Einführung in die Verbandstheorie. By H. Hermes. Die Grundlehren der mathematischen Wissenschaften in Einzeldarstellungen, Bd. 73. Zweite, erw. Auflage. Springer-Verlag, Berlin-Heidelberg-New York (1967). xii+209 pp. DM 46.

Apart from minor changes in the original text some chapters have been added. Two of them give a treatment of pseudo-Boolean algebras and their connection with topological Boolean algebras. These results are used to give lattice-theoretical proofs of the completeness of classical and intuitionistic propositional calculus. Two additional chapters deal with decision procedures for equations in the classes of all lattices, the modular, distributive, pseudo-Boolean and Boolean lattices.

The book has retained its elementary character and has to be recommended as a clear and precise first introduction to lattice theory.

G. Bruns,
McMaster University

Séminaire Bourbaki. Vol. 1966–67, Exposés 313–330. Benjamin, New York (1968). U.S. $16.

The exposés of this Seminar were held in November 1966 (Demazure, Hirzebruch, Kahane, Raynaud, Samuel, Serre), in February 1967 (Atiyah, Giraud, Godement, Gramain, Schiffmann, Zeller-Meier), and in June 1967 (Brumer, Demazure, Houzel, Lacombe, Malgrange, Serre). The reviewer may mention once more the general purpose of these seminars. Each author gives a (often new) coherent picture of recent developments in his field of interest. As a result, these seminars are of great interest and importance for those researchers who want to be introduced quickly and efficiently into a certain area of mathematics.

W. Kuyk,
McGill University

Algebren. By M. Deuring. Ergebnisse der Mathematik und Ihrer Grenzgebiete, Band 41, Zweite korrigierte Auflage, Springer-Verlag, Berlin (1968). viii+143 pp. U.S. $6. DM 24.

This is a new edition, improved at only minor points, of Deuring's book under the same title *Algebren* (Band 4 of the same series of the Ergebnisse, 1935). Though the general theory of algebras (over rings) has developed considerably since 1935,

https://doi.org/10.1017/S000843950003126X Published online by Cambridge University Press

it is surprising to note that the present print of this old book is very helpful for those who want to learn the fundamentals of algebras over number fields in the classical style.

W. KUYK,
McGILL UNIVERSITY

Groupes et Algèbres de Lie. BY N. BOURBAKI. Eléments de mathématique, fascicule xxxiv, 288 pp., comprising chapitre iv, *Groupes de Coxeter et systèmes de Tits*, chapitre v, *Groupes engendrés par des réflexions*, and chapitre vi, *Systèmes de racines*. Actualités Scientifiques et Industrielles 1337, Hermann, 115, boul. Saint-Germain, Paris VI. 48F.

This beautiful exposition covers an area of group theory which is common to the Theory of Lie groups, the Classical Geometries and to certain areas of Analysis. Its main concern is with the so-called Coxeter systems and Tits systems. These systems are sets of axioms, such, that if a group satisfies these axioms, then it is one of a kind arising in one of the mentioned fields. Historically, the groups of this type occur at first as cristallographic groups, groups of motions of $\mathbb{R}^n$ which fix a regular polytope in $\mathbb{R}^n$, or as discrete subgroups of the group of motions of the non-Euclidean hyperbolic plane. In a later stage, groups of this kind turn up in the theory of (simple) Lie groups and also in the theory of the classification of semi-simple (complex) Lie algebra's (Coxeter groups). In the latter case they can be either viewed as permutation groups generated by involutions (of a root system of a semi-simple Lie algebra), or as abstract finite groups generated by reflections R_i, subject to relations of the form $(R_iR_j)^{m_{ij}}=1$, (m_{ij} integral) (Coxeter groups). Finally, after the second World War, the rapidly developing theory of linear algebraic groups (which is the algebraic counterpart of the classical theory of Lie groups) joins in the symphony, in that it turned out to be possible to obtain all the hitherto known simple groups (in the different senses of the word) which arise in the theory of Lie groups, the theory of algebraic groups and the classical geometries, as particular cases from Tits' axiom system (which itself dates back to 1962). This book offers a purely algebraic treatment of these group theoretical aspects of the theory of Lie groups and Lie algebras.

W. KUYK,
McGILL UNIVERSITY