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

103. A. A. Albert: *The Wedderburn principal theorem for Jordan algebras.*

The author has recently given a general theory of Jordan algebras, that is, linear spaces A of linear transformations a, b, and so on, such that A is closed with respect to the operation $a\cdot b=(ab+ba)/2$. In the present article the author proves that the Wedderburn theorem holds for such algebras. This is the theorem stating that if N is the radical of a Jordan algebra A then $A=S+N$, where S is an algebra, and so S is isomorphic to the semisimple Jordan algebra $A-N$. (Received February 11, 1946.)

104. Reinhold Baer: *Absolute retracts in group theory.*

The subgroup R of the group G has been termed a retract of the group G whenever there exists an idempotent endomorphism of G which maps G upon R. As this definition is in strict analogy to the topological concept of retract, one may be tempted to define absolute retracts in like similarity to topological usage. But it shall be shown in the present note that the identity is the only group which is a retract of every containing group. Consequently only modifications of the topological concept will be useful, and it will be shown in this note that each of the following classes of groups may in some sense be termed absolute retract: the complete groups, the abelian groups the orders of whose elements are finite and square free, and the free groups. (Received February 25, 1946.)

105. Grace E. Bates: *Free loops and nets and their generalizations.*

In generalizing to loops the group concept of "freeness," the following definition is used: A loop L is free over its sub-half-loop K (a set of elements in L having the same composition as L, but which is not necessarily closed under this composition), if every homomorphism of K into a loop may be extended to a homomorphism of L into the same loop. The main theorem is the following: If a loop L is free over and generated by its sub-half-loop K, and if S is a sub-loop of L, then S is the free sum of a free loop F and the loop generated by $S\cap K$. Applications of this theorem yield loop analogues to such theorems as Schreier's theorem on subgroups of a free group and the refinement theorem for free products. In the proofs the author uses nets and net constructions, taking advantage of the well known equivalence of net and loop theory. A direct application of one net construction proves the imbeddability of any half-loop into a loop which is free over and generated by the half-loop. (Received March 11, 1946.)