

Lyer illusion describes an extremely interesting example of the success with which careful psychological experimentation, supplemented by exact measurement, can analyse out the various hidden factors involved in the production of an optical illusion. Colour vision and experimental æsthetics are treated in a way which cannot fail to interest the ordinary educated reader. But the parts of the book which deserve to be singled out as of particular interest for applied science, educational or medical, and as a really masterly description, in a small compass, of work perhaps most characteristic of modern psychological advance, are the chapters on memory and on mental tests and their uses. Readers of the author's larger text-book of "Experimental Psychology," will recognise in the former a condensation of the excellent account of the subject in that book. The discussion of mental tests includes clear instructions as to the method to be employed in applying certain of the more important of them, and gives a summary of many of the results, which will be found exceedingly useful to readers who have not the time or the facilities for referring to the original publications. Such questions as the effect of alcohol and other drugs upon muscular work and fatigue, the standardisation of intelligence, and the correlation of mental abilities one with another, will all be found adequately treated.

The book contains a bibliography and index, and is artistically bound and very clearly printed.

W. B.

*Grundzüge der Mathematisch-Physikalischen Akustik.* by Prof. A. Kalähne. Teil i., pp. vii+130. (Leipzig and Berlin: B. G. Teubner, 1910.) Price 3.20 marks.

THIS little work forms an excellent introduction to the mathematical basis of acoustics. Though using the calculus freely wherever needed, including differential equations, the treatment is simple and full, the analysis being illustrated by numerical examples and corresponding diagrams drawn to scale. The present part (being the first of two) is divided into seven chapters. Of these the first is devoted to vibrations and waves in general, the second to Fourier's series and harmonic analysis, while the third deals with the musical intervals of the scale, and kindred topics. Then, the subject being introduced, its formal development follows. The fourth and fifth chapters treat the vibrations of a particle, undamped and damped respectively. The sixth chapter deals with resonance and forced vibrations, the concluding chapter extending the treatment to systems of more degrees of freedom and their coupled vibrations. Perhaps to the English reader the most valuable features of the work are the tables and the curves giving concrete expression to the numerical illustrations. The growth of forced vibrations and the sharpness of resonance are very well shown, and may serve as a reminder of the electrical work of V. Bjerknes, Zenneck, and others in Hertzian waves and wireless telegraphy.

E. H. B.

*Physical Measurements.* By Prof. A. W. Duff and Prof. A. W. Ewell. Second edition, revised and enlarged. Pp. x+258. (London: J. and A. Churchill, 1911.) Price 7s. 6d. net.

THIS book is intended by the authors for students who have already completed an elementary course of practical physics. It is not, however, a treatise on methods of physical measurement, but the authors have described upwards of seventy typical experiments of an advanced and modern character. While the descriptions of these experiments are usually applicable to apparatus in general, they are in many cases

somewhat sparse in detail. Thus, for example, in Expt. lxiii., "Strength of a Magnetic Field by Bismuth Spiral," no remarks are made on the necessity of maintaining the temperature of the spiral constant, which is of primary importance if trustworthy results are to be obtained by this method. These defects are, however, partially remedied by the references given by the authors at the commencement of each experiment to more advanced treatises and sources where the subject under investigation is dealt with more exhaustively. Such well-known text-books as Kohlrausch, Watson, and Stewart and Gee figure conspicuously in this respect. The authors consider that the books and papers referred to in this way should be consulted by the student before commencing the experiment. A few questions are usually appended to each experiment bearing upon its subject-matter. At the end of the book are tables of logarithms and physical constants.

In the diagram on p. 70 (hypsometer) surely it is better to connect the pressure gauge directly with the inner cylinder of the hypsometer. The following experiment, No. xiv., p. 71, would have been better described as "Linear Coefficient of Expansion" and not "Temperature Coefficient of Expansion."

If the book is used in conjunction with the references it will prove of value to the student of physics.

*Unsterblichkeit: Eine Kritik der Beziehungen zwischen Naturgeschehen und menschlicher Vorstellungswelt.* By Hermann Graf Keyserling. Zweite Auflage. Pp. iv+285. (Munich: J. F. Lehmann, 1911.) Price 5 marks.

IN the review of the first edition of this work (NATURE, vol. lxxxii., p. 5, November 4, 1909) it was pointed out that the fundamental idea was that of faith as a permanent and essential constituent of human movement along the lines both of thought and of action. In the present edition, this is the single point of view, and the concluding chapters of the original work, amounting to about sixty pages, are now included in the author's "Prolegomena zur Naturphilosophie." The work is rich in thought and represents a noteworthy contribution of a naturalist to the human concept of immortality.

*Elementary Regional Geography. Europe and the Mediterranean Region.* By J. B. Reynolds. Pp. viii+184. (London: A. and C. Black, 1911.) Price 1s. 4d.

*Cambridge County Geographies. Berkshire.* By H. W. Monckton. (Cambridge: University Press, 1911.) Price 1s. 6d.

MAPS and other illustrations take the most prominent place in Miss Reynolds's little book on Europe. The volume should form a useful introduction to the subject for young people, but it would have been more suitable for this purpose if the children had been provided with more work to do for themselves.

Mr. Monckton's book on "Berkshire" is a worthy addition to an interesting series; it has all the good qualities noticed in connection with its companion volumes.

*Space and Spirit. A Commentary upon the Work of Sir Oliver Lodge, entitled "Life and Matter."* By R. A. Kennedy. Second edition. Pp. 64. (London: Charles Knight and Co., Ltd., 1911.) Price 1s. 6d. net.

THE first edition of this booklet was reviewed at some length in our issue of February 24, 1910 (vol. lxxxii., p. 486). The new edition contains some further contributions by way of appendix, and a new list of definitions.