

PROCEEDINGS OF THE TENNESSEE ACADEMY OF SCIENCE 1999

SARAH H. SWAIN, SECRETARY TAS

*Middle Tennessee State University, Murfreesboro, Tennessee*Tennessee Academy of Science Executive
Committee Meeting
23 April 1999

The Executive Committee meeting of the Tennessee Academy of Science (TAS) was called to order by President Steven Murphree at 7:00 PM in the Board Room of the Jack Massey Business Building, Belmont University, Nashville, Tennessee, 23 April 1999. Members present were David J. Wilson, President-elect; Eugene Kline, Past President; Sarah H. Swain, Secretary; John W. Harris, Treasurer; M. Gore Ervin, Managing Editor; Jack Rhoton, Director of the Junior Academy of Science (TJAS); Richard Raridon, Director of the Collegiate Division; Martin Stewart, Member-at-large; Michael L. Daley, Director of the Visiting Scientist Program (VSP).

Minutes of the 19 November 1998 Executive Committee meeting had been mailed to committee members by Secretary Swain. Several corrections were noted and a motion to approve the minutes passed.

REPORTS FROM OFFICERS AND DIRECTORS

Past President Kline reported that certificates had been sent to the winners of the student presentation and poster competitions held at the November 1998 annual meeting. In the future the Research Committee, Rudy Gostowski, chairperson, will handle judging and awards for the student competition. A plan that facilitates timely distribution of certificates needs to be developed. Past President Kline expressed thanks to Ted Lundy for making the appropriate contacts to identify a recipient for the Industrial Scientist Award. He called for a more active Publicity Committee, greater involvement on TAS committees by members in the community colleges, and investment guidance from the Financial Oversight Committee. He recommended that the committee structure proposed by the Long Range Planning Committee be used as a model for other new committees.

President-elect David Wilson reported that numerous difficulties had been encountered in his efforts to obtain a suitable Nashville site for the joint meeting of the Kentucky Academy of Science (KAS) and TAS proposed for the year 2000. Currently, President-elect Wilson and Member-at-large Martin Stewart are investigating Middle Tennessee State University (MTSU) in Murfreesboro, Tennessee as a possible meeting site. Details will be forwarded by electronic mail to members of the Executive Committee as they become available.

Michael Daley reported for Local Arrangements Chairperson, Art Geller, regarding plans for the 1999 annual meeting to be held at the University of Tennessee Memphis Health Sciences Center. Meeting rooms have been reserved. The Local Arrange-

ments Committee will select a theme and a keynote speaker for the event. Executive Committee members recommended that the title submission form be revised to require a complete mailing address for the presenting author, and to identify student author/presenters. Managing Editor Ervin and Secretary Swain will revise the form for the 1999 Call for Papers to be mailed in June.

Visiting Scientist Program Director Michael Daley reported on his meeting with Memphis City School personnel. He continues to encourage participation in the TAS Networks program for K-12 students available on the TAS website. President Murphree has contacted Tennessee Science Teachers Association (TSTA) president Monty Howell about promoting the TAS Visiting Scientist Program within that organization.

Visiting Scientist Program Director Daley also is coordinating TAS efforts to recognize regional science fair winners. Six regional science fairs have been identified and a TAS representative has volunteered for each: Knoxville Regional Science Fair, Richard Raridon; Shelby County/Memphis City Schools Science Fair, Michael Daley; Upper Cumberland Regional Science Fair, Eugene Kline; Upper East Tennessee Science Fair (grades 4-8), Jack Rhoton; and Middle Tennessee Regional Science Fair, David Wilson. The TAS volunteers will award two \$50 awards with certificates at each of the six fairs. David Wilson noted that mentors for science fair projects are desperately needed in all regions and that TAS members across the state could provide a valuable service. Past President Kline suggested that the need for science fair judges and mentors be announced on the TAS website.

Jack Rhoton described National Science Teachers Association (NSTA) initiatives to establish a science presence in the classroom and to help teachers implement national science education standards. Rhoton and Linda Jordan, Tennessee Department of Education Science Consultant, are involved at the state level to recommend funds for training sessions for teachers.

