

PROCEEDINGS OF THE TENNESSEE ACADEMY OF SCIENCE 1995

Sarah H. Swain, Secretary TAS

Middle Tennessee State University

TAS EXECUTIVE COMMITTEE MEETING

28 April 1995

Following a meeting with representatives from the Kentucky Academy of Science to plan for a joint 1995 annual meeting to be held in Bowling Green, Kentucky, the Executive Committee meeting of the Tennessee Academy of Science was called to order by President Diane Nelson at 7:55 PM in Conference Room 336, Avon Williams Complex, Tennessee State University, Nashville, Tennessee, 28 April 1995. Members present were Diane R. Nelson, President; David H. Kesler, President-elect; Wilburn A. Sliger, Past-president; Sarah H. Swain, Secretary; John Harris, Treasurer; Phyllis Kennedy, Managing Editor; Richard J. Raridon, Director of Collegiate Division; Jack Rhoton, Director of Junior Academy; Linda Roberson, Meeting Coordinator; Linda Jordan, State Department of Education Science Supervisor; and Martha Weller and Linda Lawson, Members-at-large. President Nelson introduced new Executive Committee members Linda Jordan, State Science Supervisor, Linda Lawson, Member-at-large from East Tennessee State University, and Martha Weller, Member-at-large from Middle Tennessee State University.

REPORTS FROM OFFICERS AND DIRECTORS

Minutes of the 17 November 1994 Executive Committee meeting had been mailed by Secretary Swain to Committee members. No additions or corrections were made. A motion for the approval of the minutes was approved.

Treasurer John Harris presented the following 15 April 1995 report:

CASH BALANCE - July 1, 1994 46,013.00

RECEIPTS

Membership Dues	8,800.00
Institutional Sustaining Memberships	5,000.00
Library Subscriptions	2,940.00
Interest Earned	938.75
Journal Page Charges	307.00
Contributions	835.00
Registration and Luncheon Fees	3,320.00
AAAS Award	300.00
TJAS Trust Fund Earnings	1,667.81
Exhibitors' Fees	225.00
Journal Sales	12.65
TOTAL RECEIPTS	24,346.21

TOTAL CASH AVAILABLE 70,359.21

DISBURSEMENTS

Life Members Trust Fund	10,174.00
Journal Printing Costs	620.00
Tennessee Junior Academy of Science	4,689.58

Annual Meeting	1,941.75
Board Meeting Expenses	754.90
Treasurer's Expenses	840.37
Collegiate Division Expenses	400.00
Secretary's Expenses	532.99
Student Research Grants	1,569.90
Auditor's Fee	865.00
AAAS Annual Meeting	275.72
Annual Reports and Dues	142.50
Presidential Plaques	121.60
TOTAL DISBURSEMENTS	22,928.31

CASH BALANCE - April 15, 1995 47,430.90

Receipts	24,346.21
Disbursements	22,928.31
Cash Increase	1,417.90

CASH BALANCE - July 1, 1994 46,013.00

CASH BALANCE - April 15, 1995 47,430.90

BREAKDOWN OF TAS HOLDINGS

Memphis State Account (Journal)	2,764.32
TTU Account	284.51
Checking Account, Trans Financial Bank	5,332.37
Savings Account, Trans Financial Bank	39,049.70

TAS HOLDINGS as of April 15, 1995 47,430.90

TJAS TRUST FUND (Vanguard Star Fund)

Account Value 6/30/94	79,622.59
Deposits (Capital Gains Reinvested) 12/31/94	1,544.29
Disbursements (Dividend Distributions) 12/31/94	1,667.81
Account Value as of 12/31/94	79,374.28
Account Value as of 12/31/95	85,295.85

LIFE MEMBERS TRUST FUND (J. C. Bradford & Co.)

(Ten 3-year United States Treasury Notes @ \$1,000 ea. Date of Issue 11/15/94)

Initial Deposit (J. C. Bradford & Co.)	10,174.00
Value of Notes as of Date of Purchase 1/20/95	10,039.50
Accrued Interest	134.36
Cash Balance (J. C. Bradford & Co.)	10,174.00
Estimated Income	738.00
Value of Notes as of 3/31/95	10,109.00

TOTAL VALUE OF HOLDINGS as of April 15, 1995 42,835.75

On the basis of a request by Treasurer Harris, a motion to allow the treasurer to consult J. C. Bradford & Co. to establish an interest bearing account for year-end reserves was approved. Treasurer Harris proposed a budget for 1995-1996 (below) based on TAS history, conservative estimate of income, and liberal estimate of spending. After discussion, the following increases were recommended: Secretary \$100 for additional mailing costs for 1995 joint meeting; Research \$500 to increase efforts to notify teachers of research money for students; Annual Meeting \$1000 to meet anticipated increased cost of joint meeting. A motion to approve the above additions to the 1995-1996 budget passed.

RECOMMENDED BUDGET FOR 1995-1996

Secretary	\$ 600.00
Treasurer	1,500.00
Junior Academy	6,000.00
Visiting Scientist Program	5,000.00
Journal	12,000.00
Research	2,500.00
Annual Meeting	3,000.00
Collegiate Division	1,200.00
Board Meetings	750.00
AAAS	500.00
Audit Fee	700.00
Annual Dues/Fees	150.00
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TOTAL	\$33,900.00

Phyllis Kennedy, Managing Editor, presented the following report: "Volume 69(3-4) of the Journal of the Tennessee Academy of Science is at The University of Memphis Press. This combined issue consists of 24 pages which include five articles, abstracts from the 1994 Collegiate Division meetings, and announcements. Authors were invoiced for a total of \$630.00 in page charges. Volume 70(1) will go to press in 2 weeks; it will contain 24 pages. Volume 70(2) will go to press in 3-4 weeks; it will contain the new President's profile, minutes of 1994 Executive Committee meetings, abstracts from 1994 annual meeting, and papers from the Plenary Session of the 1994 annual meeting. Issues of Volume 70 will be mailed Second Class. At this time, nine manuscripts are in review, and two revised manuscripts are expected from authors. Also at this time, the Managing Editor requests the Executive Committee's approval of Dr. Martin V. Stewart as the new Chemistry Section Editor. He will replace Dr. David J. Wilson who has given the Academy many years of service as Chemistry Section Editor."

