

*The Constructive Development of Group Theory, with a Bibliography.* By BURTON SCOTT EASTON. Philadelphia, Publications of the University of Pennsylvania. Mathematics, No. 2, 1902. 8vo, iv + 89 pp. Ginn & Co., Selling Agents.

"THE purpose of this monograph is to present in a consecutive form the principal features of abstract and substitution group theory." It has been the aim of the author "to examine in detail all memoirs dealing directly with such group theory (excluding, in particular, that of linear groups) and to construct from this material a continuous treatise on the subject." These few words from the preface are sufficient evidence of the importance and difficulty of the task which the author has set for himself.

The monograph consists of two parts — a bibliography, covering pages 5–38; and a compendium, covering pages 39–86. The former is preceded by a prefatory note and a list of periodicals with abbreviations, while the latter is followed by a good subject index. The bibliography includes 157 names and gives under each name the titles and places of publication, arranged in chronological order. As this is the first publication of its kind, it is a very welcome addition to the literature on the subject and will doubtless prove valuable to all workers in this field.

Although great care seems to have been exercised in compiling the bibliography, yet it can scarcely be expected that the first edition of such a comprehensive collection would be free from errors. A few corrections are made in the addenda which closes the memoir. To these should be added Tanner's paper "On the enumeration of groups of totitives," *Proceedings of the London Mathematical Society*, volume 27; Hurwitz, "Algebraische Gebilde mit eindeutigen Transformationen in sich," *Mathematische Annalen*, volume 41; Study, "Sphärische Trigonometrie," *Leipziger Abhandlungen*, volume 20; the algebras of Comberousse and Pincherle, and possibly one or two of the papers of H. Laurent.

Many readers will doubtless regret that the author did not aim to include all papers on linear groups. This subject is so closely related to that of abstract and substitution groups that it frequently seems difficult to decide whether a paper on one of these subjects has sufficient bearing on the other to be classed with its literature. Such an extension would however have made the task of the author still more difficult, and he