Treasurer John W. Harris presented the following 23 April 1999 report:

CASH BALANCE—JULY 1, 1998	52,440.10
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RECEIPTS

Membership Fees	9,563.00
Institutional Dues	5,000.00
Library Subscriptions	2,560.00
Interest Earned, Firststar Bank	444.47
Dividends Earned, J. C. Bradford	
Money Market	836.26
Contributions	255.00
Annual Meeting Registration and	
Luncheon Fees	4,005.00
Journal Sales	15.00

Exhibitors' Fees	50.00
Journal Page Charges	1,183.00
Life Membership Trust Fund	431.25
TJAS Trust Fund	2,451.10
Void Un-cashed Checks	370.20
TOTAL RECEIPTS	27,164.28

TOTAL CASH AVAILABLE 79,604.28

DISBURSEMENTS

Tennessee Junior Academy of Science	7,366.95
Annual Meeting	3,038.53
Treasurer's Expenses	490.36
Secretary's Expenses	587.09
Security Bond	100.00
Travel	166.51
Journal	3,113.36
Dues/Fees	142.50
Auditor's Fee	950.00
AAAS Meeting Expenses	500.00
Collegiate Division	786.78
Plaques	278.21
Membership Committee	46.20
TOTAL DISBURSEMENTS	17,566.49

CASH BALANCE - April 23, 1999 62,037.89

Receipts	27,164.28
Disbursements	17,566.49
Cash Increase	9,597.79

BREAKDOWN OF HOLDINGS

U.S. Postal Service, Lawrence, KS	500.00
T. T. U. Account	535.07
Checking Account, Firststar Bank	2,718.17
Savings Account, Firststar Bank	33,757.17
Money Market Fund, J. C. Bradford	24,527.48

TAS HOLDINGS as of April 13, 1999 62,037.89

TJAS TRUST FUND (Vanguard Star Fund)

(7,834.2333 shares owned as of 03/31/99)	
Account Value 09/30/98	128,422.91
Deposits (Capital Gains Reinvested)	7,279.03
Disbursements (Dividend Distributions)	
12/31/98	2,451.10
Account Value as of 12/31/98	140,702.82
Account Value as of 03/31/99	142,661.38

LIFE MEMBERS TRUST FUND (J. C. Bradford)

(15 3-year U.S. Treasury Notes @ \$1,000 ea., Date of Issue - 11/15/97)	
Value of Notes as of 09/30/98	15,407.85
Disbursements (Interest Income)	
11/15/98	431.25
Estimated Annual Income	862.00
Value of Notes as of 12/31/98	15,290.70
Value of Notes as of 03/31/99	15,164.10

TOTAL VALUE OF HOLDINGS
as of April 23, 1999 219,863.37

Treasurer Harris explained that Trans Financial Bank had changed its name to Firststar Bank. A motion to approve the report passed. Treasurer Harris presented the 1999-2000 budget recommendations based on past patterns of income and expenses. He noted that the recommended budget is much the same as recommended for 1998-1999 even though less was spent than budgeted that year. The following budget for 1999-2000 was approved:

RECOMMENDED BUDGET FOR 1999-2000

	Projected Income (1999-2000)
Membership Dues	10,000.00
Institutional Memberships	5,000.00
Annual Meeting Fees	4,000.00
Journal Page Charges	3,000.00
Library Subscriptions	2,500.00
Interest/Dividends Earned	2,000.00
Exhibitor's Fees	200.00
Contributions	200.00
TJAS Trust Fund	4,000.00
Life Members Trust Fund	850.00
TOTAL	31,750.00
	Approved (1999-2000)
Secretary	\$ 600.00
Treasurer	1,200.00
Junior Academy	9,000.00
Visiting Scientist Program	2,000.00
Journal	10,000.00
Annual Meeting	4,000.00
Collegiate Division	1,200.00
Travel	800.00
A.A.A.S. Meeting	500.00
Audit Fee	975.00
Annual Dues/Fees	150.00
Insurance/Security	100.00
Plaques/Awards	250.00
President	125.00
Website Maintenance	250.00
Publicity	600.00
TOTAL	31,750.00

M. Gore Ervin, Managing Editor for the *Journal of the Tennessee Academy of Science*, presented the following report: "The *Journal* manuscript database currently contains 43 files. The distribution of these manuscripts includes the following categories: Accepted - 9, in review/evaluation - 11, returned for revision/resubmission - 16, new submissions to be reviewed - 1, undetermined status - 1, rejected - 3, withdrawn - 2. This listing includes 19 manuscripts submitted in 1998 and 3 manuscripts submitted in 1999. The remaining manuscripts are submissions from 1995-1997. The July-October 1997 issue (Volume 72:3-4) was published and distributed to the membership in late November 1998. Preparation of the 1998 issues of the *Journal* is progressing. In addition to the society business normally relegated to the January-April issue, Volume 73:1-2 will contain three manuscripts. The July-October issue, Volume 73:3-4 will contain six papers."

