Geometry revisited, by H. S. M. Coxeter and S. L. Greitzer. Volume 19 of the "New Mathematical Library", Random House, 1967. $1.95.

This is the latest in a series of books written by mathematicians but designed to be read by High School students and laymen. According to the opening epigram

> "He who despises Euclidean geometry is like a man who, returning from a foreign part, disparages his home".
>
> (H.G. Forder)

The purpose behind this book is to revisit many of those parts of Euclidean geometry which are now largely forgotten. The result is a collection of beautiful geometric theorems which should arouse the interest of any student of mathematics. Surprisingly, some new material is found in Chapter 5 concerning inversive distance and mid-circles. (See H. S. M. Coxeter "Inversive Distance", Annali di Matematica Pura ed Applica Vol. 71 (1966), 73-83).

The first chapter discusses many points, lines, triangles and circles connected with a general triangle. Familiar are the orthic and medial triangles; more obscure are the pedal points, ninepoint circle, and Euler line.

Chapter 2, "Some Properties of Circles", first discusses the standard results of coaxal circles and the radical axis, then delves into less well-known material such as Cevians, orthocentric quadrangles, and Simson lines (of a triangle). It concludes with a neat proof of "Morley's Theorem".

Chapter 3, "Collinearity and Concurrency", is a treasure trove of fascinating classical theorems. The standard incidence theorems of Menelaus, Desargues, Pascal and Brianchon are discussed, and a hint given of their importance for projective geometry. But how many have heard of Napoleon triangles, or of a formula for cyclic quadrangles by the seventh century Hindu mathematician Brahmagupta?

A more modern chapter follows, dealing with transformation groups of the plane, with an excellent description of Euclidean isometries and similarities. Although much of this is readily accessible in Chapters 3 and 5 of Coxeter's "Introduction to Geometry" (Wiley, 1965), we find here some fascinating applications, such as the "Three Jug Problem": to divide a liquid into stated portions with apparently inadequate measuring devices.

Chapter 5, "An Introduction of Inversive Geometry", discusses inversion in a circle and orthogonality properties of circles. A new addition is a discussion of separation in connection with circles, and the above-mentioned new material on inversive distance and mid-circles.

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The book concludes with a chapter entitled "An Introduction to Projective Geometry" which motivates, in the Euclidean plane, the projective concepts of duality and polarity. The last paragraph is particularly interesting: a comparison of the real projective and inversive planes considered as extensions of the Euclidean plane; the former is motivated by gnomonic projection, the latter by sterographic.

Good problems are distributed throughout the book; hints and answers as well as a glossary of technical terms are provided at the end. Like most of Professor Coxeter's books, delightful quotations are found under all chapter headings.

C. W. L. Garner, Carleton University

Mathematics of Choice: How to count without counting, by Ivan Niven. Random House, New Mathematical Library No. 15. 1965. xi + 202 pages. $1.95.

This is a very readable book on elementary combinatorial theory, suitable for high school juniors and laymen. There are many illustrative examples. While the book is a valuable contribution to the popular mathematical literature, the more serious reader should be forewarned that the subject matter is not indicative of current research in combinatorics. Only counting problems are considered, and virtually all results mentioned were known well before 1850. A large number of problems and solutions are provided, few of them challenging. College students will probably find the pace too slow, certainly slower than most other books of the series.

W.G. Brown, McGill University

Lectures on rings and modules, by J. Lambek. Blaisdell Publishing Co., Waltham, Massachusetts, 1966. viii + 184 pages. $8.50.

This outstanding book deserves a place on the library shelf alongside Jacobson's classical Structure of Rings. The overlap in material in the two books is surprisingly small. Prof. Lambek's goal seems to have been to bring the reader to the frontiers of research into problems of rings of quotients by the shortest route consistent with clarity and motivation.

Chapters 1 and 3 deal with the basic tools of ring theory and a development of the classical structure theory. Chapter 2 is mainly an exposition of the theory of rings of quotients for commutative rings. The high point of the book is chapter 4, an account of the work of Goldie, R.E. Johnson, Faith, Utumi and the author on classical and complete rings of quotients. The final chapter is a brief but excellent introduction to homological algebra. It is a pity that this chapter was not developed

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