

JOURNAL
OF THE
Tennessee Academy of Science

VOLUME XLVI

NUMBER 3

CONTENTS

- Norris Reservoir Fertilizer Study. I. Effects of Fertilizer on Food Chain Organisms and Fish Production. Carl E. Wood and Tommy L. Sheddan 81
- Norris Reservoir Fertilizer Study. II. Effects of Thermal Stratification and Nutrient Availability on the Productivity of Reservoir Phytoplankton. Mahlon P. Taylor and Eugene B. Welch 90
- Seed Dormancy and Germination in *Leavenworthia stylosa* (Cruciferae). Rhona D. Zager, Elsie Quarterman and E. Douglas Waits 98
- The Pulp and Paper Industry in Tennessee. William W. Chester102
- Petrography of a Basement Granite from Central Tennessee. Ralph M. Perhac105
- Cave and Spring Fishes of the Southern Bend of the Tennessee River. James G. Armstrong and James D. Williams107
- A Beer's Law Test for Charge-Transfer Absorption Spectra. D. D. Holder and C. C. Thompson, Jr.115

JULY, 1971

JOURNAL

OF THE

Tennessee Academy of Science

EDITORIAL STAFF

GUS TOMLINSON, *Editor*, George Peabody Coll., Nashville 37203
 BERNARD W. BENSON, *High School Science-Mathematics Editor*, The Univ. of Tennessee at Chattanooga 37401
 BRYANT BENSON, *Medical Sciences Editor*, The Univ. of Tennessee, Memphis 38103
 JAMES D. CAPONETTI, *Botany Editor*, The Univ. of Tennessee, Knoxville 37916
 FREDERICK L. CULP, *Physics-Astronomy Editor*, Tennessee Technological Univ., Cookeville 38501
 JAMES B. DELANO, *Engineering Editor*, 301 Park Circle, Tullahoma 37388
 ROBERT G. LITCHFORD, *Zoology Editor*, The Univ. of Tennessee at Chattanooga 37403
 STUART W. MAHER, *Geology-Geography Editor*, Tennessee Division of Geology, Knoxville 37919
 JAMES STACK, *Mathematics Editor*, Austin Peay State Univ., Clarksville 37040
 WILLIAM H. ZUBER, JR., *Chemistry Editor*, Memphis State Univ., Memphis 38111

All articles and communications for publications, books, and publications for review, should be addressed to the Editor.

New subscriptions, changes of address and applications for membership should be addressed to the Secretary. Personal items, news of events in the scientific world, and other notes suitable for the "News of Tennessee Science" department should be addressed to the News Editor.

Published quarterly, in January, April, July and October, by the Tennessee Academy of Science at Box 153, George Peabody College, Nashville, Tennessee 37203.

The JOURNAL is sent to all members not in arrears for dues. The subscription price is \$5.00 a year, invariably in advance. Single copies \$1.25.

Second Class Postage Paid at Nashville, Tennessee.

THE TENNESSEE ACADEMY OF SCIENCE

(Founded 1912, at Nashville, Tennessee)
 Affiliated with the American Association
 for the Advancement of Science

Affiliated Societies

Tennessee Ornithological Society, Nashville, Tennessee
 Barnard Astronomical Club, Nashville
 Tennessee Science Teachers' Association
 Tennessee Psychological Association

Officers

RICHARD J. RARIDON, *President*, ORNL, Oak Ridge 37831
 ARTHUR W. JONES, *President-elect*, Univ. of Tennessee, Knoxville 37916
 GUS TOMLINSON, *Editor*, George Peabody Coll., Nashville 37203
 JAMES D. CAPONETTI, *Secretary*, Univ. of Tennessee, Knoxville 37916
 ROBERT WILSON, *Treasurer*, Univ. of Tennessee at Chattanooga, Chattanooga 37403
 WILLIAM F. NELSON, *Director*, Reelfoot Lake Biol. Sta., Univ. of Tennessee at Martin, Martin 38237

This journal is abstracted by Biological Abstracts and Chemical Abstracts, and indexed by Science Citation Index.

Executive Committee

JOHN H. BAILEY, East Tennessee State Univ., Johnson City 37602
 JAMES D. CAPONETTI, Univ. of Tennessee, Knoxville 37916
 ARTHUR W. JONES, Univ. of Tennessee, Knoxville 37916
 JOE MINOR, State Dept. of Education, Nashville
 WILLIAM F. NELSON, Univ. of Tennessee at Martin, Martin 38237
 JOHN G. PARCHMENT, Middle Tennessee State Univ., Murfreesboro 37130
 RICHARD J. RARIDON, ORNL, Oak Ridge 37831
 ROBERT F. SEARS, Austin Peay State Univ., Clarksville 37040
 RAYMOND L. TANNER, Univ. of Tennessee Medical Units, Memphis 38103
 GUS TOMLINSON, George Peabody Coll., Nashville 37203
 JAMES L. WILSON, The Univ. of Tennessee Nashville Center, Nashville 37203
 ROBERT WILSON, The Univ. of Tennessee at Chattanooga 37403
 A. PAUL WISHART, The Univ. of Tennessee, Knoxville 37916

NOTICE TO AUTHORS

Papers submitted for publication in the JOURNAL may be sent to any member of the editorial staff. Manuscripts must be approved by the Editor and the appropriate Section Editor before publication. Manuscripts should be typewritten, double or triple spaced, with wide margins, and with legends for figures typed on a separate page. Recent issues should be consulted with regard to matters of style. Each table should be placed on a separate sheet. Footnotes should not be used except very rarely. Greek letters and symbols should be avoided as much as possible.

Each paper should be supplied with an abstract not to exceed 250 words.

Photographs (black and white glossy prints) may be accepted as illustrations; however, line drawings and diagrams are preferable. Drawings should be made in India ink on white paper or Bristol Board. An article containing more than 2 illustrations can be published only with financial cooperation of the author.

A per page charge of \$10.00 will be made to industrial contributors.

A blank form for ordering reprints from the printer is enclosed with the galley proof. The cost of reprints is as follows:

	2	4	8	12	16
	pages	pages	pages	pages	pages
100 copies	\$12.00	\$20.00	\$38.00	\$47.00	\$56.00
Ea. add. 100	2.00	3.00	8.50	12.25	16.00

The Tennessee Academy of Science is very anxious to include in its membership all teachers and professors of science, research workers in science both in educational institutions and industrial establishments, and all others who are interested in some phase of science.

The annual dues are \$5.00 for members except teachers below the college level, whose dues are \$3.00, and \$10.00 for sustaining members. Dues may be sent direct with your application for membership to the Secretary.