ticable the phenomena observed. Among others the problems of buried mountains, bolsen deserts, mesas and the structure of the western Sierra Madres have had much new light thrown upon them, if they have not been solved. EDMUND OTIS HOVEY.

NEWSPAPER SCIENCE.

TO THE EDITOR OF SCIENCE: In the interest of the dignity of scientific research I wish to repeat the statement, made by me on a former occasion, that I have not authorized the sensational reports concerning any work; and that I am in no way responsible for the idiosyncrasies of our daily press.

JACQUES LOEB.

BERKELEY,
May 27, 1905.

A BIOGRAPHICAL DIRECTORY OF AMERICAN MEN OF SCIENCE.

THE undersigned is compiling a 'Biographical Directory of American Men of Science.' It was begun as a manuscript reference list for the Carnegie Institution of Washington, but arrangements have now been made for its publication. The book should be ready in the autumn, nearly 4,000 biographical sketches being in type. The proofs have been corrected by those concerned, but in order to secure as great accuracy as possible a revised proof will be sent in the early autumn.

This letter is written with a view to securing biographical sketches from those living in North America who have carried on research work in the natural or exact sciences but who have not received proof of a sketch for correction. Some of those who were asked to send the information required did not reply even in answer to a second and third request, and there are, of course, many who should be included in the work but who for one reason or another did not receive the request for information.

It is intended that each biographical sketch shall contain information, as follows:

1. The full name with title and mail address, the part of the name ordinarily omitted in correspondence being in parentheses.
2. The department of investigation given in italics.
3. The place and date of birth.
4. Education and degrees with dates.
5. Positions with dates, the present position being given in italics.
6. Temporary and minor positions.
7. Honorary degrees and other scientific honors.
8. Membership in scientific and learned societies.
9. Chief subjects of research, those accomplished being separated by a dash from those in progress.

The undersigned will be under great obligations to those men of science who will send him biographical sketches of themselves or who will secure sketches from those who should be included in the work—those who live in the United States, Canada, Newfoundland, Mexico or Cuba, and who have contributed to the advancement of one of the following sciences: mathematics, astronomy, physics, chemistry, geology, botany, zoology, pathology, physiology, anatomy, anthropology, psychology.

The compiler of the book hopes that any assistance given him to make it as complete and accurate as possible will be at the same time a contribution to the organization of science in America.

J. MCKEEN CATTELL.

GARRISON-ON-HUDSON, N. Y.

SPECIAL ARTICLES.

THE NOMENCLATURE OF TYPES IN NATURAL HISTORY.

PRACTICAL work in the arrangement and cataloguing of 'types' and other museum material has shown us that the present nomenclature is not yet sufficient for critically distinguishing all the different classes of such specimens. Further, some of the terms which have been proposed for the purpose are already employed in other ways: for instance, *homotype* is in use in biology; *monotype* is the name of a printing machine; *autotype* is the term for a printing process. We wish, therefore, to submit the following system of nomenclature; and we hope that, in making it more complete, we have provided a scheme which will render efficient service in the labeling and registration of types and typical material.

The terms printed in broad-faced letters are the additions or modifications for which we are at present responsible. A fuller explanation of all the terms will be found in the 'Catalogue of the Type and Figured Specimens of Invertebrate Fossils in the U. S. National Museum,' a work which has been prepared by Charles Schuchert and is now passing through the press; and the present article gives a synopsis of the terms which it has been found necessary to use in connection with that and similar work.

We now make another suggestion. After the different terms we have placed, in brackets, the contractions which we propose should be used in the actual marking of small specimens to which it is impossible or inadvisable to affix the full label. Our plan for such contractions is this: For types of the first class, two capital letters; for those of the second class, one capital and one small letter; for typical specimens, two small letters.

In the definitions which follow, the term 'description' indicates either a description by words, or by a picture, or by both combined. For the sake of accuracy we suggest that the original description by words (type-description) be called the **protolog,** the original description by a picture (type-figure), the **protograph.** It is obviously more easy to identify actual types from the latter than from the former.

Primary types **Proterotypes.** Material upon which original descriptions of species are based.

Holotype [**H. T.**]. The only specimen possessed by the nomenclator at the time; the one specimen definitely selected or indicated by the nomenclator as the type; the one specimen which is the basis for a given or cited protograph.

Cotype (more properly *Syntype*) [**S. T.**]. A specimen of the original series, when there is no holotype.

Paratype [**P. T.**]. A specimen of the original series, when there is a holotype.

Lectotype [**L. T.**]. A cotype chosen, subsequently to the original description, to take the place which in other cases a holotype occupies (λεκτός, chosen, picked).

Supplementary types (**Apotypes** vice *Hypotype* in use). Material upon which supplementary descriptions of species are based.

Heautotype (vice *Autotype* in use) [**H. t.**]. Any specimen identified with an already described and named species, selected by the nomenclator himself in illustration of his species, such specimen not being identifiable as one of the proterotypes.