A motion to accept Dr. Martin V. Stewart as Chemistry Section Editor was approved. President Nelson will send a letter of thanks to Dr. David Wilson for his service to the Academy. A motion to consider Dr. David J. Wilson (Vanderbilt University) and Dr. Ben Stone (Austin Peay State University) for Distinguished Service Awards was approved. Editor Kennedy asked committee members to encourage colleagues to submit manuscripts for publication in the *Journal*.

Tennessee Junior Academy of Science (TJAS) Director, Jack Rhoton, presented the following report:

"The 1995 spring meeting was held on Friday, April 21, at Pearl-Cohn High School in Nashville. A total of twenty-four students has been invited to present their research papers. This year we received forty-four papers from ten schools. Twelve teachers sponsored one or more students.

Two of the 1994 TJAS winners presented their papers at the American Junior Academy of Science Conference in San Francisco, California, during the week of February 17-21, 1994. Matthew F. Rose,

Memphis University School, presented a paper entitled, "Circadian and Hormonal regulation of Growth and Metamorphosis in *Xenopus laevis*." Phuong Thi Quy Le presented her work on "The Sign in Cubic and in Quartic Inequality."

During the April 21 meeting, a framed certificate and a small honorarium will be presented to an outstanding secondary science teacher from each of the three grand divisions of the state. The recipients of this year's awards are as follows: Harry R. DeYoung (Biology and Chemistry), Alcoa High School, Alcoa; Angela M. Ketchum (Chemistry and Physics), Fred J. Page High School, Franklin; and Jerrold W. Omundson (Chemistry and Biology), Memphis University School, Memphis.

These TAS Distinguished Teacher Awards recognize teachers for their outstanding contributions to science education and for stimulating and inspiring students to an active interest in science. This year the Awards Committee received fifteen nomination packets."

Director Rhoton, who had recently attended the Junior Academy meeting, commended the students for presentations of excellent quality. He recommended that seven papers, instead of the usual five, plus all the abstracts be printed this year in the Proceedings of the Tennessee Junior Academy of Science.

No report was submitted by the Director of the Visiting Scientist Program.

Richard Raridon, Director of the Collegiate Division, reported that meetings were in progress during April and that a full report would be prepared for the November Executive Committee meeting.

As TAS delegate to the American Association for the Advancement of Science (AAAS) and the National Association of Academies of Science (NAAS), Richard Raridon presented the following report:

"The Tennessee Academy of Science is affiliated with the American Association for the Advancement of Science. Each affiliated society is in one of 25 AAAS Sections and TAS is in the section on General Interest in Science and Engineering. The sections sponsor symposia at the annual AAAS meetings, nominate AAAS members for Fellow status, and conduct other business. I represented TAS at the Section Meeting in Atlanta on February 17, 1995. The section now has a LISTSERV on the Internet. It will have news of general interest to academies and the other affiliated societies, such as Sigma Xi. To subscribe, send a message to LISTPROC@ZENO.FIT.EDU. Leave the subject blank, and in the body of the message type: subscribe secy your name and address. The new secretary for this section is Carol Rogers, formerly at AAAS and now at the University of Maryland. Carol was a student at Tusculum College and presented a paper in the Collegiate Division in 1964, the first year that I was Collegiate Division Director.

In addition to most of the State Academies being represented in the AAAS Section on General Interest, the academies affiliated with AAAS can belong to the National Association of Academies of Science (NAAS). I also represented TAS at the annual NAAS business meeting in Atlanta. In previous years, NAAS has sponsored symposia of interest to academies, but was unable to do so this year. The current president of NAAS is Dudley Peeler of the Mississippi Academy. The NAAS also sponsors the American Junior Academy of Science (AJAS) whereby high school students can present papers. This year 93 students from 26 different academies made oral presentations and did poster papers in Atlanta. TAS was well represented by Matthew Rose of Memphis University School and by Phuong Thi Quy Le of Jackson Central-Merry High School.

The AAAS meeting in 1996 will be held in Baltimore on February 8-13. It does not cost TAS anything to be an AAAS affiliate, and by doing so, the Academy is eligible to apply for grants to support high school student research projects. TAS has received such grants a number of years. TAS does pay dues to NAAS at the rate of \$0.15 per member. In return Academy officers receive the Directory and

Proceedings of the NAAS and can send students to the AJAS meeting. The Directory and Proceedings is currently in press at AAAS headquarters and should be out shortly."

REPORTS FROM COMMITTEES

President Nelson announced that D. M. S. Bhatia (Austin Peay State University) would serve as the new chairman of the Membership Committee. Also, the committee appointed by the President to consider the addition of new board members, chaired by Andy Sliger (University of Tennessee at Martin, biology), includes members Linda Lawson (East Tennessee State University, math) and Martha Weller (Middle Tennessee State University, physics). The Executive Committee will expect a report from the Nominating Committee, composed of Past-presidents, at its November meeting.

The Committee to Review Travel Expense Guidelines, chaired by John Harris, submitted the following report:

"Recommended Travel Expense Guidelines:

1. Executive Committee members are encouraged to seek funding for travel to meetings from other sources.
2. The Academy will reimburse the travel expenses of those Executive Committee members who submit requisitions (state rate requested).
3. In the event that Executive Committee meeting expenses exceed the amount budgeted for a given year, the committee will review these guidelines.
4. Executive Committee members are encouraged to share costs, where possible, by carpooling and sharing motel rooms.
5. All new Executive Committee members are to be informed of these guidelines.

The Committee also discussed the nature of travel expenses to be reimbursed by the Academy. The committee recommends that claims for transportation and lodging expenses continue to be paid as submitted. The committee did not reach consensus regarding payment for meals and submits the following three alternatives for consideration by the Executive Committee:

1. Continue to pay meal expense claims as submitted.
2. Discontinue payment for meal expenses.
3. Set limits on the amounts to be paid for meal claims."

