which is good enough to hold it in the open to follow it into an open drain large enough for the dog to reach it." Other people who have hunted badgers have found that an extremely small terrier is quite able to turn a badger from its earth; and that although the dog may be hurt, even seriously, by its formidable antagonist, the contest does not by any means mean "certain death" to it.

The chapter on birds bears evidence of having been put together in the most casual manner. Various contributors have sent in notes as to whether, in their experience, birds were rare or not, and these appear to have been printed without any attempt at summarizing. The result is that the whinchat is described in one line as "common," and in the next as "occasionally seen." The marsh-tit is "rare," and also "generally distributed." The cirl bunting is in one line called "rare" and "by no means rare." The coot is "rare" (!) and "frequently met with." The woodcock, according to one observer, "has been seen." If it were clear that such remarks applied to different parts of the county, there might be some sense in printing them. As they stand, they are useless and bewildering. One contributor is surprised at the occurrence of the gannet just outside the limits of the county, because "they generally inhabit the Bass Rock"! They certainly do, and "there's milestones on the Dover road." But perhaps there is nothing in the whole chapter which quite comes up to what we read about two starlings that one of the contributors watched "fighting furiously . . . each bird . . . trying to force its bill into that of the other. *He was informed that the purpose of each bird was by this means to render the opponent insensible; so as to be more easily destroyed.*"

In the article on reptiles occur these remarkable words:—"The slowworm is habitually 'slow,' but we know of no reptile or quadruped which, in proportion to its size, can move more rapidly."

There are several errors in spelling in the list of land and fresh-water shells, and it is rather misleading to give "Downs, under stones," for the habitat of the species here called *Bacutus*, without adding "near the sea."

Helianthemum polifolium is given as a Gloucestershire plant. It would be interesting to know if this is correct. The localities usually given are in Somerset and Devon.

Among the illustrations are some interesting figures of famous trees; but it seems hardly worth while to have inserted such a very ordinary-looking plate as that of the common crayfish.

Allusion has already been made to two chapters the excellence of which is all the more marked by contrast with the grandiloquent flights and the trivial details of much of this unfortunate volume. Rev. W. F. White's paper on ants contains, as might be expected, accounts of many interesting and original observations. Mr. Vincent Perkins's excellent chapter on wasps and bees, again, is extremely good, though the writer deals only with the neighbourhood of Wotton-under-Edge. That so imperfect, and, as far as much of its contents goes, we are afraid we must say untrustworthy, a book should ever have been published is matter for regret. The real "Fauna and Flora of the County of Gloucester" yet remains to be written.

OUR BOOK SHELF.

The Chemistry of Life and Health. "University Extension Manuals." By C. W. Kimmins, M.A., D.Sc., Staff Lecturer in Chemistry, Cambridge University Extension Scheme. (London: Methuen and Co., 1892.)

THIS little book is well adapted to secure the aim of the author, which is "to give sufficient information on the particular portions of the sciences involved to enable readers . . . . to appreciate fully the fundamental principles of hygiene." There can be no doubt of the importance, one might truly say, the national importance, of the spread of sound knowledge regarding the laws of health. Such sound knowledge cannot be attained except it be built upon a well-laid foundation of chemistry and physiology. To lay the foundation, and rear the structure, in a little book of 160 pages is almost impossible. Dr. Kimmins has, wisely, omitted much; but what he retains is of fundamental importance; his facts are clearly enunciated and systematically arranged. A careful study of this book, especially when it is supplemented, as it is meant to be, by a course of lectures, cannot fail to be most useful. The book is written for ordinary people, not for professional students; the teaching is sound and clear. The first chapter, on the principles of chemistry, is the least satisfactory in the book; but in this chapter the author has attempted, what is surely unattainable, to give an elementary knowledge of the features of chemical action, the use of chemical symbols, and the molecular and atomic theory, in sixteen small pages. As an introduction to the study of the application of chemical facts and principles to the conditions of healthy life, the book is to be thoroughly recommended.

Naked-Eye Botany, with Illustrations and Floral Problems. By F. E. Kitchener, M.A. Pp. 182 and fifty-two woodcuts in the text. (London: Percival and Co., 1892.)

ON turning over the pages of this book one wonders why "Naked-Eye Botany" was chosen for the title, because, although a small book, it has some reference at least to a great many things that cannot be seen with the naked eye. It is something in the way of Prof. D. Oliver's "Lessons in Elementary Botany," but one misses the Professor in it. On p. 7 we are introduced to stomata, and physiological processes are described in some detail. Nevertheless it contains much useful matter, and with a little revision and better selections would make a very good first book. For example, the chickweed is chosen for the first lesson. But the flowers of this plant are so small and the number of parts in the various floral whorls is so variable that it is not a good subject to begin with. The "problems," or questions, also at the end of each chapter are too wide-reaching. Referring to *Aspidium Filix-mas*, we are told that the "production of the fertilized seed, more correctly called oosphere, from the prothallus, can scarcely be made out with the naked eye." Saying nothing about the name given to the fertilized body, we must protest that "scarcely" is not the word to qualify the observation.

Perhaps it is too much to ask that the headmaster of a "high school" should be acquainted with even remotely recent discoveries in physiological botany; but it would not be unreasonable to ask him to use the text-books of specialists. It is now some years since the reproduction of *Lycopodium* was fully described, yet Mr. Kitchener still teaches that the spores are of two sorts.

The Great World's Farm: some account of Nature's Crops and how they are Grown. By Selina Gaye. (London: Seeley, 1893.)

THIS is a delightful book, pleasantly written, full of information, and on the whole remarkably free from those errors, generally the results of misunderstanding, which