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#### UNIVERSITY AND EDUCATIONAL NEWS.

THE will of the late John Foster, of Boston, gives \$120,000 to public purposes, including \$10,000 to the Massachusetts Institute of Technology.

THE will of the late Charles Bell, of Springfield, Mass., bequeaths \$7,000 to Wellesley College for a scholarship fund.

BROWN UNIVERSITY receives \$10,000 by the settlement of the will of the late Mrs. Maria L. Benedict, of Providence.

PROFESSOR H. L. HUTCHIN, Dean of the Law Department of the University of Michigan, has been offered the presidency of the University during President Angell's absence in Turkey.

MR. C. H. WARREN has been appointed instructor in mineralogy in the Sheffield Scientific School of Yale University.

THE Spanish universities and other educational institutions under state control have just been thrown open to foreigners by royal decree. By the new ordinance foreigners are admitted to the right of matriculation, study and examination in all educational establishments under the Spanish government, and are entitled to take degrees in the universities.

IN announcing last week the promotion of Professor Albert Bushnell Hart, of Harvard University, it was accidentally stated that his chair was physics; it should, of course, have been history.

#### DISCUSSION AND CORRESPONDENCE.

##### TYPE SPECIMENS IN NATURAL HISTORY.

A RECENT number of SCIENCE\* contains an article by Mr. Charles Schuchert, entitled 'What is a Type in Natural History?' The title is misleading, for, instead of discussing type forms or types of groups, Mr. Schuchert confines his attention to type specimens, and chiefly to the names by which such specimens may be designated, in which direction he shows remarkable fertility of resource. In view of these facts, and of the additional circumstances that the subject is approached from the standpoint of the student of fossils, his paper might have been better described under some such heading as 'Suggestions for the Multiplication of Type Specimens in Paleontology.'

Mr. Schuchert revives several obsolete terms, such as *paratype* and *metatype*, which have never been used, so far as I am aware, even by the man who proposed them, and adds a number of his own invention, such as *genotype*, *holotype*, *hypotype*, *plastotype* and *hypoplastotype*. These may be taken as mild examples of a prevalent and apparently incurable form of mania which busies itself in burdening science with a useless and formidable terminology. The most serious objection to such terms is the discouraging effect they have on students, for they wall in a subject with a barrier that few have the courage to assail. In my own case I am bound to confess that, although the greater part of my life has been spent in the study of animals and plants, I am to-day unable to read half the literature on these subjects, because of the multiplicity of technical terms by which the author's meaning is made unintelligible. Life is too short and too precious to be fritted away in memorizing such a disheartening and ever increasing mass of terminology.

My reasons for replying to the article in question are, first, to make the occasion an excuse for filing a protest against the unlimited coinage of new terms, and second, to assure the amateur and beginner that in descriptive zoology and botany these particular terms are wholly unnecessary. In practice the best systematic

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writers find the single word *type*—understood the world over—sufficient for ordinary needs. But in cases where a species rests on more than one specimen, and the author neglected to indicate a type, the term *cotype* is used to designate each of the several specimens on which the original description was based. Still another term is found convenient and is in common use among mammalogists. It is the word *topotype*, proposed by Mr. Oldfield Thomas, and used to designate a specimen from the identical locality from which the type specimen of a species came. Among plants and non-migratory terrestrial animals, topotypes are, after the original types, the most valuable study material a museum can possess.

In paleontology, where it is customary to describe new species from very fragmentary material—such as the tooth of a mammal or the leaf of a plant—which is afterwards supplemented by the discovery of additional parts, it becomes convenient, as pointed out by Mr. Schuchert, to consider the later and more perfect specimens, from which additional characters are derived, as *supplementary types*. This, however, hardly seems sufficient provocation for the introduction of a special set of new terms. Nevertheless, if paleontologists really feel the need of these terms I suppose the rest of us should try to bear them with becoming fortitude; but would it be too much to ask that they be considered as proprietary material and not let loose on the whole field of systematic biology?

It is pleasing to note that Mr. Schuchert is a firm believer in the priceless value of type specimens and that he advocates the use of special colored labels to distinguish them from others. Fortunately the use of such labels for this purpose is rapidly becoming general. It might be added that as a rule type specimens should not be placed in the exhibition series in public museums, but should be carefully preserved in special cases devoted exclusively to such material. The exhibition in glass cases of type specimens of animals injured by light—as birds and mammals—indicates a disinterestedness amounting almost to criminal neglect.

While discussing the matter of types I would like to digress sufficiently to express the con-

viction now shared by a large body of working naturalists that type specimens, being units of comparison, should from the nature of the case be single, not multiple. It is the common experience of naturalists that in a considerable percentage of the cases where several specimens have been used as types, subsequent study has shown these specimens to belong to different species, and in some cases to different genera. Is not this fact alone an unanswerable objection to the existence of more than one type specimen of a species?

C. HART MERRIAM.

#### SCIENTIFIC LITERATURE.

*Spencer's Principles of Sociology.* New York, D. Appleton & Co. 1897. Volume III., pp. x + 645.

This volume completes not only Mr. Spencer's great work on 'The Principles of Sociology,' which in itself is an undertaking quite sufficient to establish the permanent reputation of any one man; but also the system of 'Synthetic Philosophy,' which was begun more than thirty-six years ago, and has been carried forward under circumstances of extraordinary difficulty. The system as it now stands in its final form includes the volume entitled 'First Principles,' in which the general doctrine of evolution is formulated in abstract terms; two volumes on 'The Principles of Biology,' two on 'The Principles of Psychology,' three on 'The Principles of Sociology' and two on 'The Principles of Ethics.'

No other mind in our generation has attempted to grapple so seriously with so many great subjects as Mr. Spencer has done; no other one thinker has so impressed himself upon all serious investigators in each of the great branches of scientific knowledge. Very few professional biologists are more frequently quoted than Mr. Spencer in works on biology; few, if any, professional psychologists are so frequently quoted in works on psychology; few, if any, professional writers on ethics are so frequently quoted in discussions of morals. This one fact is a significant index of Mr. Spencer's range and power. Even if it be true that the expert in each of the sciences mentioned disagrees with Mr. Spencer's conclusions on vital points, it is an astonishing achieve-