EDITORIAL OBJECTIVES

The *Journal of Testing and Evaluation* is published bimonthly by the American Society for Testing and Materials as part of the Testing and Evaluation Series, which includes the *Geotechnical Testing Journal* (published quarterly) and *Cement, Concrete, and Aggregates* (published semiannually). ASTM, a nonprofit organization, develops voluntary consensus standards for materials, products, systems, and services.

The objective of ASTM's *Journal of Testing and Evaluation* is to provide a forum for presenting data derived from the testing and evaluation of materials, products, systems, and services of interest to the practicing engineer. Papers will be accepted on the grounds that they present new techniques or provide new information on existing methods of testing and evaluation, or that they contain new data resulting from testing and evaluation.

The importance of engineering standards to industry, national and international trade, and the protection of the public is now universally recognized. The technical validity of engineering standards—the international vocabulary of practical engineering communication—will be enhanced by continuing advances in methods of testing and evaluation.

Many of the articles appearing in the *Journal of Testing and Evaluation* are specifically presented to provide the basis for new or improved standard methods and to stimulate new ideas. If you have suggestions for possible areas of standardization, please contact Robert L. Meltzer, ASTM Publications, 1916 Race St., Philadelphia, Pa. 19103 (215/299-5430).

EDITORIAL STAFF

Rosemary Horstman, *Managing Editor*
Kathleen A. Peters, *Assistant Editor*
Barbara M. Schindler, *Editorial Assistant*
Robert L. Meltzer, *Vice-President of Publications and Marketing*
M. Bruce Vieth, *Manager of Production*

ASTM OFFICERS

Sydney D. Andrews, *Chairman of the Board*
William A. Goodwin, *Vice-Chairman*
Richard A. Goodemote, *Vice-Chairman and Treasurer*
William T. Cavanaugh, *President*

DIRECTORS

Robert Baboian
G. B. Berchtold
R. L. Booth
C. B. Crawford
W. K. Davis
Paul Finn
D. M. Greason
F. W. Kunz
J. J. McMahon
W. M. Mueller
C. B. Newman
R. E. Philleo
R. G. Redelfs
W. P. Slichter
L. E. Steele
D. A. Swankin
C. H. Tupper
M. V. White

PAST CHAIRMEN

J. G. O'Grady
W. P. Ellis

COMMITTEE ON PUBLICATIONS

J. A. Gilligan, *Chairman*
E. P. Bartkus
D. D. Bly
B. F. Brown
R. C. Deen
J. G. Kaufman
R. E. Philleo
K. L. Reifsnider
Allan Siegel
A. A. Sinisgalli
M. W. Skougstad

The American Society for Testing and Materials is not responsible, as a body, for the statements and opinions advanced in this publication.

Journal of Testing and Evaluation (ISSN 0090-3973) is published bimonthly by the American Society for Testing and Materials as part of the Testing and Evaluation Series, which includes the *Geotechnical Testing Journal* (published quarterly) and *Cement, Concrete, and Aggregates* (published semiannually). Publication office at 428 E. Preston St., Baltimore, Md. 21202. Editorial office at the Headquarters of the Society, 1916 Race St., Philadelphia, Pa. 19103. Subscriptions: For 6 consecutive issues $24.00 ($19.00 to ASTM members). Single copies, $6.00. *Journal of Testing and Evaluation* is indexed regularly by Engineering Index, Inc., and is available on microfilm from University Microfilms, a Xerox Co., Ann Arbor, Mich. Second class postage paid at Baltimore, Md. and at additional mailing offices. Copyright 1981 by the American Society for Testing and Materials.

Permission to Copy. The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per-copy fee through the Copyright Clearance Center, Inc., Operations Office, P.O. Box 765, Schenectady, N.Y., 12301, for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. (The per-copy fee appears as the last four digits of the code at the bottom of the first page of each article.) This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Further information may be obtained from the Copyright Clearance Center's Administrative Office, 310 Madison Ave., New York, N.Y. 10017 (212/697-2525).

Postmaster: Send Form 3579 to Subscription Dept., ASTM Headquarters, 1916 Race St., Philadelphia, Pa. 19103.

Change of Address: Please return entire addressing label on wrapper to *Journal of Testing and Evaluation*, P.O. Box 64106, Baltimore, Md. 21264, along with new address.

Copyright © 1981 by ASTM International

Information for Authors

Contributions to the *Journal of Testing and Evaluation* are subject to peer review, in accordance with the policy established by the ASTM Committee on Publications. Papers are reviewed on the basis of the inclusion of experimental data or mathematical derivations, or both, either as original work or as needed to confirm the theoretical conclusions or proposals, and their contribution to the permanent literature. The subject matter must not be of a speculative nature and the contents must not include materials of an advertising nature. The paper must not be seriously defective as to literary form and structure, continuity of thought, and clarity of expression. The substance of the paper must not have been published previously in the open literature.

Authors preparing papers for submittal should observe the conventions of style explained in the ASTM Style Manual. Since the journal does not request page charges, the author is expected to conform to these standard conventions for style. SI units are to be used throughout; if data were not measured in SI units, a note should appear to that effect and the original units should be included in parentheses after the SI units.

The original manuscript and three clear copies, including original illustrations, should be submitted to Rosemary Horstman, Managing Editor, Technical Journals, ASTM, 1916 Race St., Philadelphia, Pa. 19103.

General Information

This publication is one of many issued by the American Society for Testing and Materials in connection with its work in promoting knowledge of the properties and performance of materials, products, systems, and services, as well as in developing standard specifications and test measurement techniques to establish their value. Much of the information results from the voluntary contributions of many of the country's leading technical authorities from industry, scientific agencies, and government. A list of ASTM publications and information on the work of the Society will be furnished on request.

In Appreciation

The high quality of the papers that appear in this publication is a tribute not only to the obvious efforts of the authors represented but to the unheralded, though essential, efforts of their reviewers. It is to the reviewers' dedication to upholding the high standards of their profession that this note pays tribute. On behalf of the Society and the authors as well, we acknowledge with appreciation their important contribution to the success of this journal.