Managing Editor Ervin also reported that the mailing expenses for the recent issue of the *Journal* were covered by the

MTSU Department of Biology, Dr. George Murphy, Chairperson. A motion by Treasurer Harris for President Murphree to extend thanks to Dr. George Murphy on behalf of TAS was approved. A motion to accept the Managing Editor's report was approved.

President Murphree announced that Michael Redding (Tennessee Technological University) has accepted a 3-year term as TAS Meeting Coordinator. No report was submitted.

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

"The 1999 spring meeting of the TJAS was held on Friday, April 23, at Pearl Cohn High School in Nashville. A total of twenty-seven students were invited to present their research papers. This year we received forty-seven research papers from students throughout the state. During the April meeting, a framed certificate and a small honorarium (\$100) was presented to an outstanding secondary science teacher from each region of the three grand divisions of the state. The recipients of this year's award are as follows: Fred Wetzel (AP Physics), Science Hill High School, Johnson City; Teresa Celusta (Physical Science, Biology, and Chemistry), Northwest High School, Clarksville; and Claudine Stansbury (Physical Science and Biology), Sheffield High School, Memphis. These TAS Distinguished Teacher Awards recognize teachers for the outstanding contribution to science education and for stimulating and inspiring students to an active interest in science. This year the Awards Committee received twenty-one nomination packets."

Director Rhoton reported that today's meeting at Pearl Cohn High School was very successful and that several TAS members attended as observers. He will begin the process to select a recipient for the Distinguished Secondary School Science Teacher Award to be presented at the fall annual meeting and will prepare the press release for that award. He thanked TAS for supporting these awards for teachers. A reading committee at East Tennessee State University will select the best student papers. Winners will be determined by the ratings from three judges from across the state. Six or seven papers will be published in the *TJAS Proceedings*. A copy of the *TJAS Proceedings* will be sent to all secondary science and math department chairs across the state. A motion to accept Director Rhoton's report was approved.

Richard Raridon, Director of the Collegiate Division, presented the following report:

"The Western Regional Meeting was held at Rhodes College in Memphis on March 20, 1999. A total of thirty-five students from five schools presented papers. The Eastern Regional Meeting will be held at The University of Tennessee, Chattanooga on April 24, 1999. Ten papers will be presented by students from four schools. The Middle Regional Meeting was held at Austin Peay State University in Clarksville on April 17, 1999. A total of twenty-one papers were presented by students from six schools. The regional sponsors are Dr. Fred Matthews, Austin Peay State University, Dr. Gary Litchford, The University of Tennessee at Chattanooga, and Dr. Charles Biggers, The University of Memphis."

Director Raridon explained that each year the host schools cover part of the expenses for the meetings. Meeting costs average \$700–800/year at each school. TAS pays \$400. A motion to accept Director Raridon's report was approved.

Richard Raridon also serves as the TAS delegate to the American Association for the Advancement of Science (AAAS) and the National Association of Academies of Science (NAAS). He submitted the following report:

"I represented TAS at the American Association for the Ad-

vancement of Science and the National Association of Academies of Science held in Anaheim, CA on January 21–26, 1999. TAS is affiliated with AAAS through representation in Section Y, General Interest in Science and Engineering. Section Y sponsored several symposia at the meeting.

NAAS sponsored a workshop at the meeting entitled "Informal Science Education". The following talks were presented: Larry Thomas, Science Museum of Minnesota, "Museum on the Move-IMAX and Trunks"; Rick Baker, Orange County Marine Institute, "Informal Science Programs in Support of Classroom Curricula"; Robert Hirshon, AAAS, "Children's Science Radio Programs"; Lynn Elfner, NAAS/Ohio Academy of Science, "Role of Science Academies in Student Inquiry Based Learning"; Gene Kritsky, NAAS/Indiana Academy of Science and College of Mount St. Joseph, "Distance Learning Using the Web (www.msj.edu/kritsky)"; Frances Rosamond, National University, "Outreach Activities of Mathematics/Science in the Community" (San Diego Science Alliance is at www.sdsa.org).

