misunderstanding in biological discussions arises from the misuse of such terms as *mutation* and *saltation?* We would not quibble with Archbishop Trench's remark that words simply will not stay tied as regards their meaning but are "constantly drifting from their moorings," but the more the scientist allows his vocabulary to drift the more is he disturbed by the redefined or original terms of his colleagues who, believeing it impossible to use words of two, three or more meanings, continue to inflict long-suffering humanity with an ever-increasing nomenclature. Rather do we agree with Alice who, after listening to a dissertation by Humpty Dumpty in which he makes his words mean what he chooses them to mean—"neither more nor less," comes to the conclusion that his remarks are not particularly illuminating. Of course Humpty Dumpty was, among other things, a poet, not a geologist!

But Professor Miller also states that

> The definition proposed by . . . Field . . . is faulty in that it errs in the time concept. He has committed the popular error of considering historic synonymous with the present geological epoch.

This is an unfortunate misstatement by Professor Miller and it is only necessary to quote from the original text to show that Field was not making the "popular error" implied.

> A fossil is an object which indicates former existence of an organism which has been buried and preserved previous to historic time. According to this definition the mastodon preserved in the arctic ice is a fossil; the leaf buried in the gutter is not.

It is also worth noting that Schuchert and others distinguish the recent or *historic* period as beginning the Psychozoic era. If in agreeing with this concept an error has been committed, it is certainly not a "popular" one.

Paleontology, the study of ancient life, is literally the study of fossils. *Paleo* is accepted in earth science as meaning geologically ancient. As a last analysis, which is the more "apt," paleo climates or "fossil climates"?

Professor Miller's constructive criticism consists of the new definition already quoted. It has the advantage of being brief, but in using the expression "past geological age" (subdivision of the present geological epoch, *i.e.*, Bronze Age) he appears to make a very slight geological time distinction indeed. After careful reading of the whole text, we are under the impression that he means "past geological epoch" or *pre-historic!*

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THE BIOGRAPHICAL DIRECTORY OF AMERICAN MEN OF SCIENCE

The third edition of the Biographical Directory is now in type; it will be published as soon as the printers can complete their part of the work. The editor ventures to ask for the return of all proofs and also for information in case proof has not been received. A second copy of the proof (by letter post and with return letter postage) has been sent to those who did not return the first copy within a reasonable time. If it is not known that a scientific man can be reached at the address given, or even that he is living, it will in most cases be undesirable to include the biographical sketch.

It is gratifying that the number of those engaged in scientific work in America has increased from about 4,000 in 1905 to about 10,000 at the present time. This circumstance, however, has greatly enhanced the labor and the cost involved in the preparation of the work, and it is not possible to write individual letters of enquiry in all cases where this might be desirable. The editor consequently makes public this request for the return of the corrected proofs of all biographical sketches.

J. McKeen Cattell
Garrison-on-Hudson, N. Y.

QUOTATIONS

WHEN AN INVENTION IS NOT AN INVENTION

There exists in our patent and copyright laws a gap which has always seemed to us a

lamentable one, and one which there is not the slightest justification for leaving unfilled. This has to do with the invention—we use the word though the law denies its propriety—of printed forms for the keeping of accounts or any other purpose.

It goes without saying that much skill and thought may be expended upon the formulation of a set of forms which shall be the last word in furnishing a framework for the proper recording of a certain kind of data. Business of many kinds is dependent upon tabular devices of this sort under one head or another; the invention of such a form may be of great value to its users. It would seem that the man who devotes his time and energy and ingenuity to getting up a thing of the sort ought to be rewarded to the same degree and in the same manner as the man who invents a new safety pin or a novel design for a perfumery bottle or a clever trade-mark. But under the law and the decisions as they now stand he is able to get no protection of any description; you or I or anybody else may manufacture and sell his form in direct competition with him and he has no redress save to undersell us.

The hitch lies in the fact that the law defining invention is so worded that a blank form to be filled in by the user is not an invention. It has no mechanical features, and it is not a process or a product. If the inventor be sufficiently ingenious to design it in such fashion that the user has to punch a hole as part of the process of using it, or join two parts of it in a certain predetermined relationship, or fold the left fifth over upon the right fifth and tear them half off and turn one of them over again in order to bring into juxtaposition two parts of the paper that were originally remote, this constitutes the mechanical feature necessary to make the form stand up under fire as an "invention" entitled to patent protection. But in the absence of such a feature the patent examiners will have nothing to do with it; and if the unhappy inventor turns to the copyright division, he learns that whether his device is an invention or not, it certainly is no publication and he can not protect it by copyright. Even the feeble solace of a design patent seems denied him.

The situation has long been familiar to us. We are inspired to comment on it by a subscriber who shows us a farmers' account book which he has devised. This is an admirable article, and at the same time it fills a want; for the farmer, never an accountant, is required to keep accounts under penalty of paying an income tax on a lot of income that isn't income. But our subscriber can't advertise his little book decently, for if he does some substitute that doesn't have to meet any advertising expense will appear and wipe out his market. We think he has a grievance against the government that tells him that an invention is sometimes an invention and sometimes isn't.—*Scientific American.*

SCIENTIFIC BOOKS

"The Airplane." By FREDERICK BEDELL, Cornell University. D. Van Nostrand Co. Pp. 257.

The theory of flight has more than kept pace with the development of the airplane. It is possible, on the basis of constants determined in wind tunnels, to predict very closely the performance of an existing airplane or to design a plane for some desired performance. The fundamentals of this theory of flight are embodied in a number of recent treatises and are readily available to the student. In Bedell's work they are not only available but are presented in so attractive and understandable a form as to compel the interest of the reader. The present reviewer has read the book through twice, for the pleasure of following so masterly a presentation. Everything is reduced to its simplest terms; every idea is driven home; the influence of each element is illustrated by a series of graphs; the whole subject seems to develop itself. It is a book for the amateur, but it is also the best of beginning books for the serious student. And it explains so convincingly many things which are troublesome to the beginner, as for example, why can not speed be increased in level flight