A motion to discontinue payment for meals was approved by vote of the Executive Committee. A motion to accept the recommended travel guidelines was approved.

The Committee on Procedures and Operations, chaired by Andy Sliger, has recognized the need for a written manual. President Nelson appointed TAS Secretary and Treasurer to the committee and recommended that each TAS officer write a section for the manual pertaining to that office. Chairman Sliger will compile the sections and present the manual at the November Executive Committee meeting.

The Committee on Distinguished Scientist Award was chaired by Diane Nelson. The Executive Committee discussed the feasibility of such an award and agreed that guidelines, similar to those for the Distinguished Service Award, should be established so that a vehicle for selection is in place when the occasion arises for TAS to recognize outstanding scientists in the state. President Nelson appointed Richard Raridon to serve on the committee.

OLD BUSINESS

In response to a contribution from the Hewlett-Packard Company, a motion to commend Rubye Torrey (Tennessee Technological University) for efforts on behalf of TAS in obtaining the donation from Hewlett-Packard was approved. President Nelson will notify Dr. Torrey of the Executive Committee motion and will thank Hewlett-Packard on behalf of TAS.

A petition to add a new Ethics section was presented with the required 15 signatures. A motion to accept the petition was approved.

The motion will be presented to the membership for approval at the November annual meeting.

A petition to form a Microbiology section was presented to the Executive Committee. The new Microbiology section represents a split from the existing Medical Science section. Anthony Newsome (Middle Tennessee State University) will serve as Microbiology section chairman. A motion to accept the petition was approved. The motion will be presented to the membership for approval at the November annual business meeting.

The Executive Committee discussed the feasibility of establishing levels of institutional membership. To date, no community college has joined at the present \$1000.00 institutional membership rate. A motion was approved to establish an institutional supporting membership at \$250.00. Private colleges and two-year community colleges are eligible for, but not limited to, the supporting membership.

Treasurer John Harris reported that the Tennessee State Library in Nashville has all but the first two volumes of the *TAS Journal*. The collection is complete since 1928 (1926 first year of publication). According to the Tennessee State Library archivist, Memphis, Nashville, and Chattanooga Public Libraries should have complete sets. John Harris will contact the state library archivist about serving as an official archivist for TAS so that the collection includes meeting programs, minutes, Junior Academy Handbooks, and other publications as well as the *Journal*.

NEW BUSINESS

The National Institute for the Environment (NIE), a federal non-regulatory agency, requests a letter of endorsement from TAS for its establishment. Following discussion, the Executive Committee agreed to table action on the matter until more information is available. The matter will be discussed again at the November Executive Committee meeting.

The University of the South at Sewanee has offered to host the 1996 annual meeting. A motion to accept the invitation was approved. No other future meeting site is firmly established to date.

TAS has no official logo. President Nelson will solicit ideas for a logo from graphics personnel at East Tennessee State University and will distribute to Executive Committee members for approval. Other submissions are welcome for consideration.

David Kesler and Andy Sliger are investigating the feasibility of a TAS "home page," electronic bulletin board. Meeting dates, information on publications, and other items of interest could be transmitted.

At 10:10 PM President Nelson adjourned the 28 April 1995 meeting of the Executive Committee of the Tennessee Academy of Science.

TAS EXECUTIVE COMMITTEE MEETING 16 November 1995

The 16 November 1995 meeting of the Tennessee Academy of Science (TAS) Executive Committee was called to order by President Diane R. Nelson at 1:00 PM in the Bowling Green Convention Center, Bowling Green, Kentucky. Members present were Diane R. Nelson, President; David H. Kesler, President-elect; Wilburn A. Sliger, Past-president; John W. Harris, Treasurer; Sarah H. Swain, Secretary; Phyllis Kennedy, Managing Editor; Richard J. Raridon, Director of Collegiate Division; Jack Rhoton, Director of Junior Academy; Linda M. Lawson and Martha Weller, Members-at-large; Linda Roberson, Meeting Coordinator; Bruce Conn, 1996 Local Arrangements Chairman; Michael Daley, Fellows Committee; Pramod Singh, observer.

REPORTS FROM OFFICERS AND DIRECTORS

Secretary Swain had mailed copies of the minutes of the April 1995 Executive Committee meeting to committee members. The minutes were approved by a motion.

President-elect, David Kesler, reported that 160 TAS members had pre-registered for the Kentucky Academy of Science (KAS) and TAS Joint Meeting to begin 16 November 1995 at the Bowling Green Convention Center, Bowling Green, Kentucky. Twenty-two TAS poster presentations were planned, 102 presentations were scheduled for the annual meeting paper sessions, and 70 TAS members were registered for the banquet. President-elect Kesler credited Linda Lawson, Executive Committee Member-at-large, for organizing judged student papers for participating Tennessee students. Each student will be presented a certificate. President-elect Kesler recommended that the student presentation and award program continue as part of future annual meetings. Program planning changes recommended by President-elect Kesler included the following: alter program production schedule so that programs can be mailed earlier; require that paper titles be typed when submitted; ask section chairpersons to submit programs on computer disks.