The NAAS web site is at astro.physics.sc.edu/naas/naas.html. It has links to many state academies, including Tennessee.

There were no students representing Tennessee at the American Junior Academy of Science program. Next year's meeting will be February 17–22, 2000, in Washington, DC."

After discussion, the Executive Committee agreed that TAS could sponsor several Tennessee students at the American Junior Academy of Science next year. Raridon will work with Jack Rhoton, TJAS Director, to identify students to attend next year in Washington, DC. Eugene Kline will contact Ted Lundy, Industry/Government Committee Chairperson, to make the appropriate contacts for possible industrial sponsors. Usually \$300–400 per student is required. TAS currently budgets a total of \$500 for two students. A motion to accept the report passed.

Director of Electronic Communications, David Kesler, submitted the following report:

"The major activity of this position has been managing the TAS Membership/Networks Database and promoting the Networks Program. I met with Deborah Gunn of the Memphis City School (MCS) on January 21, 1999 and gave a presentation to technology representatives from different schools. On February 16, Michael Daley and I met with Ms. Gunn and two consultants for MSC. I was put in contact with the web manager for the MCS system who posted an announcement of the Networks Program. I also contacted the principals of schools who have linked their schools' web pages to a common site.

Use of the TAS Networks database has been less than hoped. Between February 20 and April 19, 1999 there have been 252 individuals who have used this resource. Data have been archived on the terms queried.

A request will be sent in June to all of the Networks Scientists asking them to report their interactions with students originating from the Networks Program.

The other major activity of this position has been updating the TAS web site."

A sample of the website entry asking for ideas for a new TAS logo was provided by Director Kesler. Logo ideas can be submitted to Dr. C. Steven Murphree, TAS President, Department of Biology, Belmont University, Nashville, Tennessee 37212–3757; murphrees@mail.belmont.edu.

Executive Committee members discussed the need to encourage TAS members to enroll in the Networks database. An opportunity for members to request to be included in the database

will be provided in the 1999 Call for Papers. A motion to accept the report passed.

REPORTS OF COMMITTEES

The following report was submitted by Ted Lundy, Industry/Government Committee Chairperson: "We have not had a formal committee meeting yet this year. Perhaps we'll operate as last year—remotely, using the web and the telephone. As of now, the TAS Industrial Scientist of the Year for 1998, Dr. Barry Jones (now retired from DuPont, Old Hickory, Hendersonville) has agreed to help the committee in choosing the 1999 award selection. Perhaps we'll eventually have enough winners who choose to help TAS in this manner that we can depend primarily on their input. In addition, each and all should help solidify industry interest in TAS. The government part of the Committee "bombed out" last fall for two reasons: Economic and Community Development (ECD) leadership was not available at key times because of the Governor's re-election campaign and a choice had not been made for Director, Tennessee Technology Development Corporation (TTDC). Neither of these two problems should impact this fall's TAS program. TTDC now has a director and he was chosen by the ECD Commissioner to assist the TAS Industry/Government Committee. I expect to continue to use my office staff to do mass mailings to Tennessee Industry to keep their interest going, although most companies do not yet know how to handle us. It'll take additional time for that interest to build."

A motion to accept Chairperson Lundy's report passed.

John Schommer, Membership Committee Chairperson, submitted a report, which included the following: Chairperson Schommer attempted to recruit new members from 140 new fall hires across the state. Application forms and a letter were sent to each prospect. Results from this effort were disappointing. Schommer has been exchanging recruitment ideas with Carol Lewandowski of the Illinois Academy of Science who suggested a full-scale effort be made in the city hosting the annual meeting a few months prior to the meeting. Chairperson Schommer plans to display TAS information and membership forms at this spring's Tennessee Math Teachers Association meeting to be held on The University of Tennessee, Martin campus.

The Executive Committee suggested that the TAS Publicity Committee could help with a recruitment effort in Memphis prior to the 1999 annual meeting. President Murphree will contact Publicity Committee Chairperson, Teresa Fulcher. TAS brochures need to be updated and distributed to Publicity and Membership Committee Chairpersons. President Murphree suggested that Tennessee Math Teachers Association be invited to join TAS as an affiliated society. A motion to accept the report from the Membership Committee passed.

