general theory of Schmidt is presented. The theory is summarized in ten fundamental
theorems, five of which are stated without proof. The proofs which are given are
sometimes intentionally lacking in rigor, in order to achieve brevity for a class of
readers more interested in applications than in mathematical logic. Where such gaps
have been allowed, the author gives references to other sources.

The second part follows less exactly the original lectures. It is concerned chiefly
with the method of Fredholm and includes a brief mention of singular kernels and
non-linear integral equations.

W. R. LONGLEY

A Treatise on the Analytical Dynamics of Particles and Rigid Bodies with an Intro­
duction to the Problem of Three Bodies. By E. T. Whittaker. 4th edition. Cam­

This excellent text has been reviewed three times in this Bulletin as follows:

The present edition is identical with the third except that a few errors have been
corrected and the references have been brought more nearly up to date.

The account of the problem of three bodies is indeed brief and will be difficult reading
for one not already acquainted with the subject. One wonders whether the author
has read some recent papers on the problem of three bodies which have appeared in
American journals, particularly those which discuss the stability of the equilateral
triangle positions for three finite masses. In this connection it may be remarked that
the references to recent American papers are incomplete, but this does not detract
from the merit of the text, which this reviewer regards as the best in its field in the
English language.

H. E. BUCHANAN

Teoria Dinamica dei Regimi Fluidi Turbolenti. By G. D. Mattioli. Padua, Milani,

In this work, which consists largely of a development of ideas put forward by
Mattioli in fifteen papers published in Italian journals and in the Comptes Rendus,
the leading idea is that a turbulent mass of fluid consists more or less of discrete ele­
ments which mix chaotically, an element being regarded as having both linear mo­
mentum and angular momentum about its center of mass. Such a gyrostatic element
is supposed to have an ephemeral existence, and its momentary separation from the
main body of fluid leads to a local state of instability of flow.

With the aid of these gyrostatic elements of finite size and notions that are gener­
ally accepted, equations are set up and then a limiting process is used which Karman
thinks is not quite clear, as it seems to eliminate the finiteness of size on which the
angular momentum depends. Mattioli has, however, recently written to Karman,
explaining his views more fully. In the second part of the book the equations are
applied in an able manner to the standard problems of turbulence such as jets, flow
through a straight pipe, and flow round a curved channel. In the last case a compari­
on is made between the theoretical results and some measurements made at Pas­
dena by Wattendorf.

Among the results of mathematical interest may be mentioned the occurrence of
special functions such as the incomplete gamma function, the dilogarithm, and a func­
tion defined by an indefinite integral with respect to \( t \) in which \( Ce^{at} - t \) appears in the
denominator.

Harry Bateman