps of sand in several divisions have each a special significance. The whole of the sandpainting represents the earth. The sky arching above it is supposed to rest upon the circle of the Milky Way. There is a door to the north to allow of escape of the spirit after death.

The candidate in all the ceremonies mentioned except the last, knelt before the sandpainting facing the north with arms extended and a hand placed on the ground on either side of the painting, and spit into the central hole a lump of sage seed mixed with salt which signified the conclusion of a period of fasting. The hole was then filled by carefully sweeping the sand from the circumference towards it, thus obliterating the painting and ending the ceremony.

Mr. Charles H. Hawes, as guest of the American Anthropological Association, presented some very interesting 'Notes on Cretan Anthropology.' In 1903 Dr. Duckworth, of Cambridge University (Eng.), measured 85 Cretan crania belonging to the Bronze Age and 200 living subjects. In 1905 Mr. Hawes added records of 11 ancient skulls and 1,440 living Cretans, making on the latter about 29,000 measurements and observations.

The data for prehistoric times gives an average *cranial* index (for 62 ♂) of 73.4 and an estimated stature of 1,625 mm., with a dolichocephalic percentage of 65.3 and a brachycephalic of only 8.5. From these and the archeological evidence of a non-Aryan culture, we conclude that prehistoric Crete, like neighboring lands, was peopled by a branch of the 'Mediterranean race.'

But a brachycephalic minority existed even in the earliest period of the Bronze age, and the writer inclined to attribute this to an infiltration from the Anatolian highlands, of a people in the Neolithic stage, whether the so-called 'Hittites' or stragglers of the 'Alpine race.'

The records on living Cretans yield an average *cephalic* index (for 1,605 ♂) of 79.2 and stature of 1,686 mm., with a dolichocephalic percentage of only 12 and a brachycephalic of 36.9.

This broadening of the head and increase in stature is attributed to immigration. A marked increase of brachycephalism is noticeable towards the end of the bronze age and this tallies with the tradition of an invasion from the north of the Achæans and Dorians.

Both tendencies owed something to the Venetian occupation, but more to the

Turkish of the last 250 years. Although the Cretan Mussulmans are mainly of native extraction and include only a small minority of Turkish half-breeds, yet their cephalic index is (79.9) a unit higher than that of Christians (78.9) in the same provinces.

The tendency from Neolithic times, to increasing brachycephalism in Crete has a parallel in Italy and Greece, where the greater immigrations of northern peoples have produced the same phenomenon in a more marked degree.

Dr. Berthold Laufer made 'A Plea for the Study of the History of Medicine and the Natural Sciences.' A museum of the history of medicine from prehistoric times to the present would be of special importance. Such a museum should include the medical lore of the Indians. Reference was made to the two professorships of the history of medicine in the University of Berlin.

The paper by Dr. K. S. Kennard on 'Ellis Island as a Field for Anthropological Study,' dealt with the large quantity and variety of material presented at this station. The ease and rapidity with which it could be examined at this point would save delay and expense in accumulating data. Over four million aliens in the last six years had entered this port—comprising those nations which had been but scantily examined anthropologically—namely, the Magyars, people of the Balkan states and Hebrews.

Anomalies of head forms were witnessed among the southern Italians, who are generally believed to be a long-headed people. These unusual head forms resembled that of the Armenians. This was believed to be a racial trait—not an artificial product. The stature of Neapolitan women being greater than that of the men was noted, but could not be explained, also the lighter pigmentation of their eyes. Opportunities for study in folk-lore, linguistics and elementary music of these people were here offered. Advantage should be taken to make use of all this material, for nowhere else in the world could it be effected with so little expense and such complete results.

