

lactoflavin and the synthesis of what is probably a stereoisomeric colouring matter from *l*-arabinose.

The final section, contributed from Princeton by E. Newton Harvey, deals with a novel subject, namely luciferase, which is an enzyme concerned in the luminescence of living organisms.

The editors and authors are once more to be congratulated on the production of a volume which will be found both stimulating and helpful to all workers in these particular fields of inquiry.

E. F. A.

#### An Introduction to Structural Theory and Design : Theory

By Prof. H. Sutherland and Prof. H. L. Bowman. Second edition. Pp. xi+318. (New York : John Wiley and Sons, Inc. ; London : Chapman and Hall, Ltd., 1935.) 17s. 6d. net.

SINCE its original publication about five years ago, this work has proved itself a very valuable introduction to the basic conceptions and principles of structural theory as related to trusses, rigid frames and space frameworks, and has asserted itself as a trustworthy book of reference. In preparing the second edition, the authors have taken this opportunity to effect some revision, particularly in enlarging the section on moment distribution and in adding one on the column analogy for rigid frame analysis.

On the whole, however, the book follows the same lines as its predecessor in treating, very conscientiously and with a wise insistence on the value of simple proofs and direct solutions, the stress analysis of the wide range of structures included in its purview. It is particularly rich in the explanations given of the numerous direct and indirect methods of analysis which are available and, while its purpose is to interpret as fully as possible the introductory theory of structures, this is illustrated by numerous worked examples showing how, in practice, the actual processes, be they graphical or analytical, are carried out. With the many further problems suggested for analysis, the work could be used to great advantage for class or private study. At the same time, the clear-cut subdivision of the matter, the finality with which each method is treated and the practical outlook of the authors make it within its limits an eminently useful book for those professionally engaged in structural work.

J. A. C.

#### Electrical Water Heating: with Special Reference to the Domestic Storage Heater

By D. J. Bolton, Philip C. Honey and N. S. Richardson. Pp. viii+192. (London : Chapman and Hall, Ltd., 1935.) 7s. 6d. net.

THIS book deals with both the scientific and the commercial aspects of electrical water heating. It naturally falls into three main divisions : the first one is concerned with the construction of domestic storage heaters of various types, and the method of fixing and fitting them in the house ; the second with

the hot water systems at present in ordinary domestic use ; and the last with the supply and consumption of electricity commercially.

There is a good description of the control of the temperature of electric heaters by the bi-metallic type of thermostat. In this, the differential expansion of invar and brass is employed to give the necessary change of length, and the method of enclosing such thermo-regulators in the cylindrical water-storage tanks is discussed in considerable detail. Various methods of grafting such an electrical system on to the existing hot-water circuit of the house are also included, and the several factors which affect the price of electricity as sold to the consumer are set out clearly. This book should prove of service to electrical engineers who are concerned with the problem of water heating, as well as to architects who are preparing to design the houses of the future.

#### Die Harze :

die botanischen und chemischen Grundlagen unserer Kenntnisse über die Bildung, die Entwicklung und die Zusammensetzung der pflanzlichen Exkrete. Bearbeitet von A. Tschirch und Erich Stock. Dritte umgearbeitete Auflage von A. Tschirch : Die Harze und die Harzbehälter, Band 2, Hälfte 1. Pp. xii+471. (Berlin : Gebrüder Borntraeger, 1935.) 48 gold marks.

WE have already noticed (March 31, 1934, p. 478) the first portion of this monumental work, which dealt in general with the resins. There has now been issued the first half of the special part describing in detail the individual resins. Those chosen are classified as the ester or benzoic resins, commonly termed balsams, and the bitter resins such as myrrh, elemi, etc. The information, covering a very great deal besides botany and chemistry, is of the fullest, and there are copious illustrations, both botanical and otherwise, including pictures of the original packages in which the resins are shipped as well as maps. We know of no other similar subject which has been monographed so exhaustively.

#### Der Chemie-Ingenieur :

ein Handbuch der physikalischen Arbeitsmethoden in chemischen und verwandten Industriebetrieben. Herausgegeben von A. Eucken und M. Jakob. Generalregister für Band 1-2. Pp. ii+99. (Leipzig : Akademische Verlagsgesellschaft m.b.H., 1935.) 8.80 gold marks.

THIS small volume, which is uniform in type and binding with the eight parts of "Der Chemie Ingenieur", consists of a general classification of the subjects treated in these books and provides a rapid means of discovering in which part a particular detail of the general subject is discussed. It thus prevents one having to examine the tables of contents at the end of each part until that part in which is the particular section of the subject required is found. The general index will therefore greatly facilitate reference to the contents of these eight books, and the authors are to be congratulated on completing their labours in such a thorough manner.