No report was submitted by the Publicity Committee. President Murphree reported the recent appointment of Teresa Fulcher, Pellissippi State Community College, as committee chairperson.

No report was submitted by the Research Committee. President Murphree reported that the committee would work to improve the timely distribution of student awards and certificates following the annual meeting.

Past President Kline reported that the Nominating Committee would submit a slate of officers at the November Executive Committee meeting.

President-elect David Wilson and Member-at-large Martin Stewart reported for the ad hoc TAS/KAS-2000 committee. A detailed planning outline was provided to members of the Ex-

ecutive Committee. If MTSU agrees to host the 2000 meeting (see earlier discussion), a different middle Tennessee location will be needed for the 2001 annual meeting. The ad hoc committee will keep the Executive Committee informed of progress in TAS/KAS-2000 meeting plans.

Long Range Planning Committee Chairperson, George Murphy, informed President Murphree that a report would be submitted for the fall Executive Committee meeting.

OLD BUSINESS

The 1999 annual meeting will be held on the campus of The University of Tennessee Health Sciences Center in Memphis, November 18-19. A joint meeting with KAS will be held in the middle Tennessee area in the year 2000. A middle Tennessee site for the 2001 meeting will be determined after plans for the joint TAS/KAS-2000 meeting have been finalized. The 2002 meeting will be held in the east. Executive Committee members agreed that community college sites should be considered when feasible.

President Murphree will continue to work with David Kesler on the TAS logo project. Suggestions are welcomed from the membership.

NEW BUSINESS

Past President Kline requested original copies of the 1972 *Journal of the Tennessee Academy of Science*. Memoirs of Samuel Colville Lind, included in the 1972 issue, are requested by the University of Minnesota where a building is being dedicated to Samuel Colville Lind.

The Executive Committee discussed the issue of undergraduate presenters competing for awards at the annual meeting. Concern for reduced participation at Collegiate Division meetings was expressed. The possibility of permitting undergraduate participation, but limiting award competition to graduate student presenters, was discussed. Currently, undergraduate competition in the poster session also is permitted. The issue will be deferred to the Research Committee for consideration.

TAS member, James X. Corgan, has proposed a series of articles on TAS history for publication in the *Journal*. A motion passed to encourage Dr. Corgan to submit the articles to the Managing Editor for approval for publication.

The Executive Committee examined application packets from nominees for the Distinguished College/University Scientist Award and voted to present the award to Dr. Marion R. Wells (Professor of Biology, Middle Tennessee State University) at the 1999 annual meeting. President Murphree will notify the candidates and nominators of the Executive Committee's decision.

President Murphree adjourned the 23 April 1999 meeting of the Executive Committee of the Tennessee Academy of Science at 10:55 PM CST.

TAS Executive Committee Meeting 18 November 1999

The 18 November 1999 meeting of the Tennessee Academy of Science Executive Committee was called to order by President C. Steven Murphree at 7:30 PM, in Room 215 of the Student Alumni Center, on the campus of the University of Tennessee, Memphis. President Murphree introduced new members to the Executive Committee: Publicity Chairperson Teresa Fulcher, Member-at-large Karen Kendall-Fite, and Membership Committee Chairperson John Schommer.

Members in attendance were President Steven Murphree,

President-elect David J. Wilson, Past President Eugene Kline, Secretary Sarah H. Swain, Treasurer John W. Harris, *Journal of the Tennessee Academy of Science* Managing Editor M. Gore Ervin, Director of the Junior Academy Jack Rhoton, Director of Electronic Communications David Kesler, Meeting Coordinator Michael Redding, Publicity Chairperson Teresa Fulcher, Membership Chairperson John Schommer, Industry and Government Chairperson Ted Lundy, Financial Oversight Chairperson Andy Sliger, Members at large Martin V. Stewart and Karen Kendall-Fite, and Local Arrangements Committee Chairperson Arthur Geller.

Minutes of the April 1999 meeting of the Executive Committee had been mailed by Secretary Swain to the committee members prior to the meeting. A motion to approve the minutes passed.

REPORTS FROM OFFICERS AND DIRECTORS:

President-elect and Program Chairperson, David J. Wilson thanked David Kesler, Michael Daley, Arthur Geller, and Michael Redding for organizing the annual meeting and reported that arrangements were ready for the meeting to begin on the University of Tennessee, Memphis campus.

