particular, Rudin constructs a closed ideal in $A(\Gamma)$ which is not self-adjoint, an interesting refinement of Malliavin's construction.

(Chapter VIII) How to extend properties of Taylor's series, or analytic functions in an open disc, when the group of integers Z is replaced by another group? The question has been investigated by Arens, Helson, Hoffman, and Singer, when Z is replaced by an ordered group. In the case of Z^2, for example, a Taylor series will be replaced by a Fourier series whose coefficients vanish in a half plane. The fundamental work concerning the L^2-theory is due to Helson and Lowdenslager, who succeeded in extending classical theorems of Szegö and Beurling. A theorem of the author, on Paley sequences, is given in this general context, as well as the most important results about conjugate functions (L^p-theory, starting from Helson's extension of M. Riesz's theorem).

(Chapter IX) What is the structure of the closed subalgebras in $L^1(G)$ or $A(\Gamma)$? A complete answer to the question, even when Γ is discrete, is out of range (let us mention that the nice conjecture on p. 231 has been disproved since the book was published). Results of Wermer and Simon on maximal subalgebras are discussed, as well as the characterization of those groups Γ such that $A(\Gamma)$ contains no proper closed separating subalgebra ("Stone-Weierstrass property"), discovered by Katznelson and the author.

The mere enumeration of the topics shows that the book is rich in material. Nevertheless, it is a pleasure to read. Two chapters (basic theorems in Fourier analysis, and structure of locally compact abelian groups) and appendices at the end, are intended to make it "self-contained," at the level of a graduate student. In the main part of the book, all the theorems are proved, and all proofs are complete, as far as the reviewer could notice. The author is known to be an excellent expositor, and he proves it once more by providing a considerable amount of information in less than three hundred pages without giving anywhere the impression of hurrying or pressing the reader. The printing is very good, and the book is as good looking as it is thorough.

J.-P. KAHANE

Foundations of differential geometry. By Shoshichi Kobayashi and Katsumi Nomizu. Interscience Tracts in Pure and Applied Math., No. 15. John Wiley and Sons, Inc., New York, 1963. 11+329 pp. $15.00.

Differential geometry has radically changed in recent years. An approach based on the theory of differential manifolds has replaced