

BOOK REVIEW

Abstract harmonic analysis. Vol. I: Structure of topological groups. Integration theory. Group representations. By Edwin Hewitt and Kenneth A. Ross. Die Grundlehren der Mathematischen Wissenschaften, Band 115. Springer-Verlag, Berlin-Göttingen-Heidelberg, 1963. viii+519 pp.

For a certain category of mathematicians, integration theory is, or at least used to be, restricted to its charming virtues on R^n . Measures however provide us with a powerful and elegant tool when used along with the intuition that keeps fertile company to them in a large quantity of algebraic, analytic and geometrical situations. André Weil's *L'intégration dans les groupes topologiques et ses applications* opened new perspectives in mathematics from that standpoint when it became available in 1940. Fourier series and integrals, finite and Lie groups representations, integral geometry, algebraic number theory, and so on, became interacting members of the same promising club. The influence of that masterpiece was retarded by a few years due to the natural circumstances created by World War II. Such a delay seems immaterial, now that more than 25 years have elapsed, except maybe for people who had a hard time in getting hold of Weil's monograph during 1940–1945 and remember the exceptional pleasure of being able at last to read it and wonder hopefully about the wealth of research and turns in teaching ideas that would come next. The book under review is a good representative of the quarter of a century started by Weil's IGTA.

In the present volume, the authors give the structure of topological groups needed for harmonic analysis; treat integration on locally compact groups; and introduce the readers to group representations. They promise formally that a second volume will go into the intimate life of compact groups and locally compact Abelian groups, in considerable detail. The authors "hope to have justified the writing of yet another treatise on abstract harmonic analysis by taking up recent work, by writing out the details of every important construction and theorem, and by including a large number of concrete examples and facts not available in other textbooks." The pleasant, useful and important features of this volume, however, go far beyond those claimed by the authors. The book is intended to be readable by students having a first year graduate training, and to be useful for specialists as well. As such it happens, although it may not have been meant, to be a twin brother with a different temperament of