Treasurer: John W. Harris presented the following 18 November report:

CASH BALANCE—JULY 1, 1999	\$61,194.15
RECEIPTS	
Membership Fees	4,145.00
Institutional Dues	5,000.00
Library Subscriptions	420.00
Interest Earned, FirstStar Bank	169.87
Dividends Earned, J.C. Bradford Money Market	398.99
Contributions	50.00
Annual Meeting Registration and Luncheon Fees	1,110.00
TOTAL RECEIPTS	11,293.86
TOTAL CASH AVAILABLE	72,488.01
DISBURSEMENTS	
Tennessee Junior Academy of Science Annual Meeting	4,226.79
Treasurer's Expenses	200.00
Secretary's Expenses	534.11
TOTAL DISBURSEMENTS	5,488.72
CASH BALANCE - November 15, 1999	66,939.29
Receipts	10,297.63
Disbursements	5,548.72
Cash Increase	4,748.91
BREAKDOWN OF HOLDINGS	
U.S. Postal Service, Lawrence, KS	500.00
T. T. U. Account	196.32
Checking Account, FirstStar Bank	5,146.49
Savings Account, FirstStar Bank	20,910.49
Money Market Fund, J. C. Bradford	40,185.99
TAS HOLDINGS as of November 15, 1999	66,939.29

TJAS TRUST FUND (Vanguard Star Fund)	
(7834.233 shares owned as of 09/30/99)	
Account value as of 03/31/99	142,661.38
Deposits (Capital Gains Reinvested)	0.00
Disbursements (Dividend Distributions) 06/30/99	2,036.90
Estimated Annual Income	862.00
Value of Notes as of 06/30/99	15,056.25
Value of Notes as of 09/30/99	15,046.95

TOTAL VALUE OF HOLDINGS,
November 15, 1999 \$222,924.09

Treasurer Harris reported that the Operations Manual was almost complete and would be distributed to members of the Executive Committee. He needs information on the duties of Meeting Coordinator and Publicity Chairperson to complete the manual. A motion to accept the Treasurer's report was approved.

Managing Editor: M. Gore Ervin, presented the following report: "There were nineteen new manuscripts submitted in 1998 and a total of nine manuscripts have been submitted thus far in 1999. Five manuscripts that were received prior to 1998 but not reviewed also have been processed to section editors/reviewers. A total of twenty manuscripts have been accepted for publication, and seventeen manuscripts are in review or have been returned to the author for revision. One manuscript was withdrawn and one manuscript was rejected.

Volume 73:1–2 (January–April 1998) was sent to Allen Press in early November and includes three manuscripts. Volume 73:3–4 is nearing completion and will contain six manuscripts. Volume 74:1–2 will contain three manuscripts and Volume 74:3–4 will contain ten. Accumulation of materials for Volume 75:1–2 will begin following the fall meeting. Volume 75:1–2 will include three manuscripts."

A motion to accept the Managing Editor's report passed. Editor Ervin suggested that Section Chairpersons collect hard copy of abstracts of papers presented at the meeting. Electronic format for abstracts also was discussed. President Murphree recommended continuing to feature the host institutions in the journal. The TAS Meeting Coordinator would be responsible for contacting the institution's public relations personnel and gathering the pertinent information. The TAS Publicity Chairperson also would need such information for news releases. Awards should be featured in the *Journal* with pictures of recipients when possible. The President will see that the information gets to the Managing Editor.

Collegiate Division: No report was available from Director Richard Raridon. Dr. Raridon is serving his last term as the TAS representative to AAAS, Section Y and will attend the national meeting in February 2000. Michael Redding has agreed to accept the next term of office and will accompany Dr. Raridon to the meeting this year as an observer.

Junior Academy of Science: Director, Jack Rhoton, presented the following report: "The 1999 spring meeting of the Tennessee Junior Academy of Science (TJAS) was held on Friday, April 23 at Pearl Cohn Comprehensive High School in Nashville. A total of forty-four papers were submitted. Twenty-six of these were selected by a panel of readers for presentation at the annual meeting. The two top presenters were Katherine S. Redding, Cookeville High School, Cookeville, and Andrew B. Cowan, Tennessee High School, Bristol. The title of Ms. Redding's paper was "Hsc-70: Induced expression in maize after thermal stress." Mr. Cow-

an's paper was entitled, "A Survey of owl populations in Trinkle Hollow of Steele Creek Park, Sullivan County, Tennessee." Both papers were published in the 1999 *Handbook of the Tennessee Junior Academy of Science*, along with five other papers of the top seven winners. Also, an abstract of each paper presented at the annual meeting was printed in the *Handbook*. The *Handbook* was sent to all high school science departments as identified in the Tennessee State Department of Education's Directory of Public Schools, Approved Non-public and Special State Schools.

