

## The Friction and Lubrication of Solids *Part II*

By F. P. BOWDEN and D. TABOR. Exploring frictional behavior of the adhesion mechanism for metals and, with modification, for non-metals, the authors show that energy loss by surface deformation may contribute considerably to total friction loss, particularly when adhesion contribution is small. They also deal with recent experimental studies of surface structure and topography, the adhesion of molecularly smooth surfaces, friction and adhesion in high vacuum, the effect of surface imperfections on bulk strength, the structure, orientation, and lubricating properties of surface films, the behavior of lamellar solids, and friction at great solid speeds. *International Series of Monographs on Physics*.

544 pages; 40 half-tones. \$13.45

## The Two-Nucleon Interaction

By MICHAEL J. MORAVCSIK. Complete in its major outline of nucleon-nucleon scattering as related to forces between two nucleons, this condensed picture of the present state of knowledge of the two-nucleon interaction assumes a general knowledge of quantum mechanics and rudimentary field theory. Part A deals with experiments and the description of their results. Part B covers such matters as meson theory, pion potentials, structure of dispersion relations, applications of the one-pion exchange singularities, and the role of heavy mesons. *Oxford Library of the Physical Sciences*.

50 text figures. Paper, \$2.90

**Oxford University Press**  
**New York**

*Journal of Spacecraft and Rockets* and the *Journal of Aircraft*. The third new publication, the *AIAA Bulletin*, will contain abstracts of papers presented at AIAA meetings, meeting announcements, and programs. The two journals appear bimonthly, and the *Bulletin* is a monthly.

The recent additions bring the total of AIAA periodicals to five. Publication of *Astronautics & Aeronautics*, a magazine containing interpretive articles, and of the *AIAA Journal*, which carries the most noteworthy research and development papers in the aerospace field, will continue.

The editor of the *Journal of Spacecraft and Rockets* is Gordon L. Dugger of the Johns Hopkins Applied Physics Laboratory. The *Journal of Aircraft* is edited by Carl F. Schmidt of the Flight Safety Foundation.

### Historical Ephemeris

The recent publication of the volume, *Planetary, Lunar, and Solar Positions: A.D. 2 to A.D. 1649*, completes a project undertaken by Bryant Tuckerman of the International Business Machines Corporation to provide tables of positions of the sun, moon, and naked-eye planets, covering the period from 601 B.C. to the time of Kepler. The first volume of the work, subtitled *601 B.C. to A.D. 1*, appeared in 1962. Both volumes are published by the American Philosophical Society of Philadelphia.

The tables list the tropic celestial latitudes and longitudes of Saturn, Jupiter, Mars, and the Sun (longitude only since its latitude is always zero) at ten-day intervals. For the Moon, Venus, and Mercury, the information is listed at five-day intervals. The first date given is January 3, 601 B.C., and the last is December 31, 1649 A.D. The Julian calendar is used throughout. The positions are calculated for 7:00 P.M. local time on the 45th meridian east of Greenwich. (At one point this is designated BCT, Babylon Civil Time.) An introduction gives methods of interpolation for unlisted dates and hours and of correction for other geographical locations.

In a preface appended to the first

volume, Otto Neugebauer remarks on the usefulness of the tables: "Their significance reaches far beyond an insight into the early development of astronomy. The recovery of great masses of detailed eclipse records, accurate data for phenomena like occultations, etc., will eventually give reliable early elements for the testing of empirical constants related to the problem of secular acceleration."

"The possibility of accurate dating of month-by-month recorded meteorological remarks (clouds, storms, floods, and river level) will place the discussion of climatic changes in ancient Mesopotamia on a solid foundation. Quotations of prices, references to epidemics, to historical and military events, etc., are contemporary records which can be dated precisely, thanks to the astronomical context in which they are embedded."

The work was begun at the Institute for Advanced Study in Princeton and later moved to IBM. The computation for the first volume was done on an IBM 704; for the second, an IBM 7094 was used. The two volumes are available separately; the first at \$4.00 and the second at \$7.50, from the American Philosophical Society, Independence Square, Philadelphia, Pa.

### Publishers Merge

The stockholders of Scientific American, Inc., publisher of the magazine *Scientific American*, and W. H. Freeman and Company, a San Francisco textbook publisher, have approved the merger of the two companies. Under the terms of the agreement, which was made public recently by Gerard Piel, president of Scientific American, and Stanley Schaefer, president of W. H. Freeman, the Freeman organization will continue its book-publishing activities as a wholly-owned subsidiary of Scientific American, Inc., under the direction of Mr. Schaefer and other members of its present management. The Freeman colophon will continue to appear on all its books. The Freeman company was founded in 1946. It publishes books on the life sciences, agriculture, chemistry, geology, mathematics, physics, and the philosophy of science.