Treasurer Harris submitted the following report:

TREASURER'S REPORT

16 November 1996

John W. Harris, Treasurer

CASH BALANCE - JULY 1, 1995 43,447.40

RECEIPTS

Membership Dues	3,300.00
Institutional Dues	5,000.00
Library Subscriptions	390.00
Interest Earned, Trans Financial Bank	125.79
Dividends Earned, J. C. Bradford	388.90
Journal Page Charges	1,785.00
Contributions	147.00
Registration and Banquet Fees	2,210.00
TOTAL RECEIPTS	13,346.69

TOTAL CASH AVAILABLE 56,794.09

DISBURSEMENTS

Journal Printing Costs	133.95
Tennessee Junior Academy of Science	2,595.85
Annual Meeting	750.70
Board Meeting Expenses	60.00
Treasurer's Expenses	286.17
Secretary's Expenses	334.93
TAS Banner	107.17
TOTAL DISBURSEMENTS	4,268.77

CASH BALANCE - November 10, 1995 52,525.32

Receipts	13,346.69
Disbursements	4,268.77
Cash Increase	9,077.92

CASH BALANCE - July 1, 1995 43,447.40

CASH BALANCE - November 10, 1995 52,525.32

BREAKDOWN OF HOLDINGS

U. Memphis Account (Journal)	3,262.01
U. S. Postal Service, Memphis	379.37

TTU Account	510.66
Checking Account, Trans Financial Bank	5,672.11
Savings Account, Trans Financial Bank	17,701.13
Money Market Fund, J. C. Bradford	25,000.04

TAS HOLDINGS as of November 10, 1995 52,525.32

TJAS TRUST FUND (Vanguard Star Fund)
(6,301.741 shares owned as of 09/30/95)

Account Value as of 03/31/95	85,295.85
Deposits (Capital Gains Reinvested) 06/30/95	31.50
Disbursements (Dividend Distributions) 06/30/95	1,574.89
Account Value as of 06/30/95	90,240.93
Account Value as of 09/30/96	96,290.60

LIFE MEMBERS TRUST FUND (J. C. Bradford)
(Ten 3-year United States Treasury Notes
@ \$1,000 ea., Date of Issue - 11/15/94)

Value of Notes as of 03/31/95	10,109.00
Disbursements (Interest Income) 05/19/95	368.75
Estimated Annual Income	738.00
Value of Notes as of 06/30/95	10,325.00
Value of Notes as of 09/30/95	10,288.00

TOTAL VALUE OF HOLDINGS as of November 10, 1995 159,103.92

Treasurer Harris reported that the Hewlett Packard Company had again donated \$500 to TAS, thanks to solicitation on behalf of TAS by Dr. Rubye Torrey. Last year's donation was used to help fund the ethics panel program at the TAS annual meeting. Computer capacity for the treasurer needs to be updated. President Nelson requested estimate of needs and costs from Treasurer Harris. The matter will be considered at the April meeting of the Executive Committee.

Managing Editor, Phyllis Kennedy, presented the following report: "Since the 1994 Annual Meeting of the Tennessee Academy of Science, three issues of the Journal of the Tennessee Academy of Science have been printed and mailed. Volume 69 issue 3-4 consisted of 24 pages and was printed at a cost of \$2168.91 (minus page charges equals \$1538.91). Volume 70 issue 1 consisted of 24 pages and was printed at a cost of \$2163.91 (minus page charges equal \$1128.91). Volume 70 issue 2 consisted of 40 pages; charges for publication of this issue are not available at this time. Papers from the Plenary Session of the 1994 Annual Meeting were printed in 70(2). Currently, there are three manuscripts ready for publication in the next issue, 70(3). Thirteen manuscripts have been submitted to the Journal thus far in 1995. Fields of study represented by these submissions are botany (one), chemistry (one), engineering (two), and zoology (nine)."

The Executive Committee recommended to the Managing Editor that future issues of the Journal could include such items as announcements of student poster and presentation awards, information about area field stations, TAS Home Page information, and other items of interest to state scientists. Members of the Executive Committee also expressed concern regarding delays in Journal publication. Editor Kennedy asked Executive Committee members to help facilitate timely publishing by encouraging colleagues to submit high quality papers that can be readily accepted for publication.

The Director of the Tennessee Junior Academy of Science, Jack Rhoton, presented the following report: "The 1995 spring meeting of the Tennessee Junior Academy of Science (TJAS) was held on Friday,

April 21, at Pearl Cohn Comprehensive High School in Nashville. A total of forty-four papers were submitted from eleven schools and twenty-four were selected by a panel of readers to be presented at the annual meeting. The two top presenters at the annual meeting were Richard M. Hughes, Knoxville Catholic High School, Knoxville, Tennessee, and Matthew F. Rose, Memphis University School, Memphis, Tennessee. The title of Mr. Hughes' paper was "Karyotypical Identification of Strain M1.001 from the Fungus *Colletotrichum graminicola* Phase one: BAL 31 Exonuclease Calibration". "Circadian and Hormonal Regulation of Growth and Metamorphosis in *Xenopus laevis*: Phase IV, V, and VI" was the title of Mr. Rose's research. Both papers were published in the 1995 Handbook and Transactions of the Tennessee Junior Academy of Science, along with the four other papers of the top six winners. Also, the abstract of each presenter at the annual meeting was printed in the Handbook. The Handbook was sent to all high school science and math departments as identified in the Tennessee State Department of Education's Directory of Public Schools, Approved Non-public and Special State Schools.

Four of the TJAS winners are planning to present their papers at the American Junior Academy of Science Conference in Baltimore, Maryland, during the week of February 7-11, 1996. Matthew Rose, Memphis University School, and Richard Hughes, Knoxville Catholic High School, Knoxville, will be presenting papers previously described. Emmanuel Chang, Martin Luther Magnet High School, Nashville, will be presenting his research entitled, "Distribution of Nitric Oxide in Hypotensive and Hypertensive Mice Brain." Arjun J. Dirghangi will be presenting his paper entitled "Mapping of the Incisor Tooth Representation in the Somatosensory Cortex of Adult Rat."

Three outstanding science teachers were recognized at the Junior Academy meeting. The three teachers honored were as follows: Harry R. DeYoung (biology and chemistry), Alcoa High School, Alcoa; Angela M. Kitchen (chemistry and physics), Fred J. Page High School, Franklin; and Jerrold W. Omundson (chemistry and biology), Memphis University School, Memphis. Each received a framed certificate and a check in the amount of \$100. We are indebted to the Tennessee State Department of Education for selecting these outstanding teachers.

