

parison. Thus in this country we have no cases of towns corresponding to the Great Lake cities—Chicago, Cleveland, Buffalo, Detroit, Milwaukee and Duluth—drawing their water supplies from the same limited area into which their sewage is discharged. The risk of pollution is so abundantly evident that it is not surprising that Chicago has attempted to minimise the evil by diverting her sewage outfall, at considerable cost, into the Mississippi River. The wonder is that the example has not been copied in other cases.

Another strikingly distinctive feature is the enormous excess of supply *per caput* over that generally provided in this country. London and Liverpool are each content with less than forty gallons per head daily, whereas ten large American cities severally and individually exceed a demand of 100 gallons per head. New York takes 129 gallons; Boston, 151 gallons; Chicago, 190 gallons; and Pittsburg, 250 gallons. The discrepancy is tremendous. One feels that Mr. Hagen has hardly put it sufficiently strongly when he remarks that, "taking it right through, probably one-half the water supplied to American cities is wasted."

Mr. Hagen, in his book, first describes the various available sources of supply, viz. artificial reservoirs, small and large lakes, rivers, wells, and springs. He then discusses the chemical action of water on iron pipes and the means of effecting and maintaining the purification of stored water. There are chapters on pressure and on metering; the financial side of the subject is also considered. Altogether, the book is a most useful compendium of information relating to American methods of water supply.

VETERINARY PHYSIOLOGY.

A Manual of Veterinary Physiology. By Colonel F. Smith, C.B., C.M.G. Third edition, completely revised and in parts re-written. Pp. xvi+715. (London: Baillière, Tindall and Cox, 1907.) Price 15s. net.

AN interval of twelve years has passed between the issue of the last edition of this text-book and the present, third, edition. So many and notable have been the advances in physiology during that time that the book has had to be practically re-written; only the chapters on the senses, locomotion, and the foot stand nearly as they were. The chapter on the nervous system has been read, and some new matter added to it, by Prof. Sherrington, F.R.S., and other sections have been amplified by the cooperation of men who have special knowledge of the particular subject dealt with.

The book is not a text-book of human physiology with a little veterinary material added, but is a treatise which takes the horse as the type, and preserves that type throughout. Other animals of interest to the veterinary surgeon are not thereby excluded; the ox, sheep and pig, where differing essentially in their physiology from the horse, are fully considered. A special feature of the work is the interest it arouses in the reader; the physiology is applied to the practical requirements of the student

and practitioner, and the book is, in its way, partly a clinical manual. An appendix to many of the chapters takes up shortly the more common features of pathological interest liable to occur in the organ or organs the physiology of which has just been considered. The addition of a little pathology is, in the words of the author, meant to enforce the lesson that pathology is only physiology out of health. It certainly adds greatly to the interest of the book, and serves to emphasise the importance of a thorough understanding of the normal.

For many of the discoveries in the physiology of the horse we are indebted to the researches of Colonel Smith himself, and no one is in a better position to unfold them. This he does in the simplest and clearest language; many of his statements, indeed, throw light on processes which go on in the human body, or are at least extremely suggestive. The observations, founded on universal experience, that, in order to get a horse fit for hard work, or cattle and sheep ready for the butcher, the diets given must be strongly nitrogenous and limited only by the appetite, are quite opposed to the recent theories so strongly advocated by Chittenden. This is not the only instance where theory and practice come into opposition; the custom of watering a horse before feeding it is physiologically correct, but, according to Ellenberger, a horse, in order to derive the fullest possible nutriment from its oats, should be given hay first, then water, and finally oats. This does not accord with the English views of watering and feeding horses, which, however, as Colonel Smith says, have stood the test of prolonged practical experience.

The chapter on digestion is particularly good; the horse, ox, pig, and dog are separately considered. Occasionally one meets with statements that require further amplification; that pilocarpine is antagonistic to atropin and produces a profuse flow of saliva reads as though pilocarpine overcomes the effects of atropin, and that nicotine paralyses ganglion cells is not quite exact. The text, however, bears evidence of careful revision, and the book will prove a most valuable one to veterinary students and practitioners. Recent discoveries have been generally incorporated. Special mention may be made of the chapter on generation and development, which are particularly well treated. The work is one that can be read with interest from beginning to end, and claims the attention of all interested in veterinary work.

PERCY T. HERRING.

OUR BOOK SHELF.

The Polarity of Matter. By Alex. Clark. Pp. vii+134; illustrated. (London and Edinburgh: Gall and Inglis, n.d.) Price 3s. 6d. net.

THIS book claims to be a trustworthy text-book for the student of physics, but we cannot recommend it in this respect. Very few of the statements of fact which it contains are correctly made; and the deductions from them are supported by little consistent proof. At least, these are the conclusions to which we have come after a genuine endeavour to understand the meaning of the book. At the present time, when there has been such a rush of new facts, there is abundance of room for a book of a speculative