Plesiotype [**P. t.**] Any specimen identified with an already described and named species, but not selected by the nomenclator himself.

Neotype [**N. t.**]. A specimen identified with an already described and named species, selected to be the standard of reference in cases when the proterotypes are lost, destroyed or too imperfect for determination, such specimen being from the same locality and horizon as the holotype or lectotype of the original species.

Typical specimens (**Icotypes**) (ἐικός, what is like).* Material which has not been used in literature, but serves a purpose in identification.

Topotype [**t. t.**]. A specimen of a named species from the locality of the holotype or lectotype, in paleontology from the same locality and horizon.

Metatype [**m. t.**]. A topotype identified by the nomenclator himself.

Idiotype [**i. t.**]. A specimen identified by the nomenclator himself, but not a topotype.

Homoeotype (vice *Homotype,* preoccupied) [**h. t.**]. A specimen identified by a specialist after comparison with the holotype or lectotype (μοῖος, resembling).

Chirotype [**x. t.**]. A specimen upon which a chironym is based (chironym, a Ms. name, Coues, 1884).

In addition to the above, we have the use of the word 'type' in connection with genera—a given species is the type of the genus. The classification of such types is as follows:

TYPES OF GENERA (*Genotypes*).

Genoholotype. The one species on which a genus is founded; or a series of species on

* ἐικός, gen. ἐικότος, ειικο for ειικοτο, to make. Ico type for euphony.

which a genus is founded, the one species stated by the author to be the 'type.'

Genosyntype. One of a series of species upon which a genus is founded, no one species being the genoholotype.

Genolectotype. The one species subsequently selected out of genosyntypes to become the 'type.'

CHARLES SCHUCHERT,
S. S. BUCKMAN.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.
SUMMER MEETING OF SECTION E.

SECTION E of the American Association for the Advancement of Science will hold a summer meeting at Syracuse, N. Y., July 19–22. Arrangements have been made for making the meeting enjoyable and profitable to all members of the section. The vicinity of Syracuse is one of great interest in several branches of geology: the fossiliferous rocks of the New York series are well exposed in many ravines; the surface shows most of the phenomena of chief interest in glacial geology; the preglacial and the modern topography have been worked out by specialists, and the economic geology of the district is important. The chief study in the field during the meeting will be the gorges and lakes of the glacial drainage, which are the most novel features of the district.

In making its plans for the meeting the sectional committee has accepted the cordial invitation of the committee having in charge the joint summer courses in geology for several eastern universities and colleges to hold a meeting in conjunction with the summer school.

The following program may now be provisionally announced:

Wednesday, July 19, 8.00 P.M.—The section will meet informally for the purpose of organization and of listening to short addresses by the officers of the section, the state geologist and others. Professor T. C. Hopkins, of Syracuse University, will discuss local geology.

Thursday, July 20.—Field day with picnic lunch. The section will visit the Jamesville Lakes, the 'fossil cataracts' and the several glacial stream channels in the vicinity of Jamesville and part of the shore line of Lake Iroquois in Onondaga Valley. Field addresses will be given by Professor H. L. Fairchild on 'The Local Glacial Features' and by Professor John M. Clarke on 'The New York Series, with Special Reference to the Paleontology and Stratigraphy of the Syracuse district.'

8.00 P.M.—Popular illustrated lecture by Professor H. L. Fairchild on 'Glaciation in North America with Particular Reference to the Effects of the Ice Sheet in Central New York.'

9.30 P.M.—Social meeting in the rooms of the University Club.

Friday, July 21.—Field day with picnic lunch. The party will go by trolley to Fayetteville and thence on foot to the glacial channels and lakes south and west of Fayetteville. Field address by Mr. Frank B. Taylor, 'The Great Lakes in Their Relation to Local Geology.'

8.00 P.M.—Business meeting of the section for the reading and discussion of papers.

Saturday, July 22.—To Fayetteville by trolley or by boat on the Erie Canal. Visit the Fayetteville Channel, Round and White Lakes, the Mycenæ and adjacent channel northeast of Fayetteville, Salina Shales, Manlius limestone, Helderberg limestone, Oriskany sandstone and Onondaga limestone outcrops. Field address by Professor A. W. Grabau on 'The Physical Characters and History of Some New York Foundations.'

Free discussions of all papers will be invited.

Further particulars regarding the meeting may be obtained by addressing Professor T. C. Hopkins, University, Syracuse, N. Y., or the undersigned.

EDMUND OTIS HOVEY,
Secretary Section E,
Am. Assoc. Adv. Sci.

AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK CITY,
May 23, 1905.

PRIZE FOR A METHOD OF SETTING DIAMONDS FOR CUTTING.

CONSIDERING the fact that the setting and resetting of diamonds for cutting purposes involves the use of an alloy, consisting of tin