regions it is not at all apparent how far the results obtained have actual validity. When in design work, factors of safety—or ignorance—of 5, 6, and 7 are common, it cannot be expected that a piece of analysis, however beautiful or elaborate, will carry conviction unless point by point the deductions can be checked directly or indirectly by experiment. The present work, we venture to think, would have been considerably enhanced by a larger proportion of space being devoted to experimental comparison, especially for a work on applied elasticity. The limitations of the theory of Chapter vi., for example, dealing with the buckling of struts, to choose only one case, would have been apparent had some of the published results of such tests been introduced for comparison. These would have enabled one to appreciate how far the simplifications involved in assuming idealised pin-joints, homogeneity of material, and lack of eccentricity generally are reflected in the calculations. After all, it is vitally important to know how far applied elasticity can be relied upon for a prediction.

The author has apparently confined his attention deliberately to certain groups of questions. There is no mention of the many applications of elasticity to aeronautics, to wing and fuselage structures, or to twisting and vibration of propeller blades. But we must not be over-critical. He has undoubtedly produced an excellent and important contribution to the subject, not merely in the old matter which he has presented in new and refreshing form, but also in the many original investigations here published for the first time. We are grateful for it.

Our Bookshelf.

Handbuch der allgemeinen Chemie. Herausgegeben von Prof. Wilhelm Ostwald und Prof. Carl Drucker. Band 4: *Das Leitvermögen der Lösungen.* Von Prof. Paul Walden. Teil 1: Allgemeines, Grundlagen der Leitfähigkeitsmessungen, Methoden, Elektrolyte und Lösungsmittel, Überführungszahlen, Ionenchemie. Pp. ix+383. 17 marks. Teil 2 und 3: Zahlenwerte des Leitvermögens in wässerigen und nichtwässerigen Lösungen; Folgerungen, Gesetzmässigkeiten, Anomalien, Anwendungen. Pp. vi+346+v+397. 47 marks. (Leipzig: Akademische Verlagsgesellschaft m.b.H., 1924.)

THE fourth "volume" of Ostwald's "Handbuch der allgemeinen Chemie" consists of three parts, under the general heading of "Conductivity of Solutions." The first of these parts deals with methods of measurements, and general questions, such as the hydration of ions, and concludes with a long section on transport-numbers and ionic mobilities. The second part contains the numerical data in reference to conductivity in aqueous and non-aqueous solutions. The third part deals with regularities and anomalies, as well as the application of conductivity-measurements to the study of physico-chemical problems.

A quarter of a century ago, it was possible to deal fully with all these questions in a single small monograph. Thus Kohlrausch's "Leitvermögen der Elektrolyte," published in 1898, contained only 227 pages, including the table of contents and tables of logarithms, etc. The three sections of Prof. Walden's book cover 383, 347, and 397 pages respectively, apart from title-pages, etc., giving a total of well over 1000 pages. Like so much other German literature of this kind, the book is amazingly complete. Every paper dealing with the subject appears to have been noticed, and even the most distant applications are discussed with full references to the relevant literature. Thus an organic chemist who is interested in free radicals or in carbonium salts will find the relevant data duly catalogued. It is impossible not to admire the patience and skill of the author in compiling so complete a work, and its value to workers and teachers cannot be exaggerated. Its very completeness, however, makes it more suitable for use as a work of reference than as a text-book for students, unless as readers they possess the same amazing patience that the author has shown as a writer. One of the principal uses of the book will, however, be as a mine of information for those who are responsible for teaching the subject, and in this way its publication may prove of real value even to the elementary student; but it would be an alarming prospect if so complete a volume should be taken by his examiners as indicating what the scope of his knowledge should be.

The Military Uses of Astronomy. By Major F. C. Molesworth. Pp. xii + 112 + 2 plates. (London: Longmans, Green and Co., 1924.) 3*s.* 6*d.* net.

THE main impression created by reading Major Molesworth's handbook is that the task undertaken is rather a difficult one. Its object is to explain the fundamental principles of astronomy, with practical application to the simple problems which present themselves to the soldier without requiring the use of instruments. The knowledge demanded is modest enough, but to convey it in an accurate and attractive form is not easy. With the necessary deductions for full-page diagrams and so forth, this book occupies less than eighty-five pages, and, partly from its brevity, the treatment of the subject appears rather unsatisfactory. The needful familiarity with actual problems can only be gained by assiduous practice, and it seems doubtful whether Major Molesworth's little work will provide the stimulus to bring out the necessary effort.

In spite of Sir W. R. Birdwood's foreword, it seems but fair to recognise that the military uses of simple naked-eye astronomy are strictly limited. It is inconceivable that any serious operation should be left to the chances of a fine sky. There is no apparent reason why, in normal circumstances, the watch and the compass should not be used for the purpose of determining time and direction. In cases of emergency, as, for example, the escape of prisoners, readiness in making use of astronomical indications may be an invaluable resource, but only when more orthodox and trustworthy methods are not available.

This is not to be understood as discouraging in any sense the study of the elements of astronomy, which can be recommended as a thing fascinating in itself and