Efforts continue to be made to disseminate information more widely concerning TJAS and to bring the program to the attention of more teachers in the state. In addition to disseminating TJAS information via the Handbook, it was also described in the Sciencing Quarterly and sent to 4200 teachers and schools in the state. Information about TJAS will be shared with teachers during the December meeting of the Tennessee Science teachers Association. Also, a TJAS session is scheduled at the joint TAS/KAS meeting in Bowling Green, Kentucky.

TJAS REQUEST FOR FUNDING

Seven high school students have requested research grants to assist their efforts in developing research projects for the TJAS program. Each student has presented a sound description of the project: general purpose and goals, statement of need, and the nature of the research. The following students have requested funding:

Student	Title of Research	Amount Requested
Richa Airee Westview H. S. Martin, TN	Exploring the Assay of NO and Nitric Oxide Synthase	\$150
Eric Brantley Camden Central H. S. Camden, TN	Decontamination of Soil Using Electrokinetics	\$200

Paul Eberts Knoxville Catholic H. S. Knoxville, TN	Causes of Variable Susceptibility of <i>Paramecium multimicronucleatum</i> to Organic Solvents	\$192
Michael J. Erpenbach Knoxville Catholic H. S. Knoxville, TN	An Investigation into the Neurobehavioral Effects of Gasoline, Toluene, and Xylene Using <i>Drosophila melanogaster</i> as a Model System	\$197
Telford E. Forgety, III Jefferson County H. S. Dandridge, TN	Magnetohydrodynamic Propulsion: Toward a Silent Sub	\$135
Brandon Olszewski Knoxville Catholic H. S. Knoxville, TN	Using <i>Brassica rapa</i> as a Rapid Bioassay for the Toxicity of Chemicals	\$300
Matthew Rose Memphis University H. S. Memphis, TN	In-vitro Cell Aggregation of Embryonic Chick Retina as Influenced by R-Cognin, Insulin, Proflavin, Trypsin, and Melatonin	\$300

I recommend that the TAS Executive Committee approve the funding request made by each student."

The Director's report was accepted and a motion to fund the projects as requested was approved by the Executive Committee. Director Rhoton expressed his interest in conducting a study to follow TJAS award winners of years past and what they are doing today.

The Director of the Visiting Scientist Program, Wayne Stevenson, was not present and no report was available. Treasurer Harris reported that no funds for VSP were requested last year. President Nelson will contact Director Stevenson for information regarding participation and management of the Visiting Scientist Program.

Director of the Collegiate Division, Richard J. Raridon, presented the following report: "The Western Regional meeting was held at Lane University on April 1, 1995. Dr. Henry A. Moses of Meharry Medical College gave the keynote address, "Old Truths/New Challenges." Twenty-two student papers were presented. Ten schools were represented at the meeting. The Eastern regional meeting was held at Maryville College on April 28, 1995. Thirty-one papers were presented by students representing five schools. The Middle Regional meeting was held at Austin Peay State University on April 22, 1995. Twenty-seven papers were presented by students from six schools. The regional sponsors are Dr. Fred Matthews, Austin Peay State University; Dr. Gary Litchford, University of Tennessee at Chattanooga; Dr. Charles Biggers, University of Memphis."

The director's report was accepted. It also was noted that the 80 presentations reported represented an all-time high for the Collegiate Division.

REPORTS FROM STANDING COMMITTEES

President Nelson presented committee reports from the respective chairpersons as follows:

Auditing Committee: Chairperson, Dr. Eugene A. Kline, submitted the following report: "The Audit Committee consisting of Dr. R. K. Fletcher, Dr. David Yarbrough, and myself have reviewed the audit for the year ending June 30, 1995. The records were examined by Mr.

James F. McKinnie, MBA in Cookeville, TN. After looking through all the records, he reports that the Treasurer's statement is accurate and that the entire accounting system is well maintained. The Auditing Committee wishes to commend Dr. Harris on a job well done and recommend to the Academy that the Treasurer's report for the year ending June 30, 1995 be accepted for its completeness and accuracy."

James F. McKinnie, MBA, professional auditor sent the following: "I have examined the receipts and disbursements records of the Tennessee Academy of Science for the fiscal year ended June 30, 1995, and in my opinion the attached Cash Receipts and Disbursements Statement correctly reflects the cash position of the organization at June 30, 1995. The entire accounting system is well maintained and to be commended. I have prepared a Return of Organization Exempt from Income Tax, including a Schedule A. This Form 990 must be filed with the Internal Revenue Service no later than November 15, 1995."

TENNESSEE ACADEMY OF SCIENCE
Cash Receipts and Disbursements
For Year Ended June 30, 1995

Receipts

Membership Dues	\$14,375.00
Annual Meeting Fees	3,320.00
Dividends - Vanguard	3,242.70
Library Subscriptions	3,115.00
Capital Gains - Vanguard	1,575.76
Interest Earned	1,498.76
Contributions	840.00
Journal Page Charges	704.00
A. A. A. S. Award	300.00
Exhibitor Fees	225.00
Journal Sales	12.65
Total Receipts	\$29,208.87

Disbursements

Tennessee Junior Academy of Science	\$6,949.83
Printing and Publications	4,488.99
Annual Meeting	1,941.75
Research Grants	1,569.90
Board Meeting	1,076.04
Treasurer's Office Expense	984.75
Collegiate Division	925.14
Accounting Fee	865.00
Secretary's Office Expense	532.99
Licenses and Permits	140.00
Annual Dues and Fees	122.50
Insurance Bond	100.00
Bank Charges	40.00
Miscellaneous	422.32
Total Disbursements	\$20,159.21

Cash Increase from Operations	\$ 9,040.66
Cash Balance, July 1, 1995	125,635.59
J. C. Bradford - Unrecognized Gain	285.50
Vanguard - Unrecognized Gain	9,042.58
Cash Balance, June 30, 1995	\$144,013.33

TENNESSEE ACADEMY OF SCIENCE
Summary of Cash Accounts
June 30, 1995

Trans Financial Bank Cookeville, TN 38501	
NOW Account	\$5,160.56
Savings Account	9,401.34
Total	\$14,561.90

Tennessee Technological University Cookeville, TN 38501	
Agency Account	110.13

University of Memphis Memphis, TN	
Agency Account	3,275.33

Vanguard Financial Center Valley Forge, PA 19482-2600	
Vanguard Star Fund	90,240.93

U. S. Postal Service Memphis, TN	
Postage Account	500.00

J. C. Bradford & Co. Cookeville, TN 38501	
Cash Account	\$25,000.04
United States Treasury Note	10,325.00

Total	35,325.04
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Cash Balance, June 30, 1995	\$144,013.33
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The report was accepted.

