

JOURNAL
OF THE
Tennessee Academy of Science

VOLUME XLIX

NUMBER 1

CONTENTS

	Page
Report of the Director of the Reelfoot Lake Biological Station Wintfred L. Smith	1
A View on the Origin of a Modern State Clifton C. Carpenter	2
Semiprime Goldie Rings Satisfy the Invariant (Quasi-) Basis Property James C. Pleasant	8
A Taxonomic and Ecological Study of Some Algae in Two Ponds in South Shelby County, Tennessee Martha Powell Brown	9
Earth Science Teacher Preparation: A State-Wide Perspective R. Jerry Rice and James X. Corgan	10
Immature Stages of Some Eastern Nearctic Tabanidae (Diptera). V. <i>Stenotabanus (Aegialomyia) magnicallus</i> (Stone) James C. Goodwin	14
Checklist, Distribution and Key to the Lumbricidae in Tennessee John W. Reynolds	16
Some Aspects of the Autecology of <i>Bupleurum rotundifolium</i> in Tennessee Cedar Glades Jerry M. Baskin and Carol C. Baskin	21
Undergraduate Research: It Can Be Done in a Liberal Arts College Carl Tabb Bahner	24
Effects of Coumarin upon Plant Growth and Development Frederick T. Wolf	27
Mobile Environmental Education Laboratory Project: Development, Implementation and Evaluation Ronald B. Childress	33
Cockroach Collections from Tennessee (Blattaria Blattellidae) Frank W. Fisk	36
TAS News Events and Announcements	36

JANUARY, 1974

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
- JAMES MASON, *Medical Sciences Editor*, The Univ. of Tennessee, Memphis 38103
- JAMES D. CAPONETTI, *Botany Editor*, The Univ. of Tennessee, Knoxville 37916
- ROY W. CLARK, *Physics-Astronomy Editor*, M.T.S.U., Murfreesboro, Tennessee 37130
- ROBERT GOODRICH, *Interim Engineering Editor*, Vanderbilt University, Nashville, Tennessee 37203
- ROBERT G. LITCHFORD, *Zoology Editor*, The Univ. of Tennessee at Chattanooga 37403
- STUART W. MAHER, *Geology-Geography Editor*, Tennessee Division of Geology, Knoxville 37919
- JOHN T. NETTERVILLE, *Chemistry Editor*, David Lipscomb College, Nashville 37203
- JAMES STACK, *Mathematics Editor*, Austin Peay State Univ., Clarksville 37040

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 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 \$8.00 a year, invariably in advance. Single copies \$3.00.

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
- Tennessee Junior Science and Humanities Symposium

Officers

- ALBERT MYERS, *President Elect*, Carson-Newman Coll., Jefferson City 37760
- ROBERT AMY, *President*, Southwestern, Memphis 38112
- 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
- WINTFRED SMITH, *Director*, Reelfoot Lake Biol. Sta., at U.T., Martin 38237

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

Executive Committee

- ROBERT L. AMY, Southwestern, Memphis 38112
- JOHN H. BAILEY, East Tennessee State Univ., Johnson City 37602
- JAMES D. CAPONETTI, Univ. of Tennessee, Knoxville 37916
- ROBERT E. MARTIN, Tennessee Technological Univ., Cookeville 38501
- ALBERT MYERS, Carson-Newman Coll., Jefferson City 37760
- DIANE NELSON, E.T.S.U., Johnson City 37601
- 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
- JERRY RICE, State Dept. of Education, Nashville 37219
- WINTFRED SMITH, Univ. of Tennessee at Martin, Martin 38237
- GUS TOMLINSON, George Peabody Coll., Nashville 37203
- A. PAUL WISHART, The Univ. of Tennessee, Knoxville 37916

NOTICE TO AUTHORS

Manuscripts submitted for publication in the JOURNAL should be sent to the Editor. Manuscripts must be approved by the Editor and the appropriate Section Editor before publication. Manuscripts should be submitted in duplicate, typewritten, double 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 \$8.00 for members except teachers below the college level, whose dues are \$5.00, student dues are \$3.00 and a life membership is \$100. Dues may be sent direct with your application for membership to the Secretary.