(3) No mention is made of Chevalley's version and application of the Tannaka theorem, nor of the work of Krein in related connections. (4) It is mentioned that the unimodular group in $n(>1)$ dimensions is minimally almost periodic; notably more generally, the same is true for any noncompact simple Lie group.

There is some occasional vagueness that may bother the non-expert reader. Thus, in the discussion of Hilbert's fifth problem, "finite-dimensional" is used as if it meant "finite-dimensional and locally euclidean," or at least "finite-dimensional and locally connected." And in quoting van der Waerden's result on the continuity of representations of semi-simple groups, the author neglects to make explicit the qualification that the representation be finite-dimensional.

This booklet conveys the scope of the theory of almost periodic functions on groups more rapidly and pleasantly than any other treatment with which the reviewer is familiar, and as such performs a valuable and important service.

I. E. SEGAL

Undecidable theories. By A. Tarski in collaboration with A. Mostowski and R. M. Robinson. Amsterdam, North Holland Publishing Company, 1953. 9+98 pp. $2.50.

The material of this book is based on results which were obtained by the authors, in particular by Tarski, between 1938–1952, and were originally intended to be published as a series of papers in some mathematical journal. Fortunately they are combined here in one volume.

A given axiomatic theory T is called decidable or undecidable according as we can or cannot find a mechanical procedure which permits us to decide (in a finite number of steps), for each particular sentence formulated in the symbolism of T, whether this sentence is provable by means of the devices available in T. (The number of steps necessary will, however, in general depend on the structure of the sentence under test, just as in applications of the Euclidean algorithm the number of divisions necessary depends on the two numbers whose g.c.d. we wish to find.) The decision problem of a theory T is the problem of determining whether T is decidable or undecidable. The problem of deciding which axiomatic theories have decision procedures and which do not is one of the central problems of modern symbolic logic, and should be of interest to all mathematicians, not just logicians. Here the authors describe all the principal methods and results in this field. The exposition throughout is