

and never expects to recover." The chief symptoms of this affection, enthusiasm and optimism, pervade his book, but he is careful not to exaggerate the profits of bee-keeping; the methods and appliances he describes are all well known and well tried, though some of them are unsuited to bee-keeping in England.

The clipping of queens' wings to prevent swarms absconding is recommended, but this practice is seldom employed in England, chiefly because the queen is likely to perish in the grass unless the bee-keeper happens to be present at the moment of swarming to find her and put her back into the hive.

The author, in saying (p. 52) that "it has not been definitely determined whether in laying an infertile egg from which springs the drone, the queen lays it through choice, or is compelled to owing to the increased size of the drone cell," seems to be unacquainted with the fact that a queen will sometimes lay large numbers of fertile eggs in drone cells.

Among the enemies of the honey-bee that the American apiarist has to contend with are skunks, "who seem to have a fondness for bees, and the little rascals will, in the shadow of night, scratch on the alighting board of a hive to lure the sentinels out for investigation, only to be gobbled up by their odoriferous enemies." "In warm climates the dragon-flies kill a large number of virgin queens when in flight, and in certain sections they are so numerous that commercial queen-rearing is well-nigh an impossibility."

Dr. Lyon finds he is less liable to be stung in a white cotton suit than when he wears dark woollen clothes, and wonders whether it is because the bees detect the animal scent in the woollen goods or have a natural aversion to black.

On pp. 12 and 13 we are unfortunately informed that the eggs of workers, drones, and queens hatch respectively in twenty-one, twenty-four, and sixteen days, instead of that these are the periods taken by these bees to develop from the time the egg is laid; but this will no doubt be put right in a second edition, which is likely to be wanted before long by the great nation across the ocean, in whose favoured country the bee-keeping industry has grown to great importance.

Very attractive features of the book are its handy size, clear, large type, and beautiful photographs: Bee-keepers, both prospective and actual, will appreciate this evident effort of printers and publishers to give them their best. F. W. L. SLADEN.

OUR BOOK SHELF.

Ektropismus oder die physikalische Theorie des Lebens. By Felix Auerbach. Pp. v+99. (Leipzig: W. Engelmann, 1910.) Price 2.60 marks.

EACH fresh theory of life which is put forward by thinkers will doubtless find a certain number of adherents, even if, as in the present instance, it is unsupported by anything in the nature of experimental evidence. This sort of evidence is just the kind which it is so difficult to obtain, and new theories lead one but very little nearer to the solution of the great problem. Auerbach's brochure contains nothing really

new, and he clothes his ideas in a considerable amount of verbiage. No one can doubt that life with its characters of growth and development is a form of energy, but the psychical aspects of life have always been a stumbling-block in the full acceptance of a purely physical theory. Ectropism, the term selected by the author, is not entirely a physical theory; he tells us that ectropism is neither materialism nor idealism, neither formalism nor phenomenalism; it is certainly not monism, but, in a certain sense, it is dualistic. From this one learns what ectropism is not, and one could wish that the rest of the book, which tells us what it is, was equally explicit. We must, however, leave those of our readers who are interested in speculations of this nature to unravel it for themselves.

A Text-book of Physical Chemistry, Theory and Practice. By Dr. Arthur W. Ewell. Pp. ix+370. (Philadelphia: P. Blakiston, Son and Co., 1909.) Price 2.25 dollars net.

TEXT-BOOKS of physical chemistry are generally written by chemists, which is natural enough, since the subject is much more widely studied by chemists than by physicists. It is therefore a pleasant change to come across a text-book of physical chemistry written by a physicist. As one might expect, the treatment is less descriptive and more mathematical, with greater precision in the definition of physical magnitudes and greater strictness in the deductions. The work under review is an excellent example of this type, being brief, pointed, and consistent. It is not exactly a book which the young chemist without previous knowledge of the subject would be likely to read with profit, but it can be warmly recommended to those who, either by hearing a course of lectures, or by the perusal of one of the more chemical text-books, have attained some acquaintance with the subject-matter and desire to systematise their knowledge.

The value of the book is greatly enhanced by the inclusion of questions and mathematical exercises on the subjects discussed. The directions for practical work err occasionally on the side of conciseness, but should in any case prove useful to the student who cannot always have a demonstrator by his side.

Vorträge und Aufsätze über Entwicklungsmechanik der Organismen. Edited by Prof. W. Roux. Heft x., Über die gestaltliche Anpassung der Blutgefäße. By Prof. Dr. Albert Oepel. Pp. ix+182. (Leipzig: W. Engelmann, 1910.) Price 4.40 marks.

THIS is a useful and interesting contribution to the study of development, dealing, as its name indicates, with the blood-vessels, and the way in which they are adapted to the needs of the organs or tissues they supply and to the changes which these undergo. This adaptation is divided into three periods, the first during which inherited characters determine the course of development; the third is the period of full functional life during which the changes are the result of functional stimuli; the second or intervening period is that in which both factors come into play. The changes dealt with in detail are not merely those dependent on quantity of the blood supply; but the various coats of the blood-vessels, especially the muscular coat, with its nerves, undergo alterations in consonance with the needs of the tissues. An important section deals with the collateral circulation, and another, by no means the least interesting, with the recent remarkable results which have attended attempts to transplant organs from one animal to another. The value of the book is increased by a copious bibliography.