Dr. K. D. Jessen discussed 'Geometrical Design in Primitive Decoration.' Although Ernest Grosse, in his discussion of the so-called geometrical decorative design found among primitive races, argues convincingly for the original imitative character of it, this view is not at all, it seems, universally accepted. The paper tries to show that the geometric design is, by origin, of an imitative character, naturalistic, not imaginative, esthetically speaking, representing objects or phenomena found in nature or made by culture. It is conventionalized just as the later botanical design becomes conventional, the imitative origin of which no one can deny. The facts, as represented by ethnological observation corroborated by the facts concerning the beginnings of art in the child, are best explained by Grosse's theory. In fact any other theory would involve a most extraordinary break in the evolution of the human mind and would have to be excluded, perhaps, logically, under the law of contradiction..

Miss H. Newell Wardle's communication was on a kindred topic—'Studies in the Life History of Primitive Art.' The art of primitive man was, at its inception, bound by no laws, governed by naught save size and contour of the object whereon he wrought. It was realistic. With the invention of basketry, geometric figures were introduced. The discovery of pottery furnished a new field for the growth of the esthetic sense. The clay vessel inherited the geometric decoration from its predecessor, the basket, but ornamentation of pottery was by means of incising and painting, and these, more ancient than the textile arts, came unbiased to the clay of

the new field. Realistic and geometric decoration upon pottery of necessity reacted upon each other, tending to produce angularities in the former, and scrolls in the latter. The predominance of either form in the art of a people depends not so much upon culture level as upon the peculiar genius of that people. Geometric designs degenerate in two ways; by complication—the reduplication of parts and addition of apparently meaningless flourishes; and by simplification to some striking characteristic—the law of essentials in primitive art.

For primitive man, the world around was filled with sentient beings. Of these he made his gods. Their symbols were, of necessity, life-forms. The life-form passes into the geometrical, and this, with the growth of philosophic and religious thought, is reinterpreted or degenerates into meaningless ornament. A good example is the swastika. The origin, meaning and decay of the symbol were fully discussed.

Professor William P. Blake described an 'Aboriginal Race Course.' In the southern portion of Yavapai County, Arizona, at Peeples Valley, not far from the rancho of Coles Bushford there is a remarkable paved way, race course or stadium of unknown but undoubtedly aboriginal origin. It is in the form of an ellipse some hundreds of feet in major length, and is paved with rough blocks of granite of irregular form for the full breadth of the roadway, about a rod, as nearly as I can now remember. This way is bordered on each side by large outlying boulders of gray granite now partially overgrown by live-oak trees. The largest of these boulders would appear to have been convenient for spectators, but were probably placed by nature along the borders of the two adjoining and nearly parallel water courses, now dry.

It may be supposed that this paved way was designed and used for foot-races. It appears to be worthy of measurements and a map.

The closing number on the program was a communication from Professor E. H. Barbour on 'The Nebraska Loess Man,' presented by Professor Henry B. Ward. The discovery in question was made by Mr. Robert F. Gilder in October, 1906, on Long's hill facing the Missouri River, ten miles north of Omaha. Long's hill stands 200 feet above the river. It is a hill of erosion and no discoverable land slip has complicated its simple geology. On its summit is Gilder's mound, in the superficial layer of which were found mound-builder remains, and in the deep layer eight skulls and many bones of a still more primitive type. According to Professor Barbour, there is evidence of burial in case of the upper bone layer, but none in case of the lower. The bones found in the undisturbed loess doubtless antedate the hill itself. The loess in question rests on Kansan drift, and though as young as the later Wisconsin sheet or younger, it is nevertheless old. A more extended account may be found in SCIENCE for January 18, 1907; and in the Nebraska Geological Survey, volume II., Part 5.

Papers were read by title as follows:

DR. NICOLAS LEÓN: 'Foc-Lor Mexicano.'

MRS. R. F. HERRICK: (*a*) 'The Volcano of Bell Springs'; (*b*) 'On the Preparation of Bone for Certain Implements.'

MR. WILLIAM NELSON: (*a*) 'Witchcraft in Northern New Jersey in the Nineteenth Century'; (*b*) 'The Use of Water Witches in Railroad Building.'

DR. A. M. TOZZER: 'Maya Religion.'

DR. GEO. F. KUNZ: 'On the Aboriginal Use of Turquoise on the American Continent.'

