

PREFACE

THE present state of our knowledge of the properties of Modular Systems is chiefly due to the fundamental theorems and processes of L. Kronecker, M. Noether, D. Hilbert, and E. Lasker, and above all to J. König's profound exposition and numerous extensions of Kronecker's theory (p. xiii). König's treatise might be regarded as in some measure complete if it were admitted that a problem is finished with when its solution has been reduced to a finite number of feasible operations. If however the operations are too numerous or too involved to be carried out in practice the solution is only a theoretical one; and its importance then lies not in itself, but in the theorems with which it is associated and to which it leads. Such a theoretical solution must be regarded as a preliminary and not the final stage in the consideration of the problem.

In the following presentment of the subject Section I is devoted to the Resultant, the case of n equations being treated in a parallel manner to that of two equations; Section II contains an account of Kronecker's theory of the Resolvent, following mainly the lines of König's exposition; Section III, on general properties, is closely allied to Lasker's memoir and Dedekind's theory of Ideals; and Section IV is an extension of Lasker's results founded on the methods originated by Noether. The additions to the theory consist of one or two isolated theorems (especially §§ 50—53 and § 79 and its consequences) and the introduction of the Inverse System in Section IV.

The subject is full of pitfalls. I have pointed out some mistakes made by others, but have no doubt that I have made new ones. It may be expected that any errors will be discovered and eliminated in due course, since proofs or references are given for all major and most minor statements.

I take this opportunity of thanking the Editors for their acceptance of this tract and the Syndics of the University Press for publishing it.

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LONDON,
June, 1916.