The second volume treats of the Arthropoda. The Crustacea, Arachnoidea, and Myriapoda are described by Kingsley, who, however, gives the credit of most of the article on spiders to Emerton's book on that group. Three small orders appear under the Hexapoda, — the Dermatoptera (earwigs), the Pseudoneuroptera, and the Aphaniptera. It is certainly still an open question whether entomologists have not studied differences more than affinities in making orders for the earwigs and the fleas. The lowest orders of insects are described by Packard, the Orthoptera by Riley, the Hemiptera by Uhler, the Coleoptera by Dimmock, the Diptera by Williston, the Aphaniptera by Kingsley, the Lepidoptera by Fernald (moths) and H. Edwards (butterflies), and the Hymenoptera by Howard and Comstock. This volume is almost purely systematic. Here (largely, we may believe, on account of the subdivision of the work and the lack of a complete understanding between the different writers) much important material has been omitted. Either under the general head of Hexapoda or the different orders, a general account of insect anatomy should have been given at length. The whole subject of metamorphosis is treated only in a most bare and meagre outline, and yet there is no topic of which we could rightly expect a more full and careful treatment. Of its necessity or advantage to the type or class, of its probable origin, of the different intermediate grades between the two main types, and of its bearing on the question concerning the ancestral form of insects, we find no notice. Throughout this volume we miss the broad deductions and generalizations which are so interesting and important to the common reader, and which are really the aim and goal of all scientific study.

If, too, the systematic study of insects is deemed the subject of greatest interest to the popular mind, the amateur student would have been greatly aided in determining his collections by tabular classifications of the families and genera. But while the reader will regret some things omitted in this volume, he will not fail to find in each section a description of the most important and interesting forms in each class and order. Each part is a thorough systematic monograph of its class.

The editors of the fifth volume had certain advantages over those of the first and second. The subject was naturally more interesting to the popular mind: it had been much more thoroughly worked by other writers, whose mistakes, at least, they could avoid. They had more space for carrying out their plans. The class possessed a much higher degree of unity, and there were fewer editors. It will not, therefore, seem an invidious comparison if this volume, while perhaps no more accurate than the others, is pronounced the best in the general selection of material, and treatment of the subject. There is a fair amount of anatomy. The relations of the different orders and families are briefly but well noticed. It will be interesting reading for any one, and a valuable reference volume for the working zoölogist. The discussion of the origin and different races of the domesticated animals is in all cases full and good. This volume, of course, cannot treat so purely of American forms as some others, but our American mammals receive their fair share of attention. The systematic arrangement of the different orders, families, and genera, and the general basis of classification, are more sharply emphasized than in any preceding volume.

The point most noticeably worthy of criticism in the volume, and generally throughout the work, is the unnecessary profusion of plates and cuts. If the work were purely anatomical, they would be extremely useful, or even necessary. As it is, they add really only to the attractiveness of the work. The work is really one which all teachers should have, and which every student would find extremely useful; but it is too luxurious for those who need it most. May we not hope that the publisher will some time give us an edition not all too much condensed in the important subject-matter, but with fewer full-page plates, and generally less of the luxury usually so incompatible with the study of the working zoölogist?

MAXIMS OF PUBLIC HEALTH.

THIS book is addressed, not so much to health authorities as to the general reader. Dr. Wight has embodied in it, in a popular style, the results of several years of experience as the health-officer of two large western cities. No attempt is made at a systematic plan; the many subjects pertaining to public hygiene being presented mainly in the form of aphorisms, or detached paragraphs. Legal points with reference to nuisances, contagious diseases, and offensive trades, are introduced; the rights of citizens concerning sanitary matters are clearly and concisely set forth; and important decisions bearing upon them are cited.

Maxims of public health. By O. W. WIGHT, A.M., M.D., health-officer of Detroit. New York, *Appleton*, 1884. 176 p. 12°.

The author's style is entertaining, often witty, and, in his own words, "the intelligent householder who has no time, probably no inclination, for systematic studies, may read herein as he runs, and find hints that will save himself and his loved ones from unspeakable pain and sorrow."

In view of recent results of investigation concerning the comparative value of disinfectants, the author's statement as to the use of vinegar for such purposes, and also as to the value of 'little pinches of sulphur' burned every hour throughout a house in which are patients ill with infectious disease, is misleading. Such a procedure would only prove noxious to the inmates, without accomplishing even the slightest good. It would be far better to wait until convalescence is established, and then vacate the apartments, and proceed with thorough disinfection.

In the words of one of the best authorities on the subject, "There can be no partial disinfection of infectious material. Its infecting power is either destroyed or it is not." The same authority, Dr. Sternberg, also recommends the employment of three pounds of sulphur to every thousand cubic feet of air space, as requisite for thorough disinfection.

The chapters on small-pox, cholera, and other infectious diseases, are valuable, and set forth clearly, and in a salient manner, the importance of preventive measures.

REMSEN'S ORGANIC CHEMISTRY.

IN the preparation of this work, Professor Remsen has performed valuable service for the advancement of chemical science in this country, since it will place within the reach of those who are deprived of access to the best sources of information a systematic exposition of the principles of modern organic chemistry. There has long been felt the need of a text-book in English on organic chemistry that would present in a concise form its fundamental principles according to the most recent knowledge of the subject, without entering so far upon details as to render the book too comprehensive for ordinary use. To those who are familiar with the voluminous literature of this subject, the difficulties to be encountered in the preparation of such a text-book are apparent, and they will doubtless appreciate the judicious selection of material and its systematic arrangement in this volume. The thoroughness with which structural relations of organic compounds are treated will be very serviceable to the student, especially the constitution of the aromatic hydrocarbons, including naphthalene and anthracene, and the methods employed in demonstrating the structure of their derivatives.

Certain peculiarities in the nomenclature adopted, and in the form of some of the structural symbols, will probably not find acceptance with all chemists. Yet, concerning the nomenclature of organic chemistry in general, it cannot be denied that usage is far from uniform, and there is even greater confusion in the terms employed than with inorganic compounds. Chemists do not seem inclined to accept fully the rules proposed by the late Dr. Watts, although it must be admitted in their favor that they possess at least the advantages of a system. In the structural symbols of the unsaturated compounds, including the aromatic series, it is difficult to see what is gained by departing from the usual custom of representing fully the valence of the carbon atoms by bonds. There would be little danger of misconception as regards their true significance after the careful explanations given on pp. 213, 225, and 239; and unquestionably a student gains clearer ideas of the chemical changes in passing from one homologous series to another, by writing the structure formulae in full, with the valence of the atoms concerned.

Numerous errors are noticed, few of which, however, interfere with the scientific accuracy of the work. The assertion that citric acid has not been made artificially is hardly in accordance with fact; and it is not strictly accurate to state, that, in the manufacture of acetic acid from wood, the crude distillate is neutralized with soda-ash, since, in this country at least, the acid is usually converted into the calcium salt. In the artificial preparation of alizarine, it is generally understood that this dye-stuff can be made only from anthrachinone-sulphonic acid, anthrachinone-disulphonic acid giving isopurpurine or allied products.

Another important feature of this work is the introduction of occasional experiments designed to familiarize the student with compounds described in the text. This plan could doubtless be extended to excellent advantage; and there would probably be a large demand for another volume of equal size, devoted exclusively to laboratory appointments, manipulation, and experimental work in organic chemistry.

An introduction to the study of the compounds of carbon; or, Organic chemistry. By IRA REMSEN. Boston, *Ginn, Heath, & Co.*, 1885. 10+364 p., illustr. 8°.