

THE EIGHTY-EIGHTH YEAR OF THE TENNESSEE ACADEMY OF SCIENCE

NOVEMBER 16-17, 1978

LAMBUTH COLLEGE, JACKSON

The annual meeting of the Tennessee Academy of Science, Inc., in its eighty-eighth year, was held November 16-17, 1978, at Lambuth College, Jackson, Tennessee. Dr. James G. Beasley, Professor of Chemistry at Lambuth, was chairman of the Local Arrangements Committee, and Dr. James D. Caponetti, Professor of Botany at the University of Tennessee, Knoxville, was Program Chairman.

Meeting registrations totaled 208. Of these, 76 were university-college professors, 3 from State Divisions, 1 from the Oak Ridge National Laboratory, 2 from private industry, 99 college students, and 27 others.

A total of eight laboratory supply and optical companies and affiliates exhibited their products in the first floor lobby of the Hyde Science Hall. In alphabetical order, they were: ACTS Instruments, Inc.; Carolina Biological Supply Co.; Frany Carryl Company; R. L. Dotts Instruments Co.; Preiser Scientific, Inc.; Sargent-Welch Scientific Co.; Southern Biological Supply Co.; and Ward's Natural Science Establishment, Inc.

The General Session was held in the Colonial Room of the College Union on Friday morning, November 17, beginning at

10:00 a.m. C.S.T. The Chairman of the Local Arrangements, Dr. James G. Beasley, chaired the session, and the welcome was given by Dr. James S. Wilder, Jr., President of Lambuth College, Jackson, Tennessee. The theme of the session was "Environmental Toxins." Section meetings were held Friday afternoon; 95 papers were presented as listed in the program. The Annual Business Meeting was held in Room H215 of Hyde Science Hall at 5:00 p.m. C.S.T.

The Annual Banquet was held in the Colonial Room of the College Union. It was served buffet style beginning at 7:00 p.m. C.S.T. Friday evening. Banquet ticket sales were 75. President Robert E. Martin presided, and the address was delivered by Dr. Walter G. Rosen, plant physiologist, Office of Toxic Substances, Environmental Protection Agency, Washington, D. C. The address was "Environmental Toxicology and the Toxic Substances Control Act."

The Collegiate Division held its meeting on Saturday morning at 9:00 a.m. C.S.T. in Room H215 of Hyde Science Hall. Dr. Richard J. Raridon, Director of the Collegiate Division, presided and 8 papers were presented by college students.

ANNUAL BUSINESS MEETING NOVEMBER, 1978

The Annual Business Meeting of the Tennessee Academy of Science, Inc., was called to order by President Robert E. Martin at 5:00 p.m. C.S.T. in Room H215 of Hyde Science Hall, Lambuth College, Jackson, Tennessee, on November 17, 1978. The President determined that a quorum was present.

The reports of the Secretary, Treasurer, Editor, Directors of the three educational programs were similar to those presented the previous evening at the Executive Committee Meeting. All reports were approved by passed motions, and will be recorded in the Minutes.

The Secretary reported that 33 new members had applied for membership to the Academy in 1977-78. A motion to accept the new members was passed.

The Secretary read the reports of the Auditing Committee, Membership Committee, and Research Committee, which were presented the previous evening at the Executive Committee Meeting. All reports were approved by passed motions and will be recorded in the Minutes.

The Secretary read the names of the six Fellows nominees presented to the membership by the Executive Committee. A motion was passed that the nominees be elected Fellows of the Academy.

The Chairman of the Necrology Committee, Edward W. Burke, presented the names of three members of the Academy who had passed away: Kenneth L. Hertel, L. R. Hesler, and Cord Link. Dr. Burke asked the audience to stand in tribute to these three persons. A motion was passed to accept the report.

The Secretary presented the report of the Nominating Committee. The President asked for further nominations from the floor. There were no further nominations. A motion was passed to accept the nominees, and the Secretary was instructed to cast one vote which would represent the unanimous election of Clay M. Chandler as President-Elect, Diane Nelson as Secretary, and Robert Wilson as Treasurer.

