

is being found. It is remarkable that the average result for the whole class is usually surprisingly near to the correct one.

Science masters and others will find Mr. Goddard's book useful, if only on account of the number of interesting little points and suggestions he makes in connexion with each experiment. J. G. F. D.

*Handbuch der physikalischen und technischen Mechanik.* Herausgegeben von Prof. Dr. F. Auerbach und Prof. Dr. W. Hort. Band 1: *Technische und physikalische Mechanik starrer Systeme*, Teil 1. Lieferung 1. Pp. ix+306. Lieferung 2. Pp. viii+307-694. Lieferung 3. Pp. 695-787+xviii. Band 1, vollständig, 80 gold marks. Band 2: *Technische und physikalische Mechanik starrer Systeme*, Teil 2. Lieferung 1. Pp. viii+404. Lieferung 2. Pp. xiv+405-673. Band 2, vollständig, 75 gold marks. (Leipzig: Johann Ambrosius Barth, 1927-1930.)

DURING the years 1890 to 1896 Winkelmann published a famous handbook on physics, which re-appeared in a new edition in the years 1901 to 1909. When, about six years ago, a third edition was called for, the growth of material to be treated led to the division of the single handbook into a series of handbooks, each dealing with different domains, under separate editors. Among their subjects are electricity and magnetism, physical optics, and mechanics (physical and technical). The last of these, which is the subject of this brief notice, comprises seven volumes, some of them divided into parts separately published (these cannot be separately purchased, each volume being sold as a whole). Some part of each volume has appeared, and some volumes, but not all, are complete. The work is remarkable in its scope, and is well printed and illustrated. Probably few individual teachers or students could afford to possess a copy of so large a work, which is necessarily expensive, but in scientific libraries, whether academic or industrial, it deserves a place. Its great merit is that it brings together, in an easily accessible and assimilable form, a large body of scattered knowledge on mechanics, together with references to sources of fuller information. The first two volumes deal with the general principles and main results in kinematics, dynamics and statics, and mechanism, and conclude with an interesting account of physiological (including human) mechanics and mechanism.

*The Mysterious Universe.* By Sir James Jeans. Second edition. Pp. ix+142+2 plates. (Cambridge: At the University Press, 1931.) 2s. net.

IN the second edition of this well-known book, the author explains that he has found with regret that certain passages in the original book were liable to be misunderstood, misinterpreted, and even misquoted, in various unexpected ways. He has expunged some of these passages and re-written or amplified others. Here and there new paragraphs, occasionally even whole passages, have been added in the hope of making the argument clearer. The main line of thought, however, is unchanged, and needs no comment. The opportunity has also been

taken of correcting certain misprints and errors in the first edition. It is a pity that this was not carried out more thoroughly. We still have, for example, the ambiguous "this" on p. 38, line 11; the miscalculation on p. 84; the singular noun and plural verb at the top of p. 134; and the statement (p. 49) that Maxwell had "shewn" (instead of "predicted") and Lebedew had "measured" (instead of "observed") the pressure of radiation. One of the newly introduced paragraphs, in fact, contains the misstatement (p. 119) that Kepler believed in the truth of his "five solids" law "for one brief moment". Criticism of details to the neglect of the whole is admittedly reprehensible, but insufficient care in verifying details, especially in a second edition, is nevertheless to be regretted. The paper and printing of the new edition are in no way inferior to those of the old, despite the reduction in price.

*Dimensional Analysis.* By Prof. P. W. Bridgman. Revised edition. Pp. vi+113. (New Haven, Conn.: Yale University Press; London: Oxford University Press, 1931.) 24s. net.

THE second edition of Prof. Bridgman's well-known book differs very little from the first. A few minor errors are corrected, and references are given to the writings of certain other authors that have appeared in the interval. Though these are strongly critical of Prof. Bridgman's doctrines, he sees no reason to change his opinions; he prefers, therefore, not to enter into controversy, but to leave his readers to judge between him and his critics. This procedure is entirely creditable to Prof. Bridgman, and certainly preferable to an attempt to expound views with which he has no sympathy. But the whole position is not creditable to science. The differences that divide Prof. Bridgman from his critics are not matters of opinion; they concern the validity of certain quite simple logical arguments; one side in the dispute must be definitely right and the other definitely wrong. Let us hope that the appearance of this reprint will encourage impartial examination of the controversy and lead to the final establishment of the truth. N. R. C.

*Quanta et chimie.* Par Prof. Arthur Haas. Traduit de l'allemand par Jeanne Perrenot et F. Esclançon. Pp. v+69. (Paris: Gauthier-Villars et Cie, 1931.) 15 francs.

THE scope of this little work, based on four lectures, is, as explained in the author's preface, to present, as simply and shortly as possible, quantum physical theory having an interest to chemists, and avoiding any use of mathematics. As the limitations imposed by these conditions indicate, the book is a résumé of the position (in 1929), popular only to the extent of being written for the non-specialising scientific worker. The four chapters deal with the arithmetic of chemical periodicity, the quantum theory of valency and chemical forces, electron grouping and the periodic system, and the quantum problem of molecular and nuclear structure. An English version has appeared under the title of "Quantum Chemistry". N. M. B.