Hausdorff concerning logarithmico-exponential functions are omitted. They are both elegant and useful.

The final part V deals with Abelian and Tauberian theorems and ends with the Ikehara theorem. The Wiener theorem is mentioned but not proved in detail and most of the work is based on the more elementary methods of Hardy, Littlewood, and Karamata. This part also contains original material and is basic for the applications to asymptotic representations.

The book contains at least fifteen research problems inserted in the text, relating to open questions in the theory. Some are fairly easy to solve on the basis of available results, others will require a more substantial effort.

References occupy a section of twelve pages and there is an excellent bibliography. The press work is beautiful and misprints very rare.

EINAR HILLE

Leçons de logique algébrique. By H. B. Curry. (Collection de Logique Mathématique, Série A, Monographies réunies par Mme Destouches-Fevrier, no. II.) Paris, Gauthier-Villars, 1952. 183 pp. $4.86.

This expository monograph is the outcome of a course given at Louvain in 1950–51. Although the important theoretical results have appeared in the works of the author and others, it is a valuable contribution to the literature by reason of its lucid architectonic treatment of elementary mathematical logic from the viewpoint of modern mathematics.

Chapter 1 treats of the nature and methodology of formal systems as previously proposed [*A theory of formal deducibility*, Notre Dame Mathematical Lectures, no. 6, University of Notre Dame, Notre Dame, Ind., 1950]. Mathematics is defined as the study of formal systems and mathematical logic is concerned with those formal systems which have some connection with philosophical logic.

These lectures are restricted to the logical algebras as characterized in Chapter II. Algebras are formal systems with free but no bound variables and with a fundamental transitive relation. Where this relation is reflexive, the algebra is called relational or in its reduced form, logistic. Logical algebras are relational or logistic algebras with two binary operators (sum and product) and the idempotent laws (tautology). Those considered of interest are also (at least) general lattices. A variety of interpretations are given, some propositional.

Postulates for semi-lattices (group logics) and lattices are introduced in Chapter III. The properties of general, distributive and modular lattices are discussed and some basic theorems demonstrated.

An operator which corresponds to implication in the propositional interpretation is introduced in Chapter IV. Implicative lattices are those for which detachment and exportation hold. Four formulations are proposed, one relational (with detachment and exportation taken as postulates) and three logistic. The latter are *TA* (Gentzen's natural formulation), *HA* (the familiar calculus construction) and *LA* (Gentzen's *L*). Some theorems are proved about the implicative lattices and their duals (the subtractive lattices). *HA* and *TA* are shown to be implicative lattices equivalent to each other, to Bernays' positive logic, and to intuitionistic logic without negation.

Where, in the propositional interpretation, implication is construed as deducibility, the above systems (called the positive systems) are applicable. For a truth functional definition of implication, they must be strengthened to accommodate some form of Pierce's law. An implicative lattice so strengthened is a classic implicative lattice. Appropriate modifications of *TA*, *HA*, and *LA* are made. *TC*, *HC*, and *LC* (the classic positive systems) are shown to be classic implicative lattices. Classic subtractive lattices (Boolean rings) are treated in some detail.

Four kinds of negation are considered in Chapter V. *M*, minimal (refutability); *N*, intuitionist (absurdity); *D*, strict (refutability with excluded third); *K*, classic (absurdity with excluded third). Algebras with each type of negation are discussed and some results established about their interrelation including an extension of Glivenko's theorem. The larger part of Chapter V is devoted to the classic (Boolean) algebra.

In conclusion, extensions beyond the classical are briefly considered, particularly in the direction of modalities.

Following each chapter are notes of a bibliographical, historical, and occasionally expository nature which add greatly to the value of the book. The preface by R. Feys is oriented toward the student of philosophy. (On page 99, line 23, add "Nous employerons pour cette espéce la lettre "*K*"." at the end of the line. On page 136, line 18, for "§7" read "§1.")

R. BARCAN MARCUS

Theory of perfectly plastic solids. By W. Prager and P. G. Hodge. New York, Wiley, 1951. 10+264 pp. $5.50.

This book is an important and valuable contribution to the litera-