Fellows Committee: Chairperson Dr. S. K. Ballal submitted the names of TAS members nominated by the Fellows Committee to be considered by the Executive Committee. The following were approved as Fellows by the Executive Committee: Dr. Judith M. Bonicamp, Department of Chemistry, Middle Tennessee State University; Dr. Steven W. Hamilton, Department of Biology, Austin Peay State University; Dr. Gladius Lewis, Department of Mechanical Engineering, The University of Memphis; Dr. Fred J. Matthews, Department of Chemistry, Austin Peay State University; Dr. James M. McCluskey, Department of Geology and Geography, Austin Peay State University; Brother Kevin Ryan, Department of Physics and Astronomy, Christian Brothers University; Ms. Sarah H. Swain, Department of Biology, Middle Tennessee State University. In a separate motion, the Executive Committee determined that the names, departments, and institutions of those approved as Fellows would be published in the minutes of the Executive Committee meeting and in the minutes of the annual business meeting.

Membership Committee: Chairperson D. M. S. Bhatia submitted the following report: "It is a pleasure to report to you and the board that as of October 27, 1995, the membership has increased by 43 new members. This increase reflects the efforts of the individuals on the committee, some of whom worked on this with great diligence and

contacted the new members personally. Furthermore, I sincerely hope our efforts will reflect a still larger increase in numbers at the time of registration". A motion to accept those who have applied was approved. The names of new members will be presented to the membership at the annual business meeting for approval.

Necrology Committee: Chairperson William E. Solomons reported the deaths of Fred Wolf and R. T. Lagemann, both past-presidents and Fellows of TAS, and John Gillette.

Nominating Committee: Chairperson Wilburn A. Sliger submitted the following nominees for officers of the Tennessee Academy of Science for 1996: Michael Daley, The University of Memphis, President-elect; Sarah H. Swain, Middle Tennessee State University, Secretary; John W. Harris, Tennessee Technological University, Treasurer. A motion to approve the nominees and to present them to the membership in the annual business meeting passed.

Research Committee: Chairperson Prem Kahlon submitted the following report: "The Research Committee sent over 200 letters addressed to science teachers in various schools in the state informing them about the availability of funds from the Academy for research projects for high school students. Unfortunately, only five applications from four schools were received. The committee is recommending four awards totaling \$867.00. The Committee is going to take the following steps to improve our communications with the prospective applicants in order to increase the application pool for next year. 1. Address letters to all high school principals. List to be provided by Committee member Linda Jordan. 2. Publish announcement in the *Journal of the Tennessee Academy of Science*. 3. Publish announcement in the three science newsletters sent to all science teachers (Committee member Linda Jordan will be responsible). 4. Send announcement to science supervisors. Hopefully this will generate enough interest to receive more applications than we had in the previous years."

1995 APPLICATION FOR RESEARCH GRANTS

Student	High School	Science Teacher	Amount Requested	Award
Chetan Patil	Houston HS Germantown, TN	Ruth D. McGruder	\$522.00	\$522
Matthew Williams	David Crockett HS Jonesborough, TN	David Boreing	\$1594.50	\$0
Tonya Hoffman LaToya Kennedy	Maplewood HS Nashville, TN	Verlene Smith	\$60.00	\$60
Kam Gregory	Gordonsville HS Gordonsville, TN	David McCarr	\$285.00	\$285

Resolutions Committee: Acting chairperson Sally Noel for Betty Davis presented the Resolution of Appreciation which was approved by vote of the Executive Committee and will be presented to the membership for approval at the annual business meeting 18 November 1995.

AD HOC COMMITTEES

Committee of Board Expansion: President Nelson appointed Linda Lawson to chair the committee, including members Richard Raridon and Martha Weller, to continue to study the possibility of adding board members to represent the junior college membership and the private sector. The committee was directed to submit a proposal to the Executive Committee in April.

Committee on Proceedings and Operations: Chairperson Sliger reported plans to incorporate TAS proceedings and operations into the Home Page being developed for TAS. Officers are directed to submit descriptions of duties to chairperson John Harris, who will head the committee when Sliger's term on the Executive Committee expires. Records and descriptions of duties should be passed to new officers.

Distinguished Scientist Award: President Nelson presented examples of selection criteria for purposes of discussion. Executive Committee members Martha Weller and Jack Rhoton will serve with Diane Nelson to develop a description of the nature of the award and selection criteria for discussion at the April Executive Committee meeting.

OLD BUSINESS

Copies of TAS Travel Expense Guidelines, approved at the 28 April 1995 Executive Committee meeting, were distributed to board members. Adherence to the established guidelines will help to reduce board expenses.

Treasurer Harris reported on his conversations with the state archivist regarding the establishment of an official depository for the *Journal* and other TAS records. The state archivist needs an estimate of the amount of material involved, types of documents, etc. President Nelson appointed a committee composed of Treasurer Harris, Secretary Swain, and Director of the Junior Academy, Jack Rhoton, to determine the amount and types of materials suitable for preservation. Sarah Swain will serve as chairperson. Complete sets of the *Journal* are known to exist at Rhodes College, The University of Memphis, and the University of Tennessee-Chattanooga. The set housed at the State Library in Nashville lacks only the first two volumes.

Petitions to form two new sections, Microbiology and Ethics in Science and Technology, were approved by the Executive Committee in its 28 April 1995 meeting. The petitions for the new sections will be presented to the membership for approval at the 18 November 1995 annual business meeting. Editor Kennedy needs section editors for the new sections.

