Enumération des Groupes d'Operations d'Ordre Donné. Par RAYMOND LE VAVASSEUR, à Toulouse. Paris, Hermann. 4to, pp. 128, lithographed. No index or title-page. Fr. 5.00.

THE appearance of a new treatise on groups has ceased to be an event in the mathematical world, but M. Le Vavasseur's work is something a little out of the ordinary. For by means of nine chapters devoted respectively to groups of orders p, p^2, pq, 8, $pq^2 (p > q)$, 16, p^2q, $8p$, p^3 and pqr its purpose is to introduce persons unfamiliar with group theory directly to the problems of group construction. And hence everything in each of these chapters is directed towards answering the question, "How many groups are there of the assigned order and what are their equations?"

No knowledge whatever of the subject is assumed. The author begins with the fundamental definitions of the theory and develops the necessary preliminary propositions in a manner that follows Burnside's treatment with considerable exactness, introducing, for instance, into the French terminology such phrases as suite complète, opération conjuguée d'elle même. The whole of the second chapter is adapted from Burnside—so completely that the writer might have expressed an acknowledgment of his source more fully than in the single reference on page 16. These chapters and those immediately following are devoted to the simpler cases of group construction, too familiar ground to admit of much originality in treatment, but the discussion given is lucid and tolerably concise. It is certainly less prolix than Hölder's standard paper in volume 43 of the *Mathematische Annalen.* But this virtue of brevity cannot be claimed for the analysis of groups of order $8p$, as this chapter fills sixty-four pages and embodies a treatise on the group of automorphisms of abelian groups of order p^3 and type (1, 1, 1), with the representation of such groups in linear form and an excursus on bilinear substitutions. While the developments are interesting and while the results are perfectly correct (albeit the conclusions for order 56 are not very clear), yet the results could be attained in a very small fraction of the space used—cf., *e. g.*, Professor Miller's paper in volume 43 of the *Philosophical Magazine.*

All orders less than 30 are discussed with complete thoroughness, and the groups for each case are determined and their equations given. A comparison with Hölder's results seems to