



THEORY OF LUBRICATION

WITH APPLICATIONS TO LIQUID- AND GAS-FILM LUBRICATION. *Nicolae Tîpei*. New material and a new chapter on lubrication in turbulent flow have been provided for the first English edition of this masterwork. Illustrated with over 200 line drawings and graphs. *November*. About \$15.00

THE INFLUENCE OF TEMPERATURE ON THE MECHANICAL PROPERTIES OF METALS AND ALLOYS

E. M. Savitsky. Edited by *Oleg D. Sherby*. Much of the author's presentation is new and original and heretofore not available in English. An excellent reference for research metallurgists, physicists, rheologists, mechanical engineers, and materials specialists *August*. About \$8.50

DISSERTATIONS IN PHYSICS

AN INDEXED BIBLIOGRAPHY OF ALL DOCTORAL THESES ACCEPTED BY AMERICAN UNIVERSITIES, 1861-1959. Part I is an alphabetical author listing with bibliographical information; Part II a permutation subject index produced on the IBM 704 Computer. *June*. About \$12.50

ASYMPTOTIC METHODS IN THE THEORY OF NONLINEAR OSCILLATIONS

N. N. Bogoliubov and Iu. A. Mitropolskii. Translated by *Paula L. Fern*. Edited by *Morris Weisfeld*. This treatise unifies and generalizes a number of diverse special methods, and each method is illustrated by a number of examples drawn from engineering problems. Mathematical appendix, graphs, diagrams. *November*. \$12.50

PROCEEDINGS OF THE 1961 HEAT TRANSFER AND FLUID MECHANICS INSTITUTE

Edited by *Raymond C. Binder, Robert L. Mannes, H. Y. Yang, and Melvin Epstein*. The latest technical and scientific advances in thermodynamics, fluid mechanics, and related fields are presented in these papers to be given at the 1961 meetings of the Institute. *June*. \$8.50

Order from your bookstore, please

STANFORD
University Press

1274

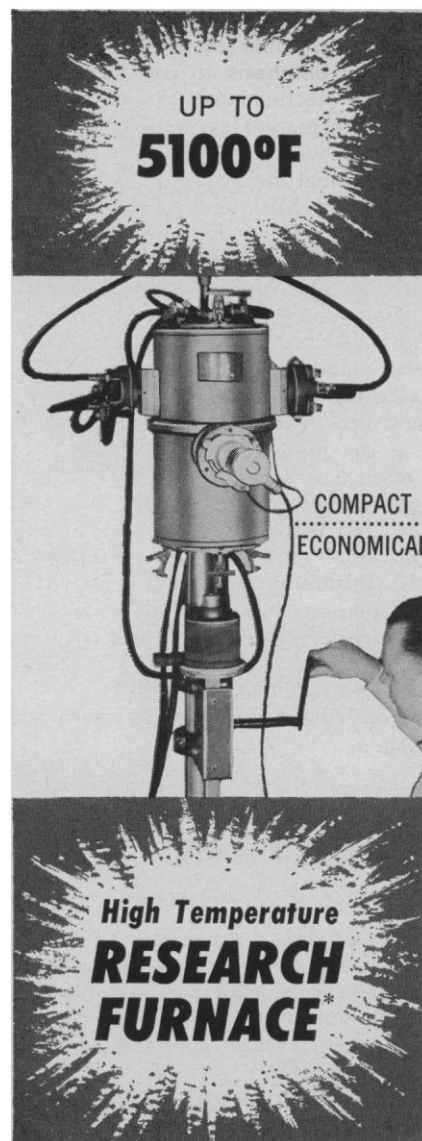
Effective Use of Information

In the course of a study of the U.S. system for handling science and engineering information, the tremendous influence of the educational techniques employed in the training of U.S. scientists and engineers has become very apparent. Radical improvements in the information handling system are hamstrung by the educational system, which turns out a professional scientist or engineer accustomed to acquiring information by the complex, diffuse, and grossly inefficient techniques now in use. Habit patterns thus established in the schools are difficult to change.

The fruits of scientific and engineering discoveries (indeed, their very justification) lie in their application to mankind's daily problems, and the major stumbling blocks in the way of progress are human beings habituated to inefficient methods of acquiring, using, and disseminating information, floundering in an ever-growing morass of technical information. There seems little ground for hope that the flood of technical information will return quietly to its former, confined channels; the volume of published literature is doubling every decade or less. Piecemeal attempts to shore up the present information system will be helpful, but only for a short time. What is needed is a revolution in the training of scientists and engineers, so that their abilities to acquire information of a directly pertinent nature will be multiplied several-fold. I believe the average technically trained man could triple his productivity if he had a more efficient information system at his disposal, and if he were motivated and trained to use it.

