Outline of the History of Mathematics. By Raymond Clare Archibald. Brooklyn,
   The Society for the Promotion of Engineering Education, 1932. 53 pp.

This *multum in parvo* of mathematical history forms No. 18 in the Selected
Papers of the Summer School for Engineering Teachers issued by the Society
for the Promotion of Engineering Education. It is reprinted from the Journal
of Engineering Education (New Series, vol. 22, pp. 246–298, Dec., 1931) and
consists of two lectures delivered before the Mathematical Session of the Sum-
mer School for Engineering Teachers at the University of Minnesota, August
31 and September 1, 1931.

The first lecture, History of Mathematics before the Seventeenth Century,
covers a period of about 5000 years and the second, History of Mathematics
after 1600, a period of about 300 years. The author accurately characterizes
the work (p. 1) as an attempt "to give indications of the development of
mathematics before the nineteenth century, and to refer briefly to some de-
velopments of the nineteenth century in connection with topics usually dis-
cussed at undergraduate colleges. Chinese and Japanese mathematics are not
considered in such a skeleton survey, and the reference to mathematics of the
Hindus is brief."

Since summaries and outlines are, of necessity, quite general in their nature
and usually prepared to meet the needs of beginners in the field, it might be
supposed that good ones are easily written. The opposite is the case. The prep-
aration of a scholarly outline requires a large range of information, good judg-
ment in selection of material, patience in checking carefully many details, and
familiarity with the results of recent research. Fortunately, the author of this
outline measures up to these qualifications. The reader may rest assured that
he will find material well selected and carefully documented and that he will
not find repetitions of errors which have, all too often, persisted in general
secondary works long after research workers had published corrections.

                                                          U. G. MITCHELL

*Vorlesungen über einige Klassen nichtlinearer Integralgleichungen und Integro-
   differentialgleichungen nebst Anwendungen.* By Leon Lichtenstein. Berlin,
   Julius Springer, 1931. x+164 pp.

This monograph contains extremely rich material and introduces the
reader into many theories of high importance. It represents a modified and
magnified reproduction of a course of lectures delivered in 1931 by invitation
at the University of Lwów. The first chapter (Nichtlineare Integralgleichungen
im kleinen) contains an existence and uniqueness proof for a general class of
non-linear integral equations, which includes that treated in well known papers
by E. Schmidt as a special case. Instead of Schmidt's power series expansions
the author consistently and successfully uses an elaborated method of succes-
sive approximations. Special attention is given to the investigation of the case
of ramification (Verzweigungsfall) which plays a fundamental role in the theory
and in its applications. Various extensions (for example, to integro-differential
equations, systems of integral and integro-differential equations, etc.) are
briefly treated. Chapter 2 gives immediate applications of the preceding
theory to various problems of mathematical physics and partial differential