II. *Determination of the formulas of the Hydrocarbons and Chlorine Derivatives of Pennsylvania, California, Japanese, and Canadian Petroleum by Molecular Refraction:* By C. F. MABERY and O. J. SIEPLEIN Cleveland, Ohio.

I. *Composition of the Hydrocarbons in Pennsylvania Petroleum, Liquids and Solids, above 216°.*

II. *Composition of the Hydrocarbons in California Petroleum, Liquids.*

III. *Composition of the Nitrogen Compounds in California Petroleum:* By CHARLES F. MABERY, Cleveland, Ohio.

Composition of the Hydrocarbons in Japanese Petroleum: By C. F. MABERY and S. TAKANO, Cleveland, Ohio.

The Sulphur Compounds and their Oxidation Products and Unsaturated Hydrocarbons in Canadian Petroleum: By C. F. MABERY and W. O. QUAYLE, Cleveland, Ohio.

The Structure and Configuration of Camphor and its Derivatives: By W. A. NOYES, Terre Haute, Ind.

Some Compounds of Methyl Sulphide with Metallic Halides: By FRANCIS C. PHILLIPS, Allegheny, Pa.

The Reaction of Potassium Hydroxide on Chloroform: By A. P. SAUNDERS, Clinton, N. Y.

Application of Chemical Methods to the testing of Wheat Flour: By HARRY SNYDER, St. Anthony Park, Minnesota.

A New Volumetric Method for the Determination of Silver: By LAUNCELOT W. ANDREWS, Iowa City, Iowa. (The paper will be published in the *American Chemical Journal.*)

Method for the Analysis of Glass: By E. C. UHLIG.

Notes on the Ferrocyanides of Lead and Cadmium: By EDMUND H. MILLER, and HENRY FISHER.

Notes on the Determination of the Spontaneous Combustion of Oils when Mixed with Wool Waste: By LEONARD P. KINNICUTT and HERMAN W. HAYNES, Worcester, Mass.

Investigation as to the Nature of Corn Oils. Second paper: *Determination of the Constitution:* By HERMAN T. VULTE and HARRIETT WINFIELD GIBSON.

Notes on the Determination of Phosphorus as Phosphomolybdic Anhydride: By H. C. SHERMAN and H. S. J. HYDE.

New Methods for the Separation of some Constituents of Ossein: By WM. J. GIES.

Texas Petroleum: By H. W. HARPER.

The Hydrogen Reduction Products of Dehydromucic Acid: By A. S. WHEELER, Cambridge, Mass.

ARTHUR A. NOYES,
Secretary, Section C.

ANTHROPOLOGY AT THE NEW YORK MEETING OF THE AMERICAN ASSOCIATION.

THE anthropologists met for organization in Schermerhorn Hall, Columbia University, on Monday, June 25th, at twelve o'clock, Vice-President Amos W. Butler, of Indianapolis, presided at this and subsequent sessions excepting that of Tuesday morning. Dr. J. Walter Fewkes, Miss Alice C. Fletcher and Mr. M. H. Saville were elected members of the Sectional Committee; Professor Joseph Jastrow—whose resignation later caused a vacancy that was filled by the election of Mr. Stansbury Hagar—was elected a member of the General Committee, and Mr. George G. McCurdy was elected press secretary. As Vice-President Butler's address is to be delivered at the meeting of 1901, the Section adjourned on Monday afternoon to allow the members an opportunity to hear the Vice-Presidential addresses that were given at three and four o'clock before other Sections.

Arrangements having been made for a meeting with the American Psychological Association, the morning session of Tuesday, June 26th, was presided over by Professor Joseph Jastrow, president of that Association, and four papers upon psychologic subjects were read. The undesirability of meetings of Section H being held in conjunction with those of the Psychological Association has been ably shown by the secretary of the Columbus Meeting in his report in this JOURNAL. In the opinion of the present writer and that of the majority of the Sectional Committee it is eminently desirable that close affiliation continue between the Anthropologists and the Psychologists; but the presentation of papers whose subject matter ranges from experimental psychology to metaphysics before the anthropologic Section has not proved satisfactory. If the psychologists are to continue in the Association they should

have a separate section. In college curricula psychology is much more widely recognized than is anthropology, there would seem to be no logical grounds for making psychology an outrider for Section H in the American Association for the Advancement of Science.

