ABELIAN GROUP THEORY IN ITALY

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1. Introduction. The development of group theory in Italy, after the pioneering contributions at the end of 1800 and in the first three decades of 1900 by Betti, Frattini, Cipolla and Gaetano Scorza, was stimulated at the end of the 40's by Guido Zappa, who was full professor first in Napoli for some years and later in Florence for the rest of his academic life. He wrote about a hundred papers on noncommutative groups and a book in two volumes [**92**] on group theory. Chapter VII in this book contained the classical results on finitely generated and divisible abelian groups and, mostly without proofs, more advanced topics, as Kulikov's and Prüfer's criteria for direct sums of cyclic p-groups, Ulm's and Zippin's theorems, basic subgroups, pure-projectivity of direct sums of cyclics, Baer's theory of types, and Hajos's theorem on a conjecture of Minkowski. Furthermore, Chapter IX contained a description of the group of extensions of two abelian groups. Zappa did not do research in abelian group theory.

Two young algebraists started to work with Zappa in Napoli in the 50's, Giovanni Zacher and Mario Curzio. Zacher was the founder and the leader of the algebra school on noncommutative groups in Padova since the beginning of the 60's. His contribution to abelian groups is a recent paper with Costantini and Holmes on the challenging problem of describing the groups of autoprojectivities of the modular groups, modulo the automorphism groups; they dealt also specifically with the case of bounded abelian p-groups (see [**8**]). Curzio, after a period spent in Bari, became the leader of the algebra school in Napoli, where he is still teaching. His scientific activity was devoted to noncommutative groups, but he also write a paper [**9**] on the connection between an abelian group A and a group G such that the lattices of all subgroups of A and the lattice of normal subgroups of G are isomorphic.

Once these contributions coming from the noncommutative area of group theory are recalled, it might be pointed out that abelian

1229