Mediæval and Modern," is reviewed, and the law-giver of the Jews suffers not less than the modern inspector as he comes under the author's withering sarcasm. The birth of sanitary science in the great sanitary awakening is then described. The next four chapters are devoted to "the tripod on which sanitary science rests"—air, water and soil. The general arrangement of these chapters, as of others throughout the book, is: to first introduce the subject with general remarks; second, to repeat numerous cases where disease has been supposed to originate in filth, then to analyze these cases, expose their feebleness, and, finally, to close with an array of scientific experiments which tend to show that no connection whatever can have existed between this filth and the diseases presumed to have arisen therefrom. Most prominent among these scientists are: Flügge, Pettenkofer, Koch, Miquel, Karlinski, Kraus, Crookes, Tidy, Odling, and Hueppe. Water is attacked through the weakness of the chemical methods in vogue, and also in the fact that typhoid bacilli, etc., according to the testimony of a number of the writers above mentioned, flourish in pure and sterilized water, but quickly disappear in water contaminated with sewage and containing putrefactive bacteria. The same idea is worked out in the discussion of the air and soil. Sewer gas is described as the result of the earlier sanitary measures, and we have it now produced and laid in our houses. The triple alliance the reformers had made with the ladies and clergy was now reinforced by the plumber, who became the "sanitary plumber." Numerous cases are cited in towns, jails, etc., and among workmen employed in the sewers where the sewer gas failed to produce zymotic disease. The sewer gas doctrine is spoken of as "a pure creation, begotten in and floated from the sanitary brain without any investigation, it was, without any examination, accepted and devoutly cherished by almost the entire people, wise and simple, of Great Britain and America—a creation that from the first was viewed with contempt by scientific men of other countries. Pettenkofer said that it was as easy to show that infectious diseases had the same relations to lines of illuminating gas tubes and telegraph wires as to lines of sewers."

Cemeteries, "chronologically the first which the sanitarians erected to affright and torment the people about the health," forms the subject-matter of chapter VIII., with the same discussion as before and the same conclusions. The dangers supposed to lurk in diseased meats and in adulterated and contaminated milk are disposed of in two chapters, and then we have a discussion of filth and fecal diseases, typhoid fever, etc., yellow fever, cholera, and diphtheria. In the case of the first mentioned, typhoid, its parallel development with the sanitary reform is spoken of, the history of the disease is given, and, as before, numerous examples of imperfect identification of the cause. The chapter on cholera containing the testimony of Koch is interesting. A brief history of the world's greatest epidemics is followed by a scorching section on Boards of Health. Dr. Dibble holds "that in so far as they have directed their efforts and consumed their energies on subjects which have no influence on individual or public health, and in so far as they have diverted the attention of the people thereto, just so far have they retarded and obstructed true progress in that branch of medical science which is devoted to hygiene, and just so far they have been a positive detriment to the public health."

Dangerous as the book would undoubtedly be in the popular hand, to the thinking physician it sounds a note of warning, a call for scientific investigation in place of mute acceptance of sanitary rulings, for a superior board of health, and for experimental work. In short, that as hygiene and sanitary science bid fair to play an important, if not the most important, part in our social economy, and to approach with their sister, Medicine, an exact science, that then, with the aid of the biologist, bacteriologist and chemist, these new sciences should rest upon a scientific basis. C. P.

Handbook of Greek and Latin Palaeography. By EDWARD MAUNDE THOMPSON, D. C. L., LL.D., etc. New York., D. Appleton & Co. 1893. 343 p.

THIS volume of the International Scientific Series is designed especially to facilitate the study of the ancient manuscripts, rather than classical epigraphy, although it does not neglect the development of rustic writing and the majuscules. The first few chapters present a succinct and clear description of the accessories of ancient writing—as the tablets of wax or wood, and the paper, linen, clay, parchment or other surfaces on which it was to be placed; the pens, styles and inks which were employed, and the forms of the books, rolls or codices.

This preliminary matter supplied, the author turns to Greek palæography, explaining first the antiquity of the writing, and the forms of it as shown by various documents. Some of the oldest and most remarkable of these have been obtained at different times from Egypt, and carry us back about two centuries before the Christian era. From this date the characteristics of the Greek uncial and cursive hands are shown, down to a recent period. The remainder of the work is devoted to Latin palæography, from Roman times, through the Lombardic and Merovingian periods and the Middle Ages, and concluding with the Chancery hands, the Charter hands, and the Court hands.

A special feature of the book is the accurate presentation by photogravure of numerous specimens of the hands described, the tables of alphabets, and a useful list of palæographical works.

An Elementary Text-Book of Biology. By J. R. AINSWORTH DAVIS, B. A. Second Edition. London, Chas. Griffin & Co.

THE appearance of the second edition of this text-book is indication enough that its plan meets a general want among the people for whom it was designed. The purpose of the present book is to furnish a treatise on theoretical biology, which will serve as a general accompaniment to the various books on practical biology which have appeared from time to time. The author takes up a long series of types, first describing their morphology, then giving a more or less thorough discussion of the physiology of the type, and, lastly, of its development. These three methods of treatment, particularly the last two, make the present text-book one of the most comprehensive text-books in general biology that has appeared in the English language. The morphological part is full and complete, and the descriptions are well illustrated by figures. The sections on physiology and development form the unique feature of this method of teaching, and great praise should be given to the author for putting together in such brief compass the essential principles of theoretical biology. Throughout the book there is that liberal use of italics and full-faced type which aids so materially in making a book intelligible and drawing attention of the student and reader to the important as compared to the unimportant portions of the text. The book is also thoroughly illustrated by figures, most of which are very good and clear, but a few of which are extremely crude and poor. It is hardly possible for one to make much out of the figure describing the anatomy of the pigeon or the frog, and one regrets that the second edition has not seen some of these poor cuts replaced by better ones.