The Chairman of the Local Arrangements Committee, Dr. James Beasley, expressed his thanks to those who worked with him at the four area schools: Lane College, Jackson State, Union University, and Lambuth College. A vote of appreciation was given to Dr. Beasley and his committee.

The Chairman of the Resolutions Committee, Dr. Richard G. Stearns, presented the following resolutions:

WHEREAS, the Tennessee Academy of Science, including the Collegiate Division, are enjoying a most pleasant, profitable and well-organized series of meetings at Lambuth College, and

WHEREAS, the success of these meetings has resulted mainly from the efforts of the officers of the Academy; the chairman of the respective sections, the Local Arrangements Committee representing Jackson State Community College, Lane College and Union University as well as Lambuth College, Dr. James G. Beasley, Chairman, from the recognition given the meetings by the press, television and radio stations, and from the generous hospitality of the host institutions.

BE IT RESOLVED, therefore, that the Tennessee Academy of Science express its sincere appreciation to these and all others who have contributed to the success of these meetings.

BE IT FURTHER RESOLVED, that this resolution be included in the minutes of the Tennessee Academy of Science and published as a part of the Proceedings of this meeting, and that copies be sent to Dr. James S. Wilder, Jr., President of Lambuth College and Dr. James G. Beasley, Chairman of Local Arrangements for distribution to members of that Committee.

All resolutions were accepted by a passed motion.

OTHER BUSINESS

1. Copies of the constitution were made available.

2. Dr. T. E. Snazelle suggested the consideration of a Microbiology section in the future. Dr. Caponetti reported that the procedure is in the Constitution, Article V, Section 3: 15 persons in the state who are members submit a petition to the Secretary to present to the Executive Committee.

3. Announcements were made about the Banquet and the Collegiate Division.

The meeting was adjourned at 5:25 p.m. C.S.T.

TENNESSEE ACADEMY OF SCIENCE OPERATIONS ACCOUNT TREASURER'S REPORT

JULY 1, 1977 THROUGH JUNE 30, 1978

Cash in Pioneer Bank, July 1, 1977 \$ 5,555.97
Less: Outstanding checks, July 1, 1977 135.00

Cash Balance, per books, July 1, 1977 \$ 5,420.67
Add: Check No. 716 (2-1-75) James Crenshaw—
Not cleared this date 65.00

Adjusted cash balance, per books, July 1, 1977 \$ 5,485.67

Cash Receipts:

Membership Dues \$ 3,851.00
Journal Subscription 1,204.00
Registration Fees & Exhibitors 1,506.00
AAS Grants 202.00
Tennessee Dept. of Education 15,000.00
Contributions & Journal Sales 149.00
Transfer from Cookeville Bank 126.96 \$22,038.96

Total Cash Available \$27,524.63

Cash Disbursements:

Editor's Office \$ 3,231.50
Treasurer's Office 1,673.63
Secretary's Office 464.75
Journal (Printing and Mailing) 7,580.66
AAS Conference 51.80
AAAS Assessment for 1977 and 1978 64.00
AAAS Scholarships 340.00
Annual Meeting expenses 2,353.08
Programs of the Academy:
Visiting Scientists \$3,275.00
Junior Academy 3,000.00
Collegiate Division 1,500.00
Field Station Scholarships 500.00
Summer Scholarships 500.00 8,775.00 \$24,534.42

Cash Balance, per books, June 30, 1978 \$ 2,990.21
Add: Outstanding check, June 30, 1978
(AAA Dues) 32.00

Cash in Pioneer Bank, June 30, 1978 \$3,022.21

Savings Account—Chattanooga Federal Savings &
Loan, 6/30/77 \$ 9,287.79

Interest Earned on Savings Accounts—
Chattanooga Federal 744.76

Savings Account—Chattanooga Federal at
June 30, 1978 \$10,032.55

Rayford J. McLaurin
Accountant
Chattanooga, Tennessee
November 15, 1978

REPORT OF THE AUDITOR NOVEMBER 15, 1978

To: Executive Committee
Tennessee Academy of Science

I have examined the statement of Cash Receipts and Disbursements, Operations Account, for the fiscal year ended, June 30, 1978. My examination included such test of the accounting records and such other procedures as I considered necessary in the circumstances.