Henry Davies read a paper upon 'Methods of Æsthetics'; Edward Thorndike one upon 'Practice.' J. McK. Cattell illustrated a new method of demonstrating physiological processes that are dependent upon mental conditions. The stereopticon was used to show upon the screen the tracings made upon a revolving disk of smoked glass. Thus the quantitative character of breathing, muscular fatigue, etc., were shown to the audience as they took place. Charles H. Judd reported upon his 'Studies in Vocal Expression.' Records upon smoked paper were shown that had been made by a diaphragm and enlarging lever. Measurements of two hundred and fifty metrical feet, English hexameter, demonstrated that the theory that English metrical feet are all of uniform temporal quantity must be rejected.

The afternoon session opened with a paper by Dr. Thomas Wilson upon 'Criminology.' He traced the historical development of his subject from the time of John Howard down to the present. The speaker expressed his dissatisfaction with the manner in which crime had been treated in America. It has been clearly defined and the criminal punished, but due heed has not been given to causes and methods of prevention. Dr. Wilson argued that Lombroso's theories, associating certain types of crime with definite physical characters, were based upon unreliable statistics. It would be more correct to say that crime determines the physical structure than *vice versa*, that environment is more responsible for crime than hereditary character. In conclusion, accurate and extensive statistics are desired. Methods for securing these are being developed, such, for example, as described in the succeeding paper by Vice-President Butler.

In an exposition of 'A Method of Registration for certain Anthropologic Data,' Mr. Butler outlined the developments of a method of obtaining and recording facts regarding defectives, delinquents, and dependents. The system was developed and is in use in the office of the Indiana Board of State Charities. Samples of the blanks and records were shown.

Professor Otis T. Mason's paper upon 'The Trap: a Study in Aboriginal Psychology' contained a classification of the various forms of instruments employed by the aboriginal Americans to secure animals. The mental capacities of the inhabitants of the several culture areas, as determined by their skill in devising, killing or capturing apparatus, were compared.

W. H. Holmes gave a brief exposition of 'The Ancient Aztec Obsidian Mines of the State of Hidalgo, Mexico.' The use of obsidian for the manufacture of implements was very common throughout Mexico. The only mine of importance so far discovered is that of Hidalgo, a hundred miles northeast of the City of Mexico. The work on this site has been very extensive and the pittings cover at least one square mile. The quarries were worked mainly for the securing of cores or nuclei for making flake knives, thousands of the rejected cores being found in the quarries. That the mines were worked by Aztecs is shown by the fact that typical Aztec pottery is distributed through the debris of the work-shop.

Geo. G. MacCurdy followed with a paper upon 'The Obsidian Razor of the Aztecs.' The differences between the fracture of flint and obsidian were described and the excellence of obsidian as a material for the manufacture of knives and razors was demonstrated by lantern views.

A paper by Dr. Washington Matthews gave a brief account of the progress made by the Navahos in the art of weaving blankets and then called attention to a new style of weaving that is described by his title—'A two-faced Navaho Blanket.' The web has totally different figures on the two sides. These blankets are not numerous and the art of weaving them is not encouraged by the traders to whom the Navahos sell the products of their looms.

Harlan I. Smith reported upon the progress made by the party of archæologists under his direction working in the interests of the Jesup North Pacific Expedition in 1899. Shell heaps, cairns and graves were examined in Washington and British Columbia. The results of these investigations were described and in part illustrated by lantern views.

A second paper by Mr. Smith described the cairns of southeastern Vancouver Island and the adjacent coasts. These cairns consist of rude stone vaults containing flexed skeletons that have been buried without the implements and utensils that are usually deposited with the dead by the aborigines.

Alice C. Fletcher presented a valuable paper entitled 'Giving Thanks; a Pawnee Ceremony.' The ceremony was witnessed by the speaker, May 20, 1900, in a Pawnee camp in Oklahoma Territory. The rite is described and three points indicated upon which it throws light. (1) The native belief as to the causes which secure efficacy to the medicine administered. (2) The intermediary position of the doctor. (3) The meaning and purpose of the fees given him for his services.

The paper by Francis La Flesche described the proceedings of 'The Shell Society among the Omaha,' as witnessed by the author when a boy and as he understood it from the accounts of the secret ritual during the past year by the older members of the Society.

Mrs. Zelia Nuttall exhibited a cast of Kollmann's reconstruction of the head of a woman of the Swiss Lake-Dweller type, and commented upon the difficulties in the way of a successful reproduction.

The program for Wednesday closed with the paper by Roland Steiner upon 'Braziel Robinson; possessed of two spirits.' This account of a negro superstition is but one of several score of interesting folk-lore tales that Dr. Steiner has collected.

W J McGee opened the morning session of Thursday with an address upon 'The Responsivity of Mind,' a discussion of cultural coincidences in the Old World and the New that lend support to the doctrine of mental unity among mankind.

'The Law of Conjugal Conation' was explained by the same speaker, who emphasized the importance of the rôle played by personal affection in human development.

Charles E. Slocum exemplified the thesis that 'A Civilized Heredity is stronger than a Savage Environment,' in the story of Frances Slocum abducted by the Delaware Indians, at the age of five years, and remaining with them until her death, sixty-eight years afterward. Her character furnishes strong evidence in favor of the importance of heredity. "She was plain and practical in outward display, while in the midst of those inclined to gaudiness; she was free from enervating habits, though in the midst of indulgences; industrious, where idleness abounded; cleanly, while surrounded by squalor; accumulative, among a wasteful race; considerative and sound of judgment, in the midst of impulsiveness; and patient in doing her duty according to the best of her knowledge." Thus it was shown that her English ancestry was a stronger factor in molding her character than her savage environment.

'The Sedna Cycle, a Study in Myth Evolution,' was presented by H. Newell Wardle.

The aim of this study was to show the real character of the ideas that the Inuit fancy has woven into the song and story of the Sedna group, to trace their changes from tribe to tribe and to learn the reasons for their variation.

The author comes to the conclusion that subsequent to the rise of the proto-Sedna myth, the crossing of the arctic circle brought the diurnal and annual myths into close relation when the recognition of their affinity resulted in a mutual borrowing.

'The Peruvian Star-chart of Sulcamayhúa' was discussed by Stansbury Hagur. About thirty years ago a group of manuscripts relating to early Peruvian culture was discovered in the National Library of Madrid. Among them was an account of the antiquities of Peru, written about 1610 by Salcamayhua, and containing a stellar chart which is a veritable key to the symbolical astronomy of the Inca empire.

The two oblique lines at the top represent the sky. Immediately below appear the five stars of the Southern Cross, and below them the figure of a large egg, symbol of the Universal Spirit. On the left is seen the sun as a man above the morning star, and on the right the moon as a woman with the evening star beneath. On the lower part of the chart are the twelve signs of the zodiac.

W. K. Moorehead gave a brief review of the facts that he had recently ascertained regarding 'The Bird Stone Ceremonial.' A more detailed study of this class of ornaments was urged and their peculiarities indicated by an exhibition of original specimens.

'A Navaho Initiation' was described by Washington Matthews. The Navahos rarely punish their children, but they frighten them with the masked characters of the Night Chant, the principal one of which is the Yayhichy or maternal grandfather of the gods. When children are naughty they tell them that this person will punish them. At their initiation "they are subjected to a symbolic punishment, after which the supposed gods unmask and show themselves to be ordinary individuals masquerading." The children are then permitted to look through the eyeholes and learn the nature of the mask. They acquire certain privileges at this time.

The sessions on Friday, June 29th, were held in the lecture room of the Department of Anthropology of the American Museum of Natural History. M. H. Saville read a paper upon the ancient tombs at Mitla, Mexico.

Mrs. Zelia Nuttall explained the 'meaning of the ancient Mexican calendar stone,' showing that a single primitive, cosmical scheme and plan of government prevailed throughout ancient America. The author has furthermore ascertained that the American scheme is identical with that carried out in remotest antiquity by the peoples of the old world. The great calendar stone was shown to be the most elaborate representation known of the cosmical plan, which formed the common basis of the ancient civilizations of the old and new worlds.

F. W. Putnam exhibited a 'new type of pottery from Texas.'

The remainder of the day was devoted to the examination of the collections of the museum, which were explained by the curator and his assistants.

On Thursday morning, June 28th, the Council voted to change the name of the 'Committee upon the Study of the White Race in America' to the 'Anthropometric Committee.' This committee provided means for taking measurements upon members of the Association during the meeting.

The 'Committee upon the Introduction of Anthropologic Teaching' was made a standing committee of the Association by the Council. Section H was given authority

to hold a winter meeting at such time and place as the Sectional Committee should decide.

FRANK RUSSELL,
Secretary.

HARVARD UNIVERSITY.

SCIENTIFIC BOOKS.

Etude sur la grêle. Défense des recoltes par le tir du canon. By V. VERMOREL. Librairie du Progrès Agricole et Viticole; Villefranche. July, 1900.

In this pamphlet of 77 pages the well-known viticultural expert and director of the station at Villefranche gives an account of the latest (up to July 1st) phase of the subject of Wetterschiessen—the protection of crops from hail by means of the vertical firing of specially constructed cannon at the threatening clouds. Chapter 1 gives a *résumé* of the various theories of hail-formation, affording striking proof of the uncertainty still existing in this regard, and especially as to the part played by atmospheric electricity in the most damaging hailstorms, viz, those of summer. There follows a brief discussion of the possible explanations of the action of the vertical projection of the annular whirl, which seems to be essential to the production of the effect, and *e. g.*, tears a paper target placed 100 meters from the gun, and according to trigonometric measurements may reach a height of over two kilometers. The claim made, and sustained by an overwhelming number of observations, is that the commotion caused by these whirls in the hail-clouds, if produced in time, will cause rain to fall in place of hail.

Chapter 2 gives abstracts of the reports made to the congress of Italian hail-protection syndicates held at Casale Monteferrato in November, 1899, which was attended by three delegates from France, the author among the number. The reports are from the provinces of Vicenza, Treviso, Verona, Padua, Udine, Pavia, Bergamo, Alexandria and Novara. From all of these regions the reports are very encouraging, in part enthusiastic. The Bergamo reporter sums up by saying that "those who have done the shooting are desirous of continuing it; those outside the defended area regret not having done it. The results obtained this (last) season could not be more encouraging, and will enable us to complete the means of defense." This appears to be substantially the consensus of opinion of those attending the congress.

Chapter 3 gives the details of the construction and handling of the cannon, which does not differ materially from the original prescriptions of Stiger, except in making the gun breech-loading.

Chapter 4 gives details of the desirable organization of the shooting stations, as now established in the Beaujolais, Rhone Valley. Isolated guns are of little value unless placed on high points. Each gun can defend 25 hectares (62 acres); rapid and continuous firing is especially important at the first approach of the cloud. A code of signals is provided to insure concerted and prompt action. The government supplies powder for the purpose at reduced rates. The expense of establishing a station is placed at 11 francs ($2.15) per hectare, or a little less than $1 per acre; current annual expense, about 65 cents per acre, estimating that 500 shots may have to be fired.

Among the striking points noted is that from 2000 stations last year, *fifteen thousand* are in operation in Italy this year. Moreover, the insurance companies heve reduced the premiums 33 per cent. for the areas provided with shooting stations.

Is it not about time that some experiments in the same line were set on foot in our thunderstorm-ridden Middle West? If, as some allege, this is merely a passing popular delusion, it is a remarkably persistent one, backed by very heavy pecuniary investments, and not definitely assailable on scientific grounds.

E. W. HILGARD.

A Brief Guide to the Commoner Butterflies of the Northern United States and Canada. By SAMUEL HUBBARD SCUDDER. New York, Henry Holt & Co. 1899. Pp. xi + 210, 22 plates of wood-cuts, 10 cuts in text.

This book is a reprint of the first edition of the work, published by the same house in 1893, and so far as the reviewer is able to ascertain, is not different in any respect from the first edition, save in the addition of the plates, which were taken for the most part from the