

against the method from the practical point of view. Increased yields from green manuring are obtained with many crops, including corn, cotton, beets, potatoes, and sugar cane, but tobacco is more uncertain in its response. On the whole, the best results are obtained with hoed crops, for which it is specially recommended in the United States. Descriptions are given of various crops suitable for use as green manures, together with accounts of the practice of the method in various parts of the world. The volume concludes with a chapter on the economics of green manuring, indicating that various leguminous crops can profitably be grown for this purpose alone, to supplement short supplies of stable manure. A comprehensive bibliography is appended.

*Survey of India. The Tides.* Revised by Major C. M. Thompson. Pp. vi + 140 + 30 + 50. (Dehra Dun : Geodetic Survey of India, 1926.) 2 rupees; 3s. 6d.

THIS pamphlet forms Part 5 of the "Handbook of Professional Instructions" (Third Edition) for the Geodetic Branch of the Survey of India. The three chapters, which are separately paged, deal with "Theory and Computation," "Tidal Observations," and "The Tide-Predicting Machine." Tidal observations were commenced in India in the year 1873, and the Survey at once adopted the harmonic methods of analysis and prediction then being developed. The original methods, however, have been continued almost without modification to the present day, though there are in existence several methods of analysis which are more accurate and involve very much less labour. Similarly, in prediction, no use is made of the modern method whereby the phase-lags are modified once for all so as to use only one set of computed initial 'astronomical arguments,' instead of 40 sets, as in India. Thus it is unlikely that this volume will be used as a manual outside the Survey, especially as it would be impossible to use the instructions adequately without a supply of the printed forms used in India. Apart from this, of course, the volume appears to give a satisfactory account of the processes used.

It is now customary to run two 'curves' on the predicting-machine for heights and times respectively; the times are given by a 'gradient-curve' obtained by setting up on the machine constants resulting from differentiating the expression for the height-curve; when the gradient-curve passes through zero, the machine is usually stopped and the time read off. In India a permanent record is made electrically on a chronograph attached to the machine, and the "Instructions" give details of the mechanism and method.

*From Crystal to Television, 'The Electron Bridge': a Simple Account of Wireless and Television.* By Vyvyan Richards. Pp. xi + 116. (London : A. and C. Black, Ltd., 1928.) 5s. net.

YET another effusion dedicated to the long-suffering 'layman.' On reading through a book of this nature one cannot help wondering whether the layman would not find it much easier, and far more satisfying, to sit down to read a *confessedly* scientific

or technical book, rather than to struggle through the bewildering medley of words which such a book as this contains.

The author has undoubtedly succeeded in impressing the reader that he himself is impressed with the importance and magnificence of his subject. But if perchance the reader had already formed any scientific opinions the result might be disastrous. When one learns at the outset that "there are three families of cathode rays, the alpha, the beta, and the gamma rays, these last being the X-rays that pass through our clothes and bodies and reveal our broken bones and the bullets and coins in us"; and a little later in Chapter i., "Strain is the idea that persists through all the manifestations of the ubiquitous force, electricity—a mystery which lies between matter and mind," one cannot help feeling slightly bewildered. An author who has no difficulty in drawing analogies between electric currents and human emotions, who glides from physics to psychology and metaphysics without an effort, is rather difficult for a poor layman to understand. In later chapters, however, after the metaphysical outburst has subsided and ordinary matters such as valves and gramophone 'pick ups' are under discussion, the author is obviously more 'at home.'

*Aids to Biochemistry.* By Dr. E. Ashley Cooper and S. D. Nicholas. (Students' Aid Series.) Pp. vii + 188. (London : Baillière, Tindall and Cox, 1927.) 4s. 6d. net.

THIS small volume contains much of the information that is found in the larger text-books on the subject: in addition, space is found for compounds which are more usually dealt with in works on organic chemistry as distinct from biochemistry. The authors state that the book is intended for purposes of revision, for which it appears eminently suitable. In addition to the theoretical treatment, the more important tests, preparations, and methods of estimation are included, so that the student can quickly revise both the practical and theoretical sides of his subject. Chapters are devoted to the chemistry of colloids, to the alkaloids, and to other compounds of general biochemical interest. The book is not intended for beginners in biochemistry: these would be well advised to read a larger manual first, in conjunction with their lectures, and only turn to this pocket volume in the last few months before their examination.

*Harmonia Harmonica.* By Clarence S. Hill. Vol. 2: containing Book 2—The Harmonic Chord as a Fundamental Agent in Creation; Book 3—The Harmonic Chord in Form and Design. Pp. 151. (Bournemouth: The Author, 33 Chigwell Road, 1927.) 21s.

THE author of this volume develops the thesis that the numbers 11 and  $4/3$  are the critical figures in music, the human body, the solar system, and the universe. The harmonic chord is regarded as the fundamental agent in creation, applying equally well to music, physics, chemistry, anatomy, or astrophysics.