

Evans's volume, would be very much astonished to be told that probably no single atomic weight is known to 0.01 per cent., and that comparatively few are certain to one part in a thousand. Indeed, it may almost be asserted that there is just as much a prevailing "fashion" in atomic weights as in that of wearing apparel. In view of the fact that laboratory chemistry may be said to have had a start of nearly a century upon laboratory physics, this great discrepancy in the precision attainable in the two sciences is not easy to explain, the difference being the more remarkable when the relative numbers of workers in the two fields are taken into account.

Possibly after all the theorising to the contrary the true cause may be found to be that all the atoms of a so-called elementary substance have not exactly the same weight.

J. A. HARKER.

### PRACTICAL ASTRONOMY.

*Text-book on Practical Astronomy.* By Prof. G. L. Hosmer. Pp. ix+205. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd.; 1910.) Price 8s. 6d. net.

THOSE who have used Prof. Hosmer's previous work, "Azimuth," will remember that one of its most pleasing features is the unconscious display of the author's intimate acquaintance with the practical side of surveying and of teaching. The same pleasing feature is just as much a characteristic of the present work. One feels that there is but little of the subject that the author has not practised until the operations are almost part of a second nature, yet in this work he does not lose sight of the fact that the student is a beginner and needs telling that the sun-glass is not usually placed over the object-glass.

The order of treatment is the conventional one; the method of treating the subject is Prof. Hosmer's. In the early chapters he explains, with numerous simple diagrams, the real and apparent motions of the celestial sphere, gives a number of definitions, and then describes the common systems of coordinates, their interrelations, and the methods of converting quantities from one to the other.

The anomalies of our unscientific mixture of "times" are elucidated in the next chapter, and the student is shown by example how to obtain any one, knowing either of the others. In chapter vi. the American ephemeris is explained, but much of the matter would apply equally to the contents of our Nautical Almanac; the method of interpolation to get intermediate ephemeris values is simple, but Prof. Hosmer recognises that it is not so simple—to the student—as to need no explanation. After considering the figure of the earth and the corrections it renders necessary, the author proceeds to a chapter on instruments, where, after dealing with the engineer's transit, the sextant and the chronometer, he gives a brief and simple account of the zenith telescope and concludes with a characteristic paragraph (58) of hints and suggestions on observing; the hint as to the making of a permanent mark showing the focus on a frequently used surveyor's

transit telescope illustrates how simple the author has made it for a beginner to "go right."

In the subsequent main chapters on the determination of latitude, time, longitude, and azimuth, we do not detect any novel methods, but we do recognise the simple conciseness of the instructions. By the use of smaller print the matter for a longer (advanced) course is differentiated from the simpler matter which would form a good first, or short, course—a hint that is valuable from such an experienced instructor. The formulæ employed are all numbered, so that in the case of transformations, or derivations, the student can readily refer back to his primary form.

The concluding chapter, on nautical astronomy, is chiefly notable for its excellently clear statement of Sumner's method illustrated by one or two useful diagrams. In an appendix the general question of tides is discussed briefly from the point of view of "level," and a number of useful tables of various astronomical quantities are given. The diagrams throughout are numerous, clear, and readily comprehensible.

### THE MENACE OF THE HOUSE-FLY.

*The House-fly—Disease Carrier: an Account of its Dangerous Activities and of the Means of Destroying it.* By Dr. L. O. Howard. Pp. xix+312. (New York: Frederick A. Stokes Co., 1911.) Price 1.60 dollars net.

ALTHOUGH house-flies are universally admitted to be a nuisance of a peculiarly exasperating kind, it was not until almost within the last decade that even physicians, with a few isolated exceptions, began to realise the possible dangers lurking in the presence of the most familiar and probably most widely distributed of all insects. The Spanish-American war of thirteen odd years ago did something to direct attention to the importance of the house-fly as a carrier of enteric fever in military standing camps, and the lesson then borne in upon the medical officers of the United States Army was enforced only too well a few years later by our own experiences in South Africa. It is now agreed by those best qualified to judge that the house-fly can convey the causative agents of cholera and enteric fever, and in outbreaks of these diseases often plays no inconsiderable part as a disseminator. Whether or not it acts as a carrier of infantile diarrhoea, which during the summer months frequently causes great mortality among young children, is not yet conclusively established; but that it is capable of carrying tubercle bacilli is certain, and tuberculosis and the other diseases mentioned do not exhaust the list of what are at least *potential* dangers connected with the house-fly.

In the so-called "residential" quarters of cities, in countries such as our own, the house-fly has nowadays not much opportunity of becoming contaminated with disease-causing organisms, but, as has been shown by Prof. Newstead in Liverpool, and in Washington by the author of the volume before us, it is unfortunately otherwise in the dwellings of the poor. In villages and old-fashioned farmhouses, where sanitary arrangements are too often painfully primitive,