Five TJAS student winners are making plans to attend the American Junior Academy of Science (AJAS) meeting in Washington, D.C., during February 16-20, 2000: Sisir Botta, "Genetic diversity within *Helicobacter pylori*" (Martin Luther King Junior Magnet High School); Andrew Cowan, "A survey of owl populations in Trinkle Hollow of Steele Creek Park, Sullivan County, Tennessee (Tennessee High School); Katherine Redding, "Hsc-70: Induced expression in maize after thermal stress" (Cookeville High School); Kenneth Robertson, "The degradation of polyphosphates in commercial anti-corrosives" (Dickson Junior High School); Linda Zhang, "Identification of the molecular targets of a novel, potent anti-HIV agent" (Martin Luther King Junior Magnet High School).

During the April 23 meeting, a framed certificate and a small honorarium (\$100) was presented to an outstanding secondary science teacher from each region of the three grand divisions of the state. The recipients of the awards are as follows: Fred Whetzel (AP Physics), Science Hill High School, Johnson City; Teresa Celusta (Physical Science, Biology, Chemistry), Northwest High School, Clarksville; Claudine Stansbury (Physical Science and Biology), Sheffield High School, Memphis.

Jane T. Whitaker has been named recipient of the prestigious 1999 Tennessee Academy of Science Distinguished Science Teacher Award. Whitaker, a high school chemistry and physics teacher in Lenoir City, Tennessee, will receive the award on November 19, 1999, during the annual meeting of the Tennessee Academy of Science at the University of Tennessee, Memphis. Begun in 1997 the award program is designed to recognize individuals who demonstrate excellence in science teaching. This award is given annually to one Tennessee science teacher who has made significant contributions to the teaching of science. In addition to the recognition, Whitaker will receive a plaque and certificate. The criteria for the award are based on the candidate's education record, involvement in professional organizations, special awards or recognition, contributions to the teaching profession, and letters of support."

Director Rhoton's report was unanimously approved. Director Rhoton provided copies of a press release detailing Ms. Whitaker's achievements and contributions to science teaching. The information will be published in articles featuring TAS award recipients.

TJAS Director Rhoton submitted for approval the 1999-2000 request for TJAS Research Funding: "Eighteen high school students have requested research grants to assist their efforts in developing 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 as of November 15, 1999:

<u>Student</u>	<u>Title of Research</u>	<u>Amount</u>
Jessie Burkhart	The effects of herbal/aromatic spice vapors on the process of food spoilage	\$ 79

B. J. Dennis	Efficient programming of fire-fighting robots	\$150
Matthew Carberry	Sea urchin embryology	\$250
Caroline Dunn	The effects of weather changes on frog calling	\$150
Natalie Hammer	The effects of Phorbol-12 and Myristate-13 leukemia cell susceptibility to natural killer cells (NK)	\$175
Joanna Hardin	Noise effects on waterfowl	\$300
Don Holbert	The economic feasibility of traditional soil grown strawberries vs. hydroponically grown strawberries	\$300
Lawrence B. Jackson	Solar power vs. battery power: which is the most efficient?	\$250
Julie Keys	Calculating the mass of binary stars	\$150
Mary Kidd	Calculating the mass of binary stars	\$150
Anita LeRoy	Net usage of CO ₂ in various plants during photosynthesis	\$250
Michael Mishu	Which grapes have more tannin?	\$250
Laura Rayment	The effects of weather changes on frog calling	\$150
Katherine Redding	Expression on heat shock proteins in corn maize phase II	\$300
Amy Richardson	Studying and applying the properties of oscillating chemical reactions	\$250
Kenneth Robertson	The study of polyphosphate hydrolysis using 31P NMR	\$150
Mark Robinson	Efficient programming of fire-fighting robots	\$150
Katie Watson	Plant tissue cultures of the African violet	\$250

I recommend that the TAS Executive Board approve the funding request made by each student. The total amount requested for all projects is \$3704."

