

sion in New York City,' by Dr. C. E. Caspari, attracted a very full attendance of members and invited guests. Dr. Caspari had attended the sessions of the commission as a representative of two firms of New York City, hence his communication had all the interest of personal knowledge. A rather lively and prolonged discussion of the subject from the chemical and pharmaceutical point of view manifested the interest of the members in subject matter of the law and the law itself.

C. J. BORGMAYER,
Corresponding Secretary.

THE ELISHA MITCHELL SCIENTIFIC SOCIETY OF
THE UNIVERSITY OF NORTH CAROLINA.

THE 167th meeting of the Elisha Mitchell Scientific Society was held in the main lecture hall of the new Chemical Laboratory on Tuesday evening, October 9, at 7:30 o'clock. The following papers were presented:

PROFESSOR COLLIER COBB: 'Geology and Forestry in the Ducktown Region.'

MR. HAMPDEN HILL: 'Deforesting of the Ducktown Region by Sulphur Fumes.'

PROFESSOR CHAS. H. HEERTY: 'The Electric Smelting of Iron Ores.'

DISCUSSION AND CORRESPONDENCE.

'AN IGNORED THEORY OF THE ICE AGE.'

IN SCIENCE (October 5, page 439) there is a communication from Dr. J. M. Schaeberle, under the above title, of which the following is the opening paragraph:

Looking over the recently issued work on 'Geology,' by Professors Chamberlin and Salisbury, I was surprised and disappointed to learn that in this voluminous publication of nearly two thousand pages, many of which are devoted to considerations of causes leading up to the ice age, the name of Dr. Marsden Manson is not to be found.

We, in our turn, are surprised that before going into print with this statement, Dr. Schaeberle did not consult the index of the work in question, where, in its appropriate place, he might have found:

Manson, M., cited, iii, 445.

Referring to the page named, he would have found a section devoted to the cloud hypothesis and the wind hypothesis. Under the

cloud hypothesis the following references are given:

Manson, *Am. Geol.*, Vol. XIV., 1894, pp. 192-194; Vol. XXIII., 1899, pp. 44-57; and Vol. XXIV., 1899, pp. 93-120, 157-180, 205-209.

The discussion was, to be sure, generic rather than specific, and was directed toward the evolution of hypotheses concordant with the present state of discovery and inquiry, rather than retrospective. It was no part of the policy of the authors in preparing the work to bring up the specific views of an individual writer only to throw them down, unless wide acceptance required their consideration. Especially did the authors endeavor to avoid the adverse criticism of individual views when the ground had been adequately covered already by generic treatment. They, therefore, saw no sufficient reason for reciting and criticizing the special view of Dr. Manson that the earth, from the Archean to the Middle Tertiary, was shrouded in a mantle of clouds so deep, dense, universal and persistent that the sun had no effective differential influence on the temperature at the earth's surface, which was maintained by internal heat, and his conclusion that the Pleistocene glaciation was an incident of the transition from this cloud-shrouded era to the present one and was hence the only true glacial period. The authors had recited with care the evidence that there were other and much earlier glaciations whose extent and character raised even more exacting climatological questions than the Pleistocene glaciation. They had cited, in their appropriate places, the paleobotanical evidences of open and varied skies and diversities of atmosphere, specifically noting that the upper sides of leaves of different genera even in Paleozoic times were provided with palisade cells as a protection against too great intensity of sunlight. They had discussed at length and repeatedly, in the proper places, the great evaporation deposits and their associates, together with the related evidences, both physical and organic, of wide-spread and recurrent aridity, with its obvious implication of open and diversified skies and of effective solar action. It had been specifically pointed out

that in the elucidation of the Permian climatological problems which have now become the climacteric ones, no appeal could be taken to a supposed final refrigeration, or to any declining stage or senile condition of the earth, and that hence all hypotheses which involve such features had been set aside by the advance of discovery. There appeared, therefore, no good reason for calling up specifically Manson's theory merely to say that it had been put out of court by the progress of geological inquiry, especially as the recital of the results of inquiry, and their necessary implications, had already told the tale for themselves.

T. C. CHAMBERLIN.

UNIVERSITY OF CHICAGO,
October 8, 1906.

CORRESPONDENCE RELATING TO THE SURVEY OF
THE COAL FIELDS OF ARKANSAS.

TO THE EDITOR OF SCIENCE: I enclose herewith copies of the correspondence between the Director of the U. S. Geological Survey and myself regarding a matter of far-reaching importance to the geologists and other scientific men of this country.

A word is necessary by way of introduction: I was state geologist of the state of Arkansas from 1887 to 1893. One of the first things undertaken by the survey under my direction was a report upon the coal fields of that state. The work was under the immediate direction of Arthur Winslow, a graduate of the Massachusetts Institute of Technology, for some years assistant of the Pennsylvania survey in the anthracite regions and later for several years state geologist of Missouri. Mr. Winslow was assisted by several competent men, among whom were Professor Gilbert D. Harris, now state geologist of Louisiana; Dr. C. E. Siebenthal, now assistant on the U. S. Geological Survey; H. E. Williams, until lately chief topographer of the S. Paulo Geological Survey in Brazil; J. H. Means, consulting geologist, London, England; and Dr. J. F. Newsom, now professor of economic geology in Stanford University. In 1888 a preliminary report on the coal was published, but the final report was completed later.

Owing partly to interruptions and delays that are here irrelevant and partly to lack of funds for the purpose, the final report on coal was not published up to the time I left Arkansas. Efforts were made from time to time to have the legislature provide for its publication, but it was never printed, in spite of the fact that it was economically the most important piece of work the state survey had done. Finally, in 1902, I suggested that the U. S. Geological Survey publish the report, and this was agreed to on condition that the maps of the coal region be reduced to a scale of two miles to the inch and that the contour interval be changed from twenty feet to fifty feet. To this I would not consent because the matter was one of too much importance to the people of Arkansas. Thereupon negotiations came to an end. Later I called the attention of U. S. Senator James P. Clarke, of Arkansas, to the importance of having this coal report brought up to date and published on a scale of a mile to the inch. Shortly afterwards I received the following letter from the director of the U. S. Geological Survey. The rest of the correspondence is self explanatory.

J. C. BRANNER.

U. S. GEOLOGICAL SURVEY.

WASHINGTON, D. C., Jan. 31, 1906.

DR. JOHN C. BRANNER,

Stanford University, Cal.

Dear Sir: There have recently been made several urgent requests by parties interested in the Arkansas coal field for a geological resurvey of that region. The persons making the request claim that since your survey of the field old workings have been extended, many new mines have been opened, and the region has been thoroughly prospected with the diamond drill. This development work has given more definite limits to the workable coals in areas heretofore mapped as coal-bearing, and has shown that workable beds occur in areas not hitherto recognized as containing coal. It is further urged that the coal of this region is becoming of such commercial importance that the United States Geological Survey should enter the field, assemble the data at hand, and make a very thorough and detailed survey of the region.

In view of the above conditions it seems desirable to take up this work in the near future.