Das Prinzip der Kleinsten Wirkung von Leibniz bis zur Gegenwart. By Adolf
Kneser. (Vol. IX of the Wissenschaftliche Grundfragen, edited by R.
Hönigswald.) Leipzig, Teubner, 1928. 70 pp.

The principle of least action is treated in this little book from an historic
and philosophic point of view. While the formulation of the concept "action"
varies as it is applied in one field or another, the fact that it is possible to en-
visage a great diversity of natural phenomena as solutions of problems which
ask for the minimum or maximum of the "action integral" presents the philo-
sopher with a remarkable opportunity for speculations concerning unity and
harmony in nature. And this opportunity has been eagerly seized. Beginning
with an account of the way in which the idea of the least-action principle took
root in the work of Leibniz, the author traces its development by Leibniz,
Euler, Helmholtz, and Planck. The contributions made by Maupertuis, after
whom the principle is frequently named, are put in relation to those of Leib-
niz and Euler; and the work of the erstwhile president of the Prussian Academy
of Sciences, as far as it is concerned with the least-action principle, is not
deemed of great value. Besides, it seems that priority for a formulation of the
principle belongs to Leibniz rather than to Maupertuis "who indeed never
succeeded in reaching an exact formulation of his principle nor in making a
single correct application of it."

Of great interest are the connections which the author establishes between
this principle and the studies on the bases of science made by various philoso-
phers. There are numerous quotations from Kant's *Critique of Judgment*, to
whose ideas on the nature of the cosmos the principle of least action is shown
to bear important relations.

If this principle is to be regarded as of general significance in the physical
universe, there is opened up an alluring field for speculation. For in its char-
acter as a principle of natural economy it is, at least superficially, in striking
contrast with the prodigality which characterizes the organic world.

The collection of monographs of which the book under review is one, is
a valuable aid in the study of fundamental questions in a wide variety of fields
of knowledge.

ARNOLD DRESDEN

Integralgleichungen, unter besonderer Berücksichtigung der Anwendungen. By
G. Wiarda. Leipzig and Berlin, B. G. Teubner, 1930. ii+183 pp.

This small book of five chapters is intended as a simple introduction to the
theory of integral equations. Its announced purpose is to inspire the interest
of the student of pure mathematics and to be of use to the student of applied
mathematics. The book treats exclusively the Fredholm equation of the sec-
ond kind and centers upon the Schmidt theory as most directly adapted to the
applications. The exposition is elementary and should be readable to the stu-
dent versed in the calculus and the fundamentals of the theory of infinite series.
The author does not disdain at opportune points to illustrate his deductions by
calculations in specific examples.

The compass of the book is small and the treatment accordingly affords few
digressions from the central theme into related fields. Even the relation be-