It is true that some highly creative research workers on the frontiers of science are productive, even with the present inefficient information system. The numbers of people in these activities are, however, relatively small, and it is conceivable that even their creative productivity could be enhanced by better methods of acquiring and using available information. It is also true that groups of research scientists working with very large, expensive, experimental equipment such as linear accelerators probably know many workers engaged in similar research and exchange information with them informally. While this is true at one period in the history of any development, these frontier areas of science soon become like other well-established areas.

The incentive for a radical improvement in U.S. methods of handling technical information lies, of course, in the need for maximum utilization of the relatively few scientists and engi-



*PATENTED U. S. A.

High Temperature Operation — Up to 5100°F for intermittent use, up to 4800°F for continuous operation.

Extremely Compact — 8" high x 4" diameter working volume contained within a 20" x 10 1/4" unit. Also available, 15" high x 12" diameter working volume contained within a 30 1/2" x 22" unit.

Controlled Atmosphere — Inert gas protects charge and furnace element.

Water-Cooled — Circulation through electrodes, coverplates and outer shell.

Easy Furnace Access — Removable top and bottom covers, with hearth lift mechanism for bottom loading.

Unrestricted Viewing — Inert gas is directed against side and top sight ports to scavenge atmosphere.

Unusually compact and economical laboratory furnaces meet the severe requirements of melting and sintering materials in excess of 4500°F. Curtiss-Wright Research Furnaces feature a specially designed cylindrical graphite resistance element surrounded by a graphite radiation barrier, carbon insulation and aluminum outer shell; mounted on a vertical supporting column for easy access. Equipment and instrumentation is available for any degree of semi-automatic or automatic control.

Systems Engineering Services available

Phone SWinburne 9-0500 or write:

CURTISS WRIGHT
CORPORATION

Princeton Division • Princeton, N. J.

In CANADA: Canadian Curtiss-Wright Ltd., 43 Westminster Ave., N., Montreal 28, P. Q., Canada

neers, in whose hands in large measure lies the national security. The extraordinary emphasis in the U.S.S.R. on training technicians to apply available information is well known. The emphasis which is given by the U.S.S.R. to technical information at the State Council of Ministers' level is also well known (even if it is not so well known that the centralized information structure is performing erratically). The United States was founded to give the individual room for maximum development, and its educational system is based on giving each person an opportunity to develop his or her talents to the maximum extent possible. The United States might well make a large national effort to discover and apply new and better techniques for training individuals in the most effective use of information, and then to devise an information system which can serve these better-developed citizens.

W. T. KNOX

*Esso Research and
Engineering Company,
Linden, New Jersey*

Style Manual for Biological Journals: Approval of Manuscripts

Researchers ordinarily submit manuscripts to their professional journals without prior approval by administrative officers of their institutions; at least this is true in universities. Do editors consider this an undesirable practice and one to be combatted?

The Committee on Form and Style of the Conference of Biological Editors has issued a little book entitled *Style Manual for Biological Journals*. Chapter 3 of this begins, "The author should obtain approval from the responsible official within his institution before submitting a manuscript, to safeguard the interests of all staff members against erroneous or premature publication."

It is true that erroneous and premature publication harms the author and makes his institution ridiculous, but that is a small matter compared with the good effects our present editorial system has on science in general. As a rule, the journals will consider a manuscript regardless of who the author is and will see that it is reviewed by experts. If these men think it is good, it will be published. If they think it is bad, and the author isn't convinced, he can get the manuscript back and try a different journal. It is surprising that editors should undervalue their own role in the scientific process and should seek to legitimize a veto power by presidents, deans, and department heads.

Where administrative censorship is

The "Weigh" to Save with Mettler H Balances..

from



ONE METTLER H-5 can replace 3 conventional balances

Universities tell us that balance rooms, equipped with Mettler H-5 Single-Pan, Direct-Reading Balances, now handle *three times as many students. Faster weighing* allows more time for teaching, too. With enrollment increasing and space at a premium, it will pay you to ask us about the Mettler H-5.



SAVE
TIME!

SAVE
MONEY!

SAVE
SPACE!

Will No. 3314N
Sensitivity 0.5 mg.
Optical Scale 1200 mg.
Capacity 160 grams
only \$650.00

H-15 ANALYTICAL BALANCE cuts weighing time in half!

See for yourself . . . the speed, simplicity and reproducibility of this newest Mettler single-pan balance. Right from the start turn out dependable results faster. Extended optical range means fewer weights to manipulate; new ring weights reduce pan oscillation; Melamine housing insulates against temperature variations.

Ask WILL to show you these H Balances . . . no obligation of course.



Will No. 3316N; Sensitivity 0.1 mg.; Optical Scale 200 mg.; Capacity 160 gms.; only \$770.00.

Specialists in
Scientific Supply



WILL CORPORATION and subsidiaries

- Rochester 3, N. Y. • New York 52, N. Y. • Buffalo 5, N. Y.
- Atlanta 25, Ga. • Baltimore 24, Md. • So. Charleston 3, W. Va.

◀ Reach for your WILL Catalog . . .