DR. ALES HRDLICKA: 'Racial Characteristics of the Humerus.'

MAJOR C. E. WOODRUFF: 'The Disappearance of Blond Types from the American Population.'

MR. JAMES MOONEY: 'The Decrease of the Indian Population.'

MR. S. P. VERNER: (*a*) 'Iron and Copper Metal-

lurgy in the Kasai'; (*b*) 'The Pygmies and the Anthropoid Apes'; (*c*) 'Phallic Influence in Bantu Art and Mythology.'

COL. PAUL BECKWITH: 'The French-Egyptian Medal in Commemoration of the Savants who accompanied General Bonaparte into Egypt.'

DR. ALTON H. THOMPSON: 'The Ethnology of the Teeth.'

DR. CYRUS THOMAS: 'Some Suggestions in regard to Primary Indian Migrations in North America.'

DR. SAMUEL S. LAWS: (*a*) 'The Physiology of Second Sight'; (*b*) 'A Main Factor in remedying Deafness'; (*c*) 'The True Object of Vision.'

GEORGE GRANT MACCURDY,
Secretary

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SCIENTIFIC BOOKS

The Evolution of Culture and Other Essays. By the late Lt.-Gen. A. LANE FOX PITT-RIVERS, D.C.L., F.R.S., F.S.A. Edited by J. L. MYRES, M.A., Student in Christ Church, Oxford; with an introduction by HENRY BALFOUR, M.A., Fellow of Exeter College, Oxford, Curator of the Pitt-Rivers Museum. Oxford, Clarendon Press. 1906. Pp. 232; 21 pls. 8vo. 7s 6d net.

Here you have together, in attractive form, the principal writings of one of the pioneers in culture-history, or the story of mankind recorded in the works of their hands. The volume includes: Principles of Classification (1874), On the Evolution of Culture (1875), Primitive Warfare (1867, 1868, 1869), three chapters, Early Modes of Navigation.

Two loving disciples have prepared the volume and written the introduction. Precise references have been identified and given in full, and obvious errors in the text have been either amended or corrected in a foot-note. The volume was prepared to supply the needs of candidates for the Oxford diploma in anthropology and of the numerous visitors to the Pitt-Rivers Museum, in Oxford; but every student of culture will feel happier with a copy at hand.

Colonel Fox's text was that in the arts and customs of the still living savage and barbaric peoples there are reflected to a considerable extent the various strata of human culture in the past, and that it is possible to reconstruct in some degree the life and industries of man in prehistoric times by a study of existing races in corresponding stages of civilization. Professor Balfour wisely says: "The fact of our not agreeing with all his details in no way invalidates the general principles which he urged." In all our best museums the exhibits that attract the most people and interest those in every walk of life are the synoptic series, easily leading the mind from a shadow in the snow to the chronometer; from a bow and arrow to the latest carbine; from Triton's horn to the cornet; from a woman's back to the express train; from a raft to the gorgeous ocean steamer. O. T. M.

March 30, 1907

Organische Zweckmässigkeit, Entwicklung und Vererbung vom Standpunkt der Physiologie. Von Dr. PAUL JENSEN, Professor an der Universität Breslau. Pp. 251. Jena, G. Fischer.

Dr. Jensen has attempted to state some of the general and fundamental problems of biology — adaptiveness, heredity, evolution, variation, selection, and the like—from a purely physiological standpoint, and to indicate the lines along which physiology would lead us to look for a solution. The result will be found most interesting and suggestive to those working along these lines. The processes taking place in development, individual as well as racial, are occurring in the same complex of material as are the processes of (for example) metabolism. They are as much a part of a proper science of physiology as are the latter. Further, there seems to be no reason why physiology should proceed on essentially different principles in different cases in the investigation of the various processes with which it deals. This consideration leads the author to a criticism of certain theories which do appear to be based on principles fundamentally different from those which have been found valuable in unravelling the processes commonly assigned to physiology. On the one hand all doctrines which attribute the characteristics of organisms, hereditary and otherwise, to certain