what a Lie algebra is and how it is related to a Lie group, or an undergraduate would like to begin the study of homology, or a crystallographer is interested in Fedorov groups, or an engineer in probability, or a scientist in computing machines, he will find here a connected, lucid account."

This three-volume work was originally the result of three of the best-known Russian mathematicians, in a systematic collaboration with others. Their goal was "to acquaint a sufficiently wide circle of Soviet intelligentsia with the various mathematical disciplines, their content and methods, the foundations on which they are based, and the paths along which they have developed." This they were able to accomplish so well that it seemed appropriate for the American Mathematical Society to spend considerable time and energy in preparing a thoroughly well-done and precise translation. The present set is the result; it was originally published by the Society, but now is made readily available, in its new format, by the M.I.T. Press.

The Russian writers undertook a difficult job, and fortunately were able to carry out their self-assignment with great success. As the Editor of Translations for the Society, S. H. Gould, says in the foreword, "In recent years many popular books about mathematics have appeared . . . but for the most part they have contained little serious mathematical instruction, and many of them have neglected the twentieth century, the undisputed 'golden age' of mathematics. They have not undertaken the ultimate task of mathematical exposition, namely, the large-scale organization of modern mathematics, in such a way that the reader is constantly delighted by the obvious economizing of his own time and effort. Anyone who reads through some of the chapters in the present book will realize how well this task has been carried out." I would agree completely.

The work is a mathematics work, not volumes about mathematics. They assume little more than some acquaintance with the differential and integral calculus to read the early chapters, but complete understanding of all volumes will require not only further reading in other books, but also the use of the exceptionally well-chosen and uniformly good references listed at the end of each chapter, together with a relatively good mathematical background.

The topics covered are (i) analysis including differential equations, calculus of variations, real and complex variables, and functional analysis, (ii) geometry including differential, non-Euclidean, and projective, as well as topology, and (iii) algebra covering linear algebra, number systems and prime numbers, and groups and other algebraic systems, as well as (iv) the theory of probability, approximation methods, and computing machines and techniques.

This edition presents a well-balanced and unified view of mathematics today, and it will prove to be a most useful reference source for good undergraduate and graduate students in all fields, as well as for mathematical specialists.

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Kinetics

Experimental Methods in Gas Reactions. Sir Harry Melville and B. G. Gowenlock. Macmillan, London; St. Martin's Press, New York, 1964. viii + 464 pp. Illus. $17.

It has been more than 25 years since the first edition of this book, by Farkas and Melville, appeared, and it has been out of print since shortly after World War II. During that period the *field* of kinetics has made substantial progress, at least as regards the realization of the high quality of data now demanded for developing and testing theory. The advent of new techniques and the improvement of old ones make this revised edition extremely useful to all workers in the field. Every research student beginning work in kinetics should study it carefully, and experienced workers in the field will find it invaluable as a reference and an aid to memory.

The first chapter, "Kinetic theory of gases," gives an excellent summary of facts and equations which we wish we could remember but never quite do. It will be extremely useful to the person trying to write papers.

The second chapter, "Apparatus for control of pressure," covers pumps, valves, seals, pressure gauges, and various kinds of manometers. Although the research man often finds that he must either devise his own methods or revise old ones, the chapter will serve as a very useful guide to the various types of apparatus. The same may be said for the chapter on the measurement and control of temperature.

Chapter 4, "Preparation of gases and volatile compounds," and chapter 5, "Analysis of gases," give a large amount of useful information, much of it about methods unknown 25 years ago. The section on chromatographic methods is particularly valuable.

Chapter 6, "Photochemical techniques," is perhaps not as good as some of the others, although it will be extremely useful to the beginner in the field. This chapter might lead one to infer, for example, that Beer's Law is very useful, without special care, in the gas phase. In fact, for most photochemical systems, truly monochromatic light is unattainable, so that not only is Beer's Law not obeyed but the character of the principal absorption may change with pressure. The pitfalls encountered here and in mixtures of two absorbing gases could well have been discussed more fully.

The last chapter, "Further features of apparatus assembly and techniques in gas reactions," contains a lot of useful hints and is well worth reading.

This little book is, therefore, an extremely useful addition to the field of reaction kinetics. I can only express the regret in retrospect that something equally good for its day was not available when I began work in the field.

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Protozoology

Protozoa: The Simplest of All Animals. Richard P. Hall. Holt, Rinehart, and Winston, New York, 1964. 122 pp. Illus. Paper, $1.28; cloth, $2.50.

This book, which is directed primarily at high school students, is divided into four main chapters: "Structure of protozoa," "How protozoa live," "How protozoa reproduce," and "Protozoa as members of communities." To these chapters, an outline of classification is appended. The running text is easy to read and informative. The section on nutrition of protozoa includes some interesting and rather recent findings apparently not other-