The new edition of the book is entirely rewritten and very much enlarged. So much larger has it been made

that it has been found necessary to divide it into two volumes, the first volume discussing the morphology and physiology of plants, and the second volume the morphology and physiology of animals. In addition to various changes and expansions in the text, many new types have been added in the second edition. The most important of these new types are Vaucheria, Selaginella, Gregarina, Taenia, Ascaris, Hirudo, Anphioxus, and chapters upon plant cells and tissues, upon fish, upon geographical distribution, and one chapter devoted to man. In the groups of flowering plants also there have been very many additions, so that the whole new edition is nearly twice as large as the original. Perhaps the most valuable additions that have been made in the new edition have been in the sections upon physiology and development. In nearly every case has the physiology of the types been rewritten and expanded, and this is true also of the sections on development. Several additional sections upon the subject of Cytology, including cell development, fertilization, etc., have been added bodily to the work.

This book on biology is excessively compact, and there is crowded within these two volumes an amount of information and discussion which is certainly beyond that which can be accomplished by classes in our institutions. The book is designed, however, especially for certain phases in English education, and not for education in our schools. It is supposed to be accompanied by laboratory work, and the author has hopes that it does not require the guidance of a teacher, but is in a form by which it can be readily followed without guidance. No laboratory directions are given, however, and the details crowded into the sections on morphology are so numerous that it seems hardly possible to hope that they can be comprehended without a very long course of study under the guidance of competent instructors. As a referenee book, however, one cannot speak too highly of this text-book, and as a treatise in theoretical biology it occupies a place not filled by any other English publication.

An Examination of Weismannism. By GEORGE J. ROMANES. Chicago, Open Court Publishing Company.

ONE is always delighted to receive something new from the pen af Mr. Romanes, for he has demonstrated by many attempts his marvelous power of writing clear English and of taking abstruse subjects and dressing them in the fashion that makes them not only intelligible, but interesting to the ordinary reader. The little book here noted is published in anticipation of the second volume of "Darwin After Darwin," the publication of which we are awaiting. It seems a very surprising thing when one looks through the pages of this book, to find Weismannism discussed without a discussion of the subject of the inheritance of acquired characters, for so thoroughly has the inheritance of acquired characters come to be regarded as a part of Weismannism, that one wonders how the subject can be treated without it. But Mr. Romanes scarcely mentions this subject, reserving it, as he tells us, for discussion in his later book. The present discussion is simply a review of Weismannism as a theory of heredity and of evolution, and not as bearing upon the question of acquired characters. In this little work we are to thank Mr. Romanes especially for three features: First, the clear distinction that he has drawn between the Weismannism theory of heredity and his theory of evolution; second, a logical comparison of the heredity theory of Weismann with others somewhat allied to it, especially that of Galton; and third, for the skilful marshalling of the trenchant criticisms against Weismann's views, which have appeared in the discussions of the last few years, and have led to great changes in Weismann's own opinions. We are also fortunate in having given us a historical view of the gradual growth of the theory as it developed in the mind of its author and of the final abandonment of some of the most essential features of the original view.

No word is needed in regard to the excellence of the English and the plainness of the discussion, for Mr. Romanes' writings always show the most clear logical arrangement. The reader of this work cannot fail to gain a more comprehensive view of the general theory of Weismannism and its relation to biological problems, and will appreciate from this discussion, better than from the writings of Weismannn himself, the significance of the final position adopted by Weismann.

The Life of a Butterfly. By SAMUEL H. SCUDDER. New York, Henry Holt & Co. *Brief Guide to the Common Butterflies of Northern United States aod Canada.* By SAMUEL H. SCUDDER. New York, Henry Holt & Co.

THE object of these two books by our leading student of butterflies in the East is to present certain facts in a familiar way for the use of the student who is as a novice interested in the study of nature. The first book, of 180 small pages, gives a familiar description of the life of our most common and best known butterfly, the so-called milkweed butterfly, presenting, in a familiar and popular style, a description of the animal, of its life-history, and its general relation to its surroundings and to science. The author uses the example, as a basis for a discussion of a few striking scientific laws, most interesting of which will be, to the ordinary reader, the study of the geographical distribution and migration of animals, the subject of mimicry as shown by insects, the subject of the power of vision possessed by insects, and a very clear, satisfactory illustration of certain phases of the general law of natural selection. The general design of the book is excellent, and the style is, on the whole, well adapted to the persons to whom the book will appeal. It is unfortunate that no figures are inserted in the text. A small number of figures are put in at the end of the book, but no reference is made to them in the body of the book, and, consequently, the reader will follow the book through without the proper study of the figures which should go with the text. Perhaps, also, the author has made too free a use of scientific names of species of butterflies to be intelligent to the ordinary reader; but, with these few points of criticism, "The Life of a Butterfly," by Mr. Scudder, is one of the interesting and instructive introductions to nature which our scientists are at the present time endeavoring to put within the reach of the non-scientific reader.

The second book is very different in its nature, and is designed to enable the student of butterflies to determine the names and learn of the habits of all of our common species of butterflies. The author has selected one hundred of the commoner forms for description. The introduction of the book gives a long, careful description of the anatomy of a butterfly; and here, even more, it is to be extremely regretted that no figures are introduced. It is so much easier for the beginner to study specimens by the aid of figures of reference that one must seriously regret the lack of the introduction of explanatory figures in the text which describes the structure and anatomy of a butterfly. The description is followed by a key for determining the species of butterflies, and this key is especially valuable, inasmuch as it not only enables the student to determine the species by the use of the adult butterfly, but also has separate keys for determining species by the use of the caterpillar and of the chrysalis. These two secondary keys