introduced into the United States army largely through the efforts of Major Russell, of the Army Medical School, and was made compulsory for the officers and men of the maneuver division. Dr. Russell recently wrote me that over 45,000 of our troops have now been vaccinated without any untoward results. He says: "This is the first time in the history of preventive medicine that compulsory immunization against typhoid fever has been used, and no military camps have ever been so free from this disease."

We have given considerable space to the presentation of this subject, not only because it is a distinct triumph for American preventive medicine, but the lessons taught should be applied in civil practise so as to avert a needless sacrifice of life and money from one of the so-called preventable diseases.

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Evolution. By J. ARTHUR THOMSON and PATRICK GEDDES. No. 14 in the Home University Library of Modern Knowledge. New York, H. Holt & Co. 1911. Pp. 256. Price, 75 cents.

Another successful collaboration by the two well-known biological writers, Professors Geddes and Thomson, has produced a small but stimulating volume, "Evolution," which is the fourteenth in the new English-American series called, rather heavily, the Home University Library of Modern Knowledge. The earlier collaboration by these writers twenty years ago resulted in a book, "The Evolution of Sex," that has become a biological classic.

"Evolution" is, of necessity, largely a restatement of things already frequently and variously stated. The series to which it belongs is meant for popular consumption and has a standard that determines pretty definitely the activities of its contributors. The facts and their significance, where this significance is not too uncertain, and these facts and inductions set out with some attention to interestingness as well as clearness and accuracy; these are requirements of the series. The authors of "Evolution" have, of course, no difficulty in making their volume almost a model from this point of view.

But they have been able to add color and personal character to the book, to boot. Especially in the chapter (VI.) on "Organism, Function and Environment, in Relation to Evolution," and in VII., "Evolution Theories in their Social Origins and Interactions," and VIII., "The Evolution Process Once More Interpreted," is the personal point of view revealed. And these chapters, especially, therefore, will interest "constant readers" of evolution literature.

I have lately had occasion to say, in a review of another of Professor Thomson's books, that he is a good selectionist; though not a bad one; that is, that he is not a selectionist bigot. "However," it was added, "Darwinism for him rests on, or is, mostly selection." It is of particular interest therefore, to note that in this latest personal utterance of Professor Thomson, Darwinism, or, more fairly, evolution, is less and less chiefly selection. Indeed the closing sentences in the present book—of course they are words of Geddes and Thomson, not Thomson alone—are:

> Natural selection remains still a vera causa in the origin of species; but the function ascribed to it is practically reversed. It exchanges its former supremacy as the supposed sole determinant among practically indefinite possibilities of structure and function, for the more modest position of simply accelerating, retarding or terminating the process of otherwise determined change. It furnishes the brake rather than the steam or the rails for the journey of life; or in better metaphor, instead of guiding the ramifications of the tree of life, it would, in Mivart's excellent phrase, do little more than apply the pruning-knife to them. In other words, its functions are mainly those of the third Fate, not the first: of Siva, not of Brahma.

The whole chapter of which this paragraph is the conclusion is a plea for a sort of vitalism—to misuse again, probably, a usually misused word. It is a sort of vitalism that assumes some cause, inherent in life or pertinent only to life, capable of producing a "definite variation, its branchings essentially dichotomous rather than indefinite, with prog-

ress essentially through the subordination of individual struggle and development to species-maintaining ends."

All these changes and others, in fact the most important of floral variations, the big lifts distinctive for the evolution of orders, are thus seen no longer as indefinite, and hence dependent on external selection for their guidance; but, on the contrary, as parallel and definite, since determined through the continued checking of the vegetative process by the reproductive, and thus pressed along parallel and definite grooves of progressive change. But if this be so, the importance we have been taught by Darwin to assign to natural selection becomes greatly changed—from selecting accumulating supposed indefinite variations, to that mainly of retarding definite ones, after their maximum utility has been independently reached!

Despite, or perhaps because of, the clarifying definitions of vitalism given us by Professors Lovejoy, Ritter and others, I am now come to a point where I do not know at all what vitalism means. I once had at least a personal meaning for the word. But as I note the references to Driesch and Bergson in this book of Professors Geddes and Thomson and then read their chapter—Geddes and Thomson's chapter—on "The Evolution Process Once More Reinterpreted," and see that natural selection is for them the work "of Siva, not of Brahma," I am going hereafter to think of them as vitalists! To such a misunderstanding of vitalism and vitalists can one come through persistent reading about things and persons thus catalogued!

But let no one avoid this excellent little book about evolution because of fear of taint from vitalism. Probably no one else will find any vitalism in it; the authors perhaps least of all! V. L. K.

Stanford University, Cal.

British and Foreign Building Stones. A Descriptive Catalogue of the Specimens in the Sedgwick Museum, Cambridge. By John Watson.

Under the above caption Mr. John Watson has published a compact little volume of 483 pages descriptive of a collection of building stones prepared by him and installed in the Sedgwick Museum of Cambridge, England. The collection comprises upwards of eleven hundred specimens prepared in the form of 4½ inch cubes "the sides of which are dressed in the usual style adopted for the purposes for which the stone is generally used in the region from which the specimen comes." Each specimen is accompanied by a label giving the commercial name of the stone, its stratigraphical position, name and locality of the quarry and name and address of the owner. The individual labels state the color, average chemical composition, weight per cubic foot, and crushing strength so far as data are available.

Two hundred and forty-four pages of the catalogue are, however, given up to descriptive matter in which the stones are taken up according to their geological distribution, and it is this portion which will be of greatest value to those not having immediate access to the collection.

The collection is arranged according to the geological horizons, with the exception of the igneous rocks, which are divided into plutonic and volcanic. The portion of the work relating to the rocks of Great Britain contains much interesting historical matter and observations relative to the weathering of the rocks.

No illustrations are attempted, but there is a very full index and it is evident that a great deal of discrimination has been made in getting together the collection as well as in compiling the book which deserves the name of "handbook" rather than simply "descriptive catalogue."

George P. Merrill

THE ASTRONOMICAL AND ASTROPHYSICAL SOCIETY OF AMERICA

The twelfth annual meeting of the Astronomical and Astrophysical Society of America was held in the Dominion Observatory, Ottawa, Canada, on August 23, 24 and 25, 1911. In opening the first session, President E. C. Pickering called attention to the fact that this was the first meeting of the society held outside of the United States. Welcome to Ottawa was extended to the society by Dr. W.