

volumes represent further attempts, along two different lines, to win recognition for apparently supernormal facts, and to frame theories capable of bringing them into line with general knowledge.

Mr. Hill's book (1) is an eminently temperate and dispassionate statement and analysis of selected cases of clairvoyance and automatism, the former including the sayings of a professional clairvoyant, and the latter dealing with the "cross-correspondences," now fairly well known, between the automatic writings of Mesdames Thompson, Forbes, Holland, Verrall, and Piper. It is not difficult to perceive that the author inclines to the agency of disembodied human intelligences as the simplest explanation of many of the phenomena dealt with. When, in circumstances which exclude collusion as a reasonable hypothesis, phrases and allusions are simultaneously written out automatically by two or more persons in different continents, different phrases which only become intelligible on being pieced together, the case for assuming the operation of some intelligence different from that of the writers becomes strong. When, in addition, these phrases are characteristic of a Gurney, Myers, Sidgwick, or Hodgson, the temptation to attribute them to those deceased personalities is obvious. On the other hand, if telepathy and clairvoyance are real faculties, the proof of identity is faced with apparently insurmountable difficulties. Nevertheless, Mr. Hill's book is a valuable contribution to our knowledge of this difficult subject, and it is rendered particularly acceptable by the author's "careful and responsible truthfulness" and "unemotional habit of mind," to which Sir Oliver Lodge testifies in his introduction.

(2) Mr. Constable's book is an ambitious attempt to colligate the same range of facts by a new theory of personality. Experimental telepathy is assumed to be fully established, and is accounted for by the existence of an "intuitive self," which is in "timeless and spaceless" communion with all other intuitive selves. A large part of the book is taken up with a criticism of Kant and his transcendental dialectic, and the new departure claimed is the proof of the existence of the intuitive self from facts of ordinary human experience, chiefly relating to telepathy, or the reception of impressions otherwise than through the normal organs of sense.

The book as it stands can scarcely be said to succeed even in its main object, for even if telepathy were fully established, the possibility of some form of physical vehicle is becoming, if anything, increasingly obvious in these days of wireless transmission; and the whole conception of the "intuitive self" tends to remove these matters from all scientific procedure. An author who confesses his inability "to distinguish between time and space" (p. 34) is scarcely likely to convert physiologists or even psychologists to his views on crystal-gazing, or "psychometry," or communion with the disembodied. Any theory of survival likely to appeal to the scientific mind must be based upon physiological rather than metaphysical reasoning, and must, above all, remain in touch with the facts of racial and individual development. A physical scheme of immortality cannot be ruled out as an *a priori* impossibility while so many unknown forms of matter

and energy remain to be discovered. Meanwhile, a transcendental self, independent of space and time, makes too great a demand on our powers of conception to be of any living scientific interest.

E. E. F.

#### OUR BOOK SHELF.

*A Star Atlas and Telescopic Handbook (Epoch 1920). For Students and Amateurs.* By Arthur P. Norton. Pp. 19+16 star and 2 index maps. (London and Edinburgh: Gall and Inglis, 1910.) Price 5s. net.

For the general use of amateur astronomers this is the best atlas and handbook we have yet seen. The sixteen maps are printed exceptionally clearly, and, while not overcrowded, show more than 7,000 objects. Each map is about 10 in. by 8 in., and is part of a lune, covering, exclusive of overlap, four hours of R.A., and 60° N. or S. of declination. The atlas opens out flat, and shows two maps joined together at the equator, so that about one-fifth of the whole sky is seen at once. Meridians and parallels mark every hour of R.A., and every tenth degree of declination, while marginal divisions enable a position to be fixed to the nearest 5m. or 1°. The polar regions are shown on two pairs of maps.

In addition to these excellent maps there are a large number of tables and a quantity of letterpress giving practically all the information the amateur is likely to require for ordinary work. The list of star catalogues, astronomical abbreviations and symbols, and the notes on astronomical terms are to be confidently recommended for their lucidity and trustworthiness. Then there is a number of notes on the planets, comets, meteors, eclipses, &c., which are very interesting, concise, and informative. The sun and moon are awarded rather fuller treatment, and a useful sketch-map of the latter forms the frontispiece.

All this is good, but what will probably appeal more strongly to the average amateur possessing a telescope is the section devoted to hints. These are eminently practical, and the observer is told how to take care of and to use his instrument, how to get to know its constants and capabilities. Should he wish to determine the focal length of his objective or mirror, or of his eyepiece, or the diameter of the field, or should he wish to clean the different delicate parts or undertake special work, he is advised tersely how to do it.

Then preceding each pair of regions there are a few notes directing attention to any special telescopic objects found therein; double stars, variables, nebulae, and star clusters are located, and their special characteristics briefly described.

The whole work suggests that the author undertook a congenial task; the result shows he did it well.

W. E. ROLSTON.

*Triumphs and Wonders of Modern Chemistry. A Popular Treatise on Modern Chemistry and its Marvels, Written in Non-Technical Language for General Readers and Students.* By Dr. G. Martin. Pp. xx+358. (London: Sampson Low, Marston, and Co., Ltd., 1911.) Price 7s. 6d. net.

THE author of this book has sought to make chemistry attractive to readers untrained in the methods of science, by offering them an account of some of the most surprising achievements of modern practical chemistry, and of the most startling deductions from recent chemical and physical speculations. These two subjects alternate throughout the book, but their treatment is of unequal value. Such practical matters as the liquefaction of air, the preparation of oxygen, and