

not being too pictorial; for a student, especially when left to his own resources, is often apt to be misled by over elaborated drawings.

In addition to the anatomical and physiological details given of each of the type forms selected, there is appended to each an excellent general summary of the life-history of the form; so that within the compass of a little over 350 pages we have a really valuable text-book of animal biology, which we would wish to place in the hands of all students. In Ireland, unfortunately, the Commissioners of Intermediate Education have omitted the subject of biology from the schedule for boys, and limited that for girls to the vegetable kingdom.

*Practical Guide to Photographic and Photo-Mechanical Printing Processes.* By W. K. Burton. (London: Marion and Co., 1887.)

It is refreshing to find that the text of the second photographic work issued by these publishers is not made subservient to the advertisement of photographic specialties. The work before us is written by a gentleman well known for his practical rather than his theoretical acquaintance with photography. We thus have an account of the practical working of various processes, with a small modicum of theory. The chapters on silver printing and carbon printing are very clear and complete, and if followed out will lead the amateur to successful results. When we come to the photo-mechanical processes, however, there is at first sight presumable evidence of a lack of intimate knowledge of the subject. It may be, however, that there is a greater difficulty in describing these operations than in the ordinary printing processes to which we have alluded. We doubt very much if the descriptions given would enable a tyro to progress at a rapid rate. For the enthusiastic photographer who has time to experiment the directions would suffice to enable him to commence in the right way, and though at first he would inevitably blunder, yet he would after a sufficient number of disasters produce results which he might take a certain amount of pride in showing to his immediate friends, who would be likely to appraise them higher than at their market price.

In another edition we should recommend that the author should either expand the descriptions of his photo-mechanical processes, or omit them altogether. The work itself is nicely got up, the print is good, and the illustrations well executed.

*A Treatise on the Diseases of the Dog.* By John Henry Steel, M.R.C.V.S. (London: Longmans, Green, and Co., 1888.)

THOUGH the author of this manual does not claim to offer an original book on canine pathology, and though he assumes the modest rôle of compiler of canine literature—English and foreign—we venture to say that he is fully entitled to the claim of having produced an extremely useful work; useful in the first place to the veterinary profession, but not less useful to all those who, like sportsmen, dog-breeders, and dog-keepers, wish to possess a ready and authoritative book for study and reference.

All disorders to which the dog is subject are considered minutely, and in addition there are a great many useful data as to the anatomy and physiology of the canine organism well blended together.

The treatment of canine ailments, and the various methods of medical and surgical practice, form an integral part, and while the author's extensive practice enables him to speak with authority, he does not omit to mention the practice of others which he considers most commendable.

The numerous illustrations, copied from standard books, though not of the first order as regards execution and reproduction, nevertheless considerably enhance the text; this is particularly the case with those which illustrate

the general appearance of the animal under the various severe internal disorders, as also those on medical and surgical practice.

But it must be regretted that in the illustrations on microscopic objects, of which there are a good many in this book, no statement is made in connection with the figures as to the amount of amplification under which the objects are supposed to be viewed. This is perplexing in itself, but becomes more so when we remember that there are other illustrations of anatomical parts which are represented smaller than natural size. But these minor details, which are easily corrected, cannot detract from the general usefulness of the work. E. KLEIN.

*Management of Accumulators.* By Sir D. Salomons. Third Edition. (London: Whittaker, 1888.)

THE author has considerably enlarged this edition of his work, and made it in some respects more complete.

The first part deals with accumulators, and principally with those of E.P.S., or Elwell-Parker type. The construction and principle of working of the cells is described, and hints are given as to the best method of setting them up and charging them. The ordinary causes of failure and the methods of guarding against them are discussed.

In the second part the arrangements of an installation for house-lighting are fully described, and hints, founded on the author's experience in lighting his own country-house for some years past, are given as to the management of engines, boilers, dynamos, lamps, switches, &c., as well as descriptions of the methods which he has adopted for so regulating the whole system by automatic appliances, that, as he says, "it is only needful to start and stop the engine, so that a man having no knowledge of electricity may be employed." He gives estimates for the capital expenditure and working expenses of installations of from 25 to 120 sixteen-candle power lamps. From these we learn that one of the latter size can be erected for £6 per lamp without accumulators, which latter add £3 per lamp to the cost, and the automatic regulating appliances bring up the cost to £10 per lamp. For fifty lamps the cost per lamp is about 50 per cent. greater, and for twenty-five lamps about twice as great. The annual cost, including interest and sinking fund, without accumulators, ranges from £2 16s. per lamp for 120 lamps to £4 4s. per lamp for twenty-five lamps, these figures being increased to £3 9s. and £6 respectively when accumulators and automatic regulators are used.

As was the case in the previous edition, there is much useful information in this book, but it is very badly written, so badly that the descriptions and explanations are often unintelligible. As an example we may quote from the chapter on the "Action of Cells with Dynamo" (p. 111). In discussing the relation between E.M.F. and current in machines of different types, he says, "Let us confine ourselves to the shunt dynamo, this has a falling curve, *i.e.* the E.M.F. falls as the current in the circuit is increased, due to two reasons, one is *the armature absorbs more power as the current is increased*" (the italics are ours); "and secondly the lowering of the outside resistance, to obtain an increased current, is in shunt with a fixed high resistance, *viz.* the shunt winding on the field-magnets, so that when the outside resistance is lowered to zero by short-circuiting the terminals, practically no E.M.F. exists, and no current passes."

*Elementary Physiography.* By J. Thornton, M.A. (London: Longmans, Green, and Co., 1888.)

THIS is an admirable introduction to the study of Nature by one whose experience in teaching must of necessity have indicated to him the requirements of beginners. The subjects are arranged according to the syllabus of the elementary stage of physiography, which will greatly extend the sphere of usefulness of the book. The treat-