expect; he usually has a quick return for his outlay, and he can insure against many of his risks. The farmer, on the other hand, rarely, if ever, works on a contract; he starts expending money in August on a crop that will not be sold for fifteen months; he does not know definitely what price he will receive, or what yield he will get. The whole thing is a hazard, and he cannot insure against his risks. Consequently he has to allow a large margin for safety, and he balances his risk on the arable land by having a considerable area of grass on which the risk is at a minimum.

The application of scientific methods has decreased the risk and increased the effectiveness of the capital involved, but, of course, it cannot deal with the great factor of price. This problem is for the statesman, and when he comes to deal with it he will find Mr. Hall's book a useful guide. E. J. R.

OUR BOOKSHELF.

The New Public Health. By Prof. H. W. Hill. Pp. x+206. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1916.) Price 5*s.* 6*d.* net.

THE object of this book is to bring before the general public the newer conceptions of the aims and methods of public health. The older public health mainly dealt with the environment; the newer is chiefly concerned with the individual. The old teaching stated that infectious diseases were generated in the foul, ill-smelling, unventilated, sunless hovels of the slums; that a pinhole leak in some plumbing fixture accounted for diphtheria or typhoid fever; that dampness caused malaria, and impure water yellow fever. The new teaching begins and usually ends with the search for (*a*) the infected individual, (*b*) the routes of spread of infection from that individual, (*c*) the routes of disposal of the excreta of the community, by which, if infection occur, the infecting agent might reach the members of the community. To locate all the infective individuals of the community and to guard all their discharges is the ultimate goal of modern preventive measures.

The author surveys the sources, routes, and control of infectious diseases, the old and the new practice in the control of epidemics, and individual and community defence and administration. The book is written in a vigorous and trenchant style which arrests the attention and carries conviction. The only criticism of it that might be passed is that the casual reader might gather that such factors as garbage heaps and ill ventilation are of little moment to the public health, whereas actually the author indicates that they are not to be neglected, though their importance and significance are very different from what used to be considered to be the case. R. T. H.

The Pathology of Tumours. By Dr. E. H. Kettle. Pp. viii+224. (London: H. K. Lewis and Co., Ltd., 1916.) Price 10*s.* 6*d.* net.

IN this book the author gives an excellent account of the characters, occurrence, and general pathology of tumours, innocent and malignant. No doubt students and practitioners will find it of considerable service, though it may be remarked that we fail to find in it any novelty in matter or arrangement, or anything that has not been just as adequately stated in some other books that could be named. The illustrations, however, are both numerous and excellent, and this feature will probably be the one which will recommend the book.

In the opening chapters the general biology of tumours is dealt with, including statistics of occurrence, the experimental study of tumour growth, and the general principles of treatment. Here, however, we fail to find any reference to changes in the body fluids which occur in malignant disease, such, for instance, as alterations in the anti-tryptic power and lipoclastic action of the blood-serum.

In the second part the naked-eye and microscopical characters of the different forms of tumours are described, and finally the occurrence of tumours in the various organs and tissues of the body is detailed. Altogether the book gives a very practical summary of tumour formation and development in general.

Harper's Hydraulic Tables for the Flow of Water, in Circular Pipes under Pressure, Timber Flumes, Open Channels, and Egg-shaped Conduits, with much Accessory Information. By J. H. Harper. Pp. 192. (London: Constable and Co., Ltd., 1916.) Price 8*s.* 6*d.* net.

WITH painstaking assiduity, the author has worked out, with the aid of certain well-established formulæ, what he terms a "grill" or network of solutions, covering such problems as are likely to arise in actual practice "regarding the flow of water in either closed or open conduits, with any reasonable assumption of rugosity and with any rational arrangement of grade, in quantities from a small fraction of a foot to several thousand feet per second." The formulæ selected are those of D'Arcy, Bazin, and Kutter—all authoritative in their degree, but labouring under the disadvantage of possessing extremely variable coefficients, which render their application a matter of some difficulty, quite apart from the complexity of the expressions themselves. It has recently been shown by Mr. A. A. Barnes that the inherent cause of this diversity lies in the strict adherence to the fundamental equation of Chezy, viz. $v = c\sqrt{rs}$, and that if the equation were written in the form $v = cr^{\alpha}s^{\beta}$, coefficients could be determined which are simple in character and constant for the same class of channel. For those who prefer older methods the volume will undoubtedly prove of use in obviating the necessity for working out experimental cases in detail. Within the range of the tabulated results, it is easy to interpolate values sufficiently correct for preliminary approximations. The tables are also diagrammatically expressed in charts, and there are some supplementary notes on hydraulic formulæ generally, which make the book a succinct little manual on the subject. B. C.