In my opinion, the above mentioned statement presents fairly the cash receipts and disbursements, Operations Account, for the fiscal year ended June 30, 1978.

Sincerely,
Rayford J. McLaurin
Accountant
Chattanooga, Tennessee

TENNESSEE ACADEMY OF SCIENCE

NEW MEMBERS—1978

Mark L. Allen
1244 Shawnee Road
Madison, TN 37115

William Hunter Atkinson
1440 Golf Club Lane
Clarksville, TN 37040

William B. Brawley
827 Charlotte Street
Clarksville, TN 37040

Dr. Ronald S. Caldwell
Division of Natural Sciences
Union College
Barbourville, KY 40906

Robert E. Cawood
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Clarksville, TN 37040

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3519 Brookview Drive
Lexington, KY 40503

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Box 263
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MSU
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East Tennessee State University
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4633 Tara Drive
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Maryville, TN 37801

Barbara J. Farris
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Cookeville, TN 38501

Portland P. Fox
500 Hiwassee Avenue, N.E.
Cleveland, TN 37311

Peter G. Poulas
U.S. Fish & Wildlife
1720 West End Ave.
Nashville, TN 37203

Ronald P. Robertson
Dickson County High School
Dickson, TN 37055

Ms. Virginia A. Gerontinos
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Clarksville, TN 37040

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347 East Lytle Street
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626 Dower Road
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Cookeville, TN 38501

Hugh H. Mills
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The University of Tennessee
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Dr. Chas. M. Lukehart
Dept. of Chemistry
Vanderbilt University
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JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE

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ABSTRACTS PRESENTED AT THE ANNUAL MEETING

BOTANY SECTION

JOHN W. HARRIS, *Chairman*

Host Specificity of Mistletoe in Middle Tennessee. THOMAS E. HEMMERLY and S. K. CLEARY. Middle Tennessee State University.

Phoradendron flavescens, the common mistletoe of southeastern United States, has been found to infest preferentially various species of trees within its range. Recent surveys of 13 counties in the Central Basin and one county on the Highland Rim of Middle Tennessee resulted in the finding of 37 host tree species. The most frequent host species were American elm, slippery elm, September elm, shagback hickory, black gum and white ash. Some possible explanations for the host-specific parasitism were discussed.

Azolla mexicana Presl., A Slow-Growing Species of *Azolla*. VERNON M. BATES, JR. and EDWARD T. BROWNE, JR. Memphis State University.

Azolla is the only known fern to live in symbiosis with a nitrogen-fixing organism. Much information about nitrogen metabolism can be obtained from this type of relationship. Even though this symbiosis plays an important role in the nitrogen cycle, it may at the same time cause problems with the taxonomic treatment of the genus *Azolla*.

Comparison of typically smaller fronds of *A. caroliniana* Willd. with the typically larger fronds of *A. mexicana* Presl., indicates that the latter is a slower growing species. The maturation and elongation of the roots of *A. mexicana* occur in a limited ventral region near the apex, with the roots falling off immediately after maturation. For *A. caroliniana*, root maturation and elongation requires the full length of the ventral surface, with the roots falling off only as the leaf lobes decay. This apparent difference in root growth may be determined by the activity of the phycobiont.

The Effects of Auxins, Cytokinins, and Carcinogens on Leaf Development in Cinnamon Fern. JAMES D. CAPONETTI, The University of Tennessee, Knoxville.

Experiments on the effects of several mammalian carcinogens on cinnamon fern leaf development in sterile culture have thus far shown that some inhibit leaf growth when compared with controls, some stimulate growth, and some have no differential effect. In no case did leaves produce callus tissue or tumorous growths. Since the induction of callus in tobacco stem pith and in carrot root phloem by certain auxins and cytokinins is well known, cinnamon fern leaf primordia were cultured on media containing various auxins and cytokinins alone and in combination with several previously tested carcinogens. Of the auxins tested, only 2,4-D induced a callus-like growth of the basal portion of the petiole. Subcultured callus died. None of