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

141. A. A. Albert: *The radical of a non-associative algebra.*

The multiplications of an algebra A generate a corresponding associative polynomial algebra $T(A)$. Every ideal B of A determines a corresponding ideal S of $T(A)$ and it is shown that $T(A-B)$ is equivalent to $T(A-S)$. If H is the radical of $T(A)$ the set AH is an ideal of A and $A-AH$ is either a zero algebra Z, a semi-simple algebra G (direct sum of simple algebras), or a direct sum $Z\oplus G$. If $A-AH=Z$ the algebra A is not homomorphic to a semi-simple algebra. For all other algebras the radical is defined to be the minimal ideal N such that $A-N$ is semi-simple. Then $N=AH$ if $A-AH$ is semi-simple. Otherwise $Z=N-AH$, the quantities of N are the quantities in the cosets which make up Z. If A and A_1 are isotopic algebras with unity quantities, their radicals $N=AH$ and $N_1=A_1H_1$ are isotopes and the difference algebras $A-N$ and A_1-N_1 are isotopes. An example is given of an algebra A with a unity quantity whose radical, with respect to our definition, is a field. (Received February 12, 1942.)

142. B. H. Arnold: *Rings of transformations of certain vector spaces.* Preliminary report.

Eidelheit (Studia Mathematica, vol. 9 (1940), pp. 97–105) showed that the algebraic properties of the ring of all continuous linear transformations of a real Banach space into itself characterizes the Banach space up to an isomorphism. Mackey has extended this result to a more general class of spaces. In this paper the author shows what algebraic properties of the ring correspond to certain properties of the space, such as completeness, reflexivity, reflexivity of the completion, or being the conjugate of some space. Eidelheit's result is extended to the complex case and a set of conditions is given which are necessary and sufficient that an abstract ring be the ring of all continuous linear transformations of some space into itself. (Received March 3, 1942.)

143. Emil Artin and Peter Scherk: *On the sum of two sets of integers.*

Let A, B, respectively, be sets of non-negative integers a, b. Let C be the set of all integers of the form $a+b$. Let $A(x)$, $B(x)$, $C(x)$ denote the number of positive inintegers of the sets less than or equal to x. A few months ago, H. B. Mann succeeded in proving: If $0\subset A$ and $0\subset B$, and if $C(n)<n$, then $C(n)/n\geqq\min_{x=1,\cdots,n}(A(x)+B(x))/x$. Applying and simplifying Mann's method, the authors have proved: If $C(n)<n$, then $C(n)-C(n-m)=A(m-1)+B(m-1)+Z_m(n)$, for a suitable $m\not\subset C$