DEDEKIND'S WORKS, VOLUME I

Richard Dedekind. Gesammelte mathematische Werke. Herausgegeben von
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Friedr. Vieweg & Sohn, 1930. 397 pp.

Richard Dedekind's 85 years (1831–1916) spanned one of the most fruitful
periods in the history of mathematics. His dissertation is dated at Göttingen
in 1852, about two years before the death of Gauss, and he lived to see Ein-
stein's theory of general relativity and gravitation. The peer of his great
contemporaries, Dedekind was probably less widely known than any of them.
Those whose inclinations led them to inspect his more abstract creations recog-
nized the greatness of the work, but by the general public, even among leading
mathematicians, the most characteristic products of Dedekind's genius were
neglected. For it was and still is possible to be a highly competent mathe-
matician without ever having heard of the theory of ideals. This needs
but slight qualification even when account is taken of the infiltration of
modern arithmetical concepts into the theory of algebraic functions and other
branches of mathematics; the ideas of the theory, but scarcely the theory itself,
are achieving a certain measure of popularity for what it may be worth.

Dedekind's material career seems to have been strangely like his master-
piece; he never occupied one of the great chairs in his native country or else-
where. And it would be difficult to find anywhere a more superb illustration
of the usual idiotic logic of history than in the rise of Dedekind's popular
scientific reputation. For one mathematician who knows his way about in the
Dedekind theory of ideals, there are probably hundreds who have been familiar
with the Dedekind cut from their youth up. The thing is notorious; every tyro
is indoctrinated with it in his advanced calculus. And now, according to the
customary irony of time, this cut, for which Dedekind is hundreds-to-one more
famous than for his work in algebraic numbers, seems to be turning into some-
thing like a very bad pun, for it is a schism in the official faiths of analysis
and a prolific source of interminable polemics. Dedekind himself is said to have
hesitated nearly two years before committing it to print.

This first volume of his collected works contains 19 papers in chronological
order from 1852 to 1882. According to the editorial plan, the memoirs shall
occupy the first two volumes, while the two essays on number (as they are
known in America) and the expository French account of the theory of
algebraic numbers (Darboux' Bulletin) are reserved for the third volume. This
will no doubt appeal to most as a wiser arrangement than a strict adherence
to chronological order. The essential parts of the famous supplements on
general arithmetic in the second, third and fourth editions of Dirichlet's
Zahlentheorie are to be reproduced. A life of Dedekind is also promised for the
third volume. The printing is beautifully done on good, restful paper.

The editing of the present volume has been carried through with unusual
care, and with some features of marked interest not often found in collected
mathematical works. At the end of each of the more fundamental papers, the
responsible editor has added short, helpful notes. These are roughly of three
kinds: brief historical indications relating Dedekind's work to that of others;
incisive criticism—in the reputable, relevant sense; references to important