"I am recommending effective with the 1999-2000 school year, that the TAS Executive Board approve cash awards for the top seven winners in the TJAS competition as follows: Top female winner \$500, top male winner \$500; other five winners \$200 per student. Total requested each year: \$2000.

I also am recommending, effective with the 1999-2000 school year, that the TAS Executive Board approve a \$500 cash award for the recipient of the TAS Outstanding Science Teacher Award."

Director Rhoton told the committee that the requests for research funds this year were the most ever received. He expects that monetary awards will attract students from schools who had never before participated in the program.

A motion to approve the monetary awards and plaques for TJAS top winners, male and female, beginning 2000, was approved by vote of the Executive Committee. A motion to accept Director Rhoton's report was approved.

Electronic Communications: Director David Kesler presented the following report: "The TAS web page continues to grow in content and usefulness. For example, the programs of the annual and collegiate meetings are posted on the web page well before the meetings. This year also saw an increase in the number and quality of photos posted. I welcome any suggestions for improvements of the TAS web site.

The TAS Networks program was promoted through discussions with the Memphis City School (MCS) Technology Director, Ms. Deborah Gunn. A meeting was held with Ms. Gunn and 10–12 MCS technology representatives, during which the Networks Program was described. Mr. Bill Byles of the MCS Teaching and Learning Academy emailed all 162-technology coordinators describing the Networks Program. He also placed a link on several of the K–12 links pages and placed information on a news flash page for Instructional Technology. The resulting use of the Networks Program has been disappointing. From November 1998 to October 1999 there were only 697 searches performed. Perhaps more aggressive promotion in other school systems will help make the Networks Program viable.

There has been very little feedback from either the Networks Scientists or users of the Networks Program. A better system of monitoring the Networks Program use would help justify its continuance and in refining its design.

Discussion is needed regarding the format of title and abstract submissions for annual meetings. One model being considered is that used by the Middle Tennessee Collegiate Division at <http://www.apsu.edu/~matthewsf/tasform.htm>.

Discussion following Director Kesler's report included plans to advertise the Networks Program with a TAS booth at the next Tennessee Science Teachers Association (TSTA) meeting to develop relationships for classroom visits by TAS scientists. Director Kesler reported that TAS Networks Program fliers were placed in the meeting folders for participants at this year's Shelby County/Memphis City teachers meeting. The Executive Committee discussed modifying the TAS membership and renewal forms to indicate that new members would be added to the TAS website and the Networks Program unless a member requests not to be added. A motion to accept Director Kesler's report was approved.

Tennessee Department of Education: No report was submitted by Liaison Linda Jordan.

Education Committee: This committee has no chairperson at this time. The committee is expected to serve as liaison to secondary educators in the state.

Financial Oversight Committee: This committee did not submit a report. President Murphree reported that Andy Sliger had been appointed to serve as chairperson of the committee with committee members Mike Kennedy and Bernard Benson. Treasurer Harris stated that he would like recommendations from the committee in the management of certain TAS accounts.

Industry/Government Committee: Chairperson, Ted Lundy, presented the following report which was distributed via email to Executive committee members prior to this meeting: "As in 1998, the Industry/Government committee met and carried out its prime business electronically via the Web. The "Prime business" was that of advertising and implementing selection of the 1999 Tennessee Industrial Scientist of the Year.

My office did another mass mailing dated August 25 to about 375 companies either contained within the 1999 Tennessee Manufacturing Directory or recommended by H. Lee Martin, Executive director, Tennessee Technology Development Corporation (TTDC). For your information the TTDC is the newly created agency of state government responsible for putting science and technology into economic development of Tennessee. The mass mailing requested nominations for the 1999 Industrial scientist of the Year from those organizations.

We received nominations for seven individuals and six of us, including Lee Martin, last year's winner Barry Jones, Mike

Daley, Steven Murphree, David Wilson, and I voted by scoring the first choice with a 1, the second choice with a 2, etc. with low score winning. The clear winner was Robert J. Lauf, Oak Ridge National Laboratory (ORNL), who received 4 first place votes and 2-second place votes.

Unfortunately, Dr. Lauf cannot be at our meeting at UT-Memphis this week, so Lee Martin and I have agreed to take the plaque to him after arