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.

Announcement. Beginning with the report of the 1947 Summer Meeting, this Bulletin will publish the abstracts of papers offered for presentation at a meeting of the Society as part of the report of the meeting. This arrangement will save considerable space in the Bulletin due to the fact that it will no longer be necessary to print the title of a paper and the name of the author as part of the abstract and also as part of the report of a meeting. The present plan of publishing abstracts was inaugurated in 1930 in the expectation that abstracts would appear in the Bulletin before the papers were read at meetings of the Society. Unfortunately a large proportion of the abstracts are not received in time to make such advance printing possible.

The Editors are pleased to announce in this connection that the Secretary of the Society plans to have available for distribution at as many meetings of the Society as possible mimeographed copies of the abstracts of papers to be presented. It is believed that such a distribution of the abstracts will be of considerable assistance to easier understanding of the papers presented.

ALGEBRA AND THEORY OF NUMBERS

164. Grace E. Bates: *Decompositions of a loop into characteristic free summands.*

If the additive loop L is the free sum of proper subloops L_1 and L_2, then neither L_1 nor L_2 is normal in L. Nevertheless, it is possible, with relatively few restrictions, to obtain decompositions of loops into characteristic free summands. The principal theorem of this paper is the following: If the loop L is the free sum of proper subloops A and B, then A is characteristic in L if and only if the following two conditions are satisfied: (i) no proper free summand of A is isomorphic to a free summand of B; (ii) no proper free summand of A is a free loop. There is also a strong refinement theorem for decompositions of loops into characteristic free summands. The concepts of free sums of loops and free loops, as well as existence theorems and subloop theorems, are taken from a previous paper by the author although their statements are here repeated for the convenience of the reader. (Received March 19, 1947.)

165. R. A. Beaumont: *Rings over a group.*