As is well warranted by its importance, a separate chapter is devoted to the composition and utilization of molasses; Java-molasses, to the study of which the author has given much time and personal attention, receives specific consideration.

The final section of the book deals with factory-output, calculations and records; extensive tables and a satisfactory index conclude the volume.

This brief outline of the book's contents will indicate in how thorough and painstaking a manner the author has acquitted himself of his self-appointed task. His familiarity with the work of other investigators, with that of his American confrères among others, is amply attested by foot-notes and references scattered throughout the volume.

The straightforward, lucid style in which this book is written is characteristic of its author and makes its reading a pleasure, nor must the excellent make-up of the publication pass unnoticed—the quality of paper used, its typography, the marginal indices, all certainly merit the appreciation of its readers.

F. G. Wiechmann

An Introduction to the Lie Theory of One-Parameter Groups, with applications to the solution of differential equations. By Abraham Cohen, Ph.D., Associate in Mathematics, Johns Hopkins University. Boston, D. C. Heath & Co. 1911. Pp. iv + 248. Half leather.

The scope of this attractive little volume may be inferred from its seven chapter headings, which are as follows: Lie's theory of one-parameter groups, differential equations of the first order, miscellaneous theorems and geometrical applications, differential equations of the second and higher orders, linear partial differential equations of the first order, ordinary differential equations of the second order and contact transformations.

In form, binding and paper the present volume is similar to the "Elementary Treatise on Differential Equations," by the same author, published in 1906. In subject matter it forms a suitable sequel to this work, but it can be read with a more limited knowledge of differential equations. While it should appeal especially to the student of mathematics who is about to begin graduate work in an American university, it should also prove useful to those who make frequent use of the differential equation in applied fields of mathematics and who desire to look at the subject from the systematizing and clarifying standpoint of group theory.

The book closes with an appendix containing seven notes, two tables, answers to the examples, and a good index. In these notes several important subjects are developed for which there was no room in the body of the book. In particular, the n-parameter group of transformations is considered briefly in one of these notes. The two tables contain forms of differential equations of the first and of higher order which are invariant under known groups.

It is very gratifying to witness the rapid increase of American mathematical literature suitable for students who are just beginning graduate work. Even very good students of mathematics have found the transition period from undergraduate to graduate work discouragingly difficult because they were all at once compelled to use foreign literature with an abrupt change of point of view and method of presentation. During the last decade much has been done to remedy this serious drawback, but there are still many lacunas in this literature. The present volume has reduced by one the number of the most important of these.

G. A. Miller

SPECIAL ARTICLES

CARBON DIOXIDE AT HIGH PRESSURE AND THE ARTIFICIAL RIPENING OF PERSIMMONS

It is already known from the work of Prinsen-Geerligs (through Gore, 1910) on the fruit of the banana that its astringency disappears, without softening of the pulp (mesocarp), when surrounded by an atmosphere deprived of oxygen. This result suggested to