94 [Q, S].—GARRETT BIRKHOFF AND R. E. LANGER, Editors, *Proceedings of Symposia in Applied Mathematics*, Vol. IX, "Orbit Theory," (Proceedings of the Ninth Symposium In Applied Mathematics of the American Mathematical Society, held at New York University April 4–6, 1957, cosponsored by The Office of Ordnance Research, Ordnance Corps, U. S. Army) American Mathematical Society, Providence, R. I., 1959, v + 195 p., 26 cm. Price $7.20.

The purpose of the book is, paraphrasing the words of the editors, to direct the attention of mathematicians to recent advances in celestial mechanics and, more importantly, to inform them of the problems that remain to be solved. Celestial mechanics owes its present form very largely to analysis, as it was developed in the eighteenth and nineteenth centuries. Whether modern mathematics can contribute anything important to the subject is a question that has hardly been explored, and it is high time that it should be.

Of the ten contributions by as many authors the first three deal with the motions of particles in magnetic fields, the remaining seven with motions of particles in gravitational fields. The magnetic fields considered are those in particle accelerators, in the galaxy, and about a laboratory model of the earth. The gravitational fields are principally those of the earth and of the solar system, although one paper deals generally with the field about any massive particle, and one with a general planetary system.

The various contributions are very uneven, ranging from rather trivial special applications of general formulae, through adaptations and modifications that are not trivial, to some important original contributions, both general and particular. Some authors describe what they have done themselves, some what others have done, and some what has not been done. Brouwer, Courant, and Olbert give special attention to unsolved problems; the references will be valuable to a mathematician not previously acquainted with their subjects. Herget and Eckert deal with practical computation.

<div style="text-align: right">G. M. CLEMENCE</div>

U. S. Naval Observatory
Washington, D. C.

95[X].—RUDOLPH E. LANGER, Editor, *Boundary Problems in Differential Equations*, Proceedings of a symposium conducted by the Mathematics Research Center, University of Wisconsin, Madison, Wisconsin, The University of Wisconsin Press, Madison, 1960, x + 324 p., 24 cm. Price $4.00.

This volume contains the nineteen papers presented at the symposium on 'Boundary Problems in Differential Equations" conducted by the Mathematics Research Center at Madison, Wisconsin during the period April 20–22, 1959. The papers are quite varied in nature and subject matter, as is clear from the table of contents given below:

Boundary Problems of Linear Differential Equations Independent of Type
  K. O. Friedrichs, Institute of Mathematical Sciences, New York University
Numerical Estimates of Contraction and Drag Coefficients
  Paul R. Garabedian, Stanford University