

ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THE SOCIETY

The following papers have been submitted to the Secretary and the Associate Secretaries of the Society for presentation at meetings of the Society. They are numbered serially throughout this volume. Cross references to them in the reports of the meetings will give the number of this volume, the number of this issue, and the serial number of the abstract.

ALGEBRA AND THEORY OF NUMBERS

107. Iacobo Barsotti: *Structure theorems for algebraic algebras without a finite basis.*

A few elementary properties are established, and a complete structure theorem for division algebras of type 2 (locally finite) and a countable basis is given (Theorem 17). A few properties connecting arithmetic with the structure of algebras over p -adic fields are found. Theorem 22 reduces the main unsolved problem to a simpler one, when the underlying field is of a particular kind, including algebraic and local fields. Theorem 24 analyzes the structure of algebras of type 1 with a noncountable basis. Such a structure will be treated in another paper. (Received December 26, 1946.)

108. Iacobo Barsotti: *Valuations in division algebras without a finite basis.*

The author studies arithmetic in infinite division algebras, based on non-archimedean valuations. Algebras satisfying a certain condition are called valuable, and a relation is found between this condition and the algebraic character of the algebra. Ideal theory in valuable algebraic algebras is studied. Algebraic algebras over local fields are shown to be valuable under a very general assumption. Three types of algebras are introduced, according to the existence of particular finite subalgebras. A principal theorem on the structure of unramified infinite local fields is found, and another one on the structure of local algebras of type 2. At the end of the paper an unsolved problem is stated together with some clues about its tentative solution. A new proof is given of a particular case of a known theorem about algebras of finite degree. (Received December 26, 1946.)

109. P. T. Bateman: *Modular subgroups of finite index.* Preliminary report.

The modular group (Modulgruppe) is the group of linear fractional transformations $\tau' = (a\tau + b)/(c\tau + d)$, where a, b, c, d are integers such that $ad - bc = 1$. The subgroups of the modular group most frequently encountered are those which can be defined by means of certain arithmetical congruence relations on a, b, c, d with respect to some positive integer, called the Stufe of the subgroup. By using the geometry of the transformations (cf. Ford, *Automorphic functions*, New York, 1929, chap. 3, in