

BULLETIN OF THE
AMERICAN MATHEMATICAL SOCIETY.

A CONSPECTUS OF THE MODERN THEORY OF
DIVERGENT SERIES.*

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It will doubtless be recalled by all here present that the first volume of the encyclopedia of mathematics, as originally published in German, was issued in hefts, or parts, each prepared by a special collaborator well qualified for his task. The completion of the volume occupied a period of about six years and resulted in a finished work of no less than 1,128 pages. This was followed some years later by the second volume, which was still larger, containing in all its parts 1,154 pages. The two volumes taken together were intended to cover the entire range of pure mathematical analysis (as distinguished from geometry, mechanics, and other applications), each important branch being treated in its essentials and the amount of space allotted to any one topic being proportionate, at least roughly, to its relative importance. Out of the grand total of 2,282 pages thus presented it may now be remarked that a little less than 7 pages were devoted to that particular topic specified as "divergent series." Thus we have a ratio of 7 to 2,282, or about three tenths of one per cent, which may fairly be taken as the measure of interest in this topic at the time when the encyclopedia began to appear; that is, in the neighborhood of twenty years ago. The 7 pages in question, as we come to examine them, seem directed mainly to showing by means of simple illustrations that the processes by which Euler arrived at certain noteworthy results while

* Address of the retiring chairman of the Chicago Section of the American Mathematical Society, read at the joint meeting of the Section and of the Mathematical Association of America at Chicago, December 28, 1917.