Local Arrangements Chairperson, Bruce Conn, discussed plans for the 22 November 1996 annual meeting to be held at the University of the South, Sewanee. On behalf of TAS, President Nelson expressed appreciation to Chairperson Conn and the University of the South for offering to host the 1996 meeting.

NEW BUSINESS

Past President, Wilburn A. Sliger, presented an invitation from Chancellor Margaret Perry to hold the 1999 annual meeting on the University of Tennessee-Martin campus. The motion to accept the invitation was approved.

Meeting locations for 1997 and 1998 are undetermined. The possibility of a joint meeting with the Tennessee Science Teachers Association (TSTA) was discussed. Linda Jordan and Jack Rhoton will contact the TSTA to discuss the feasibility of a joint meeting in 1998. A motion to approve a joint meeting, contingent on acceptance by TSTA, was approved.

President Nelson presented an attractive 4' X 8' banner which will be displayed during the 1995 annual meeting. The banner with the TAS logo will be passed to each TAS president for use at the annual meeting each year. A motion to approve an official TAS logo and letterhead in "chancellor" font, as presented by President-elect Kesler, passed.

TAS mailserver has been established. A mailserver (or listserv) is like an automatic mailing service. Messages sent to the list are automatically broadcast to all people who have subscribed to the list. There are hundreds of these currently in use serving all kinds of interests. Mailservers differ from news groups in that only those who are subscribers (no cost) receive mail messages from the mailserver. To

subscribe, send the message SUB TAS-L to the address: mailserv@rcvax.rhodes.edu. Information about TAS as an organization will be published in the *Journal* and on the World Wide Webb TAS Home Page: <http://www.utm.edu/departments/artsci/tas.htm>

Institutional membership for community colleges, established at \$250, was approved at the 28 April 1995 Executive Committee meeting. Discussion focused on how to solicit memberships. President Nelson and President-elect Kesler will assemble a packet of TAS information for presentation to college presidents. The Executive Committee will consider expanding its board membership to include representatives from community colleges.

Documentation to verify selection criteria for Distinguished Service Award were presented for Dr. David J. Wilson and Dr. Ben Stone. A motion to approved the nominations passed. The Executive Committee expressed appreciation to Past-president Wilburn A. Sliger for his service to TAS. His term on the Executive Committee expires 31 December 1995.

President Nelson adjourned the meeting of the Executive Committee at 3:55 PM.

THE ONE HUNDRED AND FIFTH MEETING OF THE TENNESSEE ACADEMY OF SCIENCE 16-18 November 1995 Bowling Green, Kentucky

The annual meeting of the Tennessee Academy of Science (TAS) was held as a joint meeting with the Kentucky Academy of Science (KAS) in Bowling Green, Kentucky, at the Bowling Green Convention Center, 16-17 November 1995. Meeting arrangements and program planning were completed by the combined efforts of the KAS Local Arrangements Committee, Darwin Dahl, Chairperson, and TAS President-elect, David Kesler. TAS President Diane Nelson and KAS President Robert O. Creek presided. Total registered: 227 TAS members and 447 KAS members.

The TAS Executive Committee meeting was held Thursday, 16 November 1995, in Room 4 of the Bowling Green Convention Center. A symposium, sponsored by KAS Agricultural Sciences Section, on "The Information Superhighway: Applications and Implications for Science" was held Thursday evening in the Convention Center. The topic for Friday's joint Plenary Session was "The Tennessee and Cumberland River Systems." Dr. Roy Van Arsdale, University of Memphis, and Dr. David Etnier, University of Tennessee, speakers. Section meetings, held Friday and Saturday, featured KAS and TAS presenters, as listed in the printed program. Posters and vendor exhibits were displayed in the Convention Center Friday and Saturday. Separate KAS and TAS annual business meetings convened Saturday morning.

ANNUAL BUSINESS MEETING 18 November 1995

President Diane Nelson convened the annual business meeting of the Tennessee Academy of Science, 9:15 AM in Ballroom B of the Bowling Green Convention Center, Bowling Green, Kentucky. A motion to suspend the reading of the minutes of the 1994 meeting was approved.

The Treasurer's report, presented by Treasurer John W. Harris, is provided in full in the minutes of the Executive Committee. Treasurer Harris recognized the efforts of Dr. Rubye Torrey in obtaining a generous contribution to the Academy from the Hewlett-Packard Corporation.

The Managing Editor's report was read by President Nelson and is printed in full in the minutes of the Executive Committee. In response to a request by Managing Editor Phyllis Kennedy, President Nelson encouraged members to solicit quality manuscripts for publication.

President Nelson read the Junior Academy report submitted by Director Jack Rhoton. Dr. Richard Raridon, Director of the Collegiate Division, presented a report of the three regional collegiate meetings. The Audit Committee report, read by President Nelson, demonstrates the financial stability of the Academy.

On the recommendation of the Fellows Committee, chaired by Dr. S. K. Ballal, and, with the approval of the Executive Committee, a motion was passed to designate the following members as Fellows of the Academy: Dr. Judith M. Bonicamp; Dr. Steven W. Hamilton; Dr. Gladius Lewis; Dr. Fred J. Matthews; Dr. James M. McCluskey; Brother Kevin Ryan; Ms. Sarah H. Swain.

A motion was passed to accept 43 new members whose names are printed in the April 1995 issue of the *Journal*. A motion to suspend the reading of the names was approved.

The report of the Necrology Committee, chaired by Dr. William E. Solomons, was read by President Nelson. A moment of silence was observed in remembrance of Dr. Fred Wolf and Dr. R. T. Lagemann, both past-presidents and Fellows of the Academy, and Dr. John Gillette.

The slate of officers presented by the Nominating Committee, and approved by the Executive Committee, was read by President Nelson as follows: David Kesler, President; Michael Daley, President-elect; Sarah H. Swain, Secretary; John W. Harris, Treasurer.

The following resolution, prepared by the Resolutions Committee, Betty Davis chairperson, was read by Sallie Noel:

RESOLUTION OF APPRECIATION

"WHEREAS, the Tennessee Academy of Science is enjoying a most pleasant, profitable, and well-organized series of meetings at Western Kentucky University, and

WHEREAS, this is the first joint meeting between the Tennessee Academy of Science and the Kentucky Academy of Science, and

WHEREAS, the success of these meetings has resulted mainly from the efforts of the officers of the respective sections, the Local Arrangements Committee representing Western Kentucky University, composed of Darwin Dahl, Lester Pesterfield, Zack Murrell, and Frank Conley; from the exemplary efforts of David Kesler (TAS President-elect) and Robert Creek (KAS President); from the recognition given the meetings by the press, television, and radio stations; and from the general hospitality of the host institution, Western Kentucky University and its President, Dr. Thomas Meredith, and Dean Martin Houston of The Ogdon College, WKU;

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

President Nelson and President-elect David Kesler expressed appreciation to the Bowling Green newspapers and television station for their generous coverage of the first joint meeting of the Kentucky Academy of Science and the Tennessee Academy of Science.

Petitions for new sections, approved by the Executive Committee, were presented to the membership for approval. Microbiology and Ethics in Science and Technology were approved as new sections by the membership.

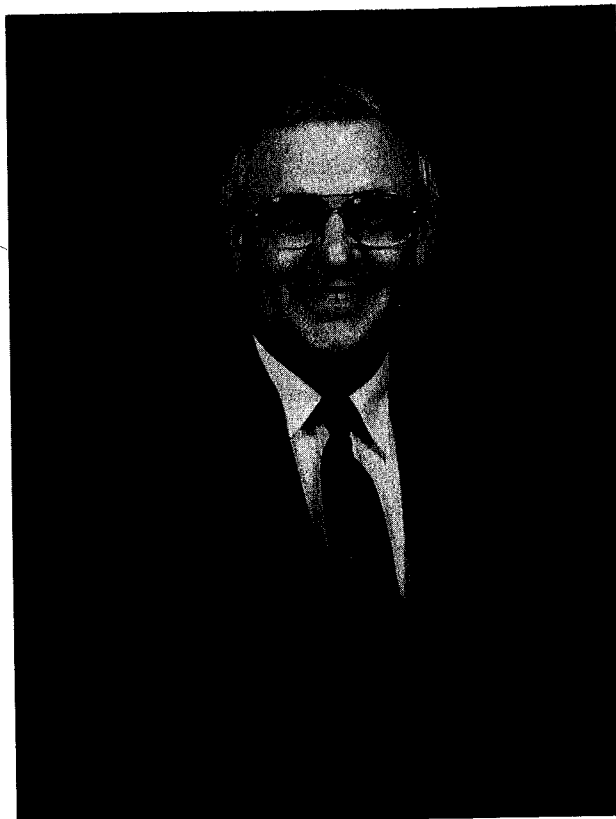
President-elect Kesler explained the World Wide Webb TAS Home Page and expressed appreciation to Wilburn A. Sliger, Past-president, for his work in establishing the Home Page for TAS.

President Nelson presented the TAS Distinguished Service Award to Dr. David J. Wilson and Dr. Benjamin P. Stone. The letters printed below were read to the membership:

The following document supports the nomination of Dr. David J. Wilson: "This is to reiterate the oral nomination (made at the Executive Committee meeting in April 1995) of Dr. David J. Wilson for the Distinguished Service Award of the Tennessee Academy of Science. David served as Chemistry Section Editor for the *Journal* from 1985 to 1994. Additionally, David has supported the Academy for many years through membership and participation in activities of the Academy. He has presented papers or sponsored student research presented at annual meetings of TAS since 1977. He also has sponsored student research presented at Collegiate Division meetings. Several papers (ca. five) authored or co-authored by David have been published in the *Journal of the Tennessee Academy of Science*. David has served the Academy well, and the Academy should take this opportunity to show appreciation for his years of service."

The following document supports the nomination of Dr. Benjamin P. Stone: "Dr. Ben Stone has been an active member and Fellow of the Tennessee Academy of Science for many years. He has published articles and guided graduate students to publish articles in the *Journal of the Tennessee Academy of Science*. Dr. Stone has served on TAS committees and as Chair of the Botany Section at the annual meeting. He has also served in the following capacities: member-at-large on the TAS Executive Committee (1985-1988); President-elect (1990); President (1991); Past President (1992). During his six years on the Executive Committee, Dr. Stone was instrumental in securing state funding for the Academy. He set up a committee to revise the TAS constitution. The revised constitution was approved by the membership in 1993. Dr. Stone also worked with Dr. Mike Kennedy to establish an endowed fund for life memberships which improved the financial stability of the Academy. As Director of the State Center of Excellence for Biological Field Studies, Dr. Stone was instrumental in assisting the Academy to publish a Symposium on Vegetation and Flora of Tennessee (1989) and Vertebrates of Tennessee and Kentucky (1991) as special editions of the *Journal*. Dr. Stone worked with Dr. Larry Hall and others to secure an endowment from the International Science Fair to stabilize long term funding of the TAS Junior Academy of Science. He worked extensively behind the scenes toward an historic joint meeting of the Kentucky Academy of Science and the Tennessee Academy of Science. This project spans some 13 years culminating in the joint meeting in November 1995 in Bowling Green, Kentucky. Dr. Stone continues to be an active and valuable member of the Academy."

President Nelson announced that the 1996 annual meeting of the Tennessee Academy of Science would be held at the University of the South, Seawanee, with Dr. Bruce Conn serving as Local Arrangements Chairman. The new 4' X 8' TAS logo banner, displayed during the 1995 meeting, will be passed to each succeeding president for display at each annual meeting. President Nelson thanked the Executive Committee and the TAS membership for their participation and support during her term as president. The gavel was passed to David Kesler, 1996 President, who adjourned the meeting.



Dr. Benjamin P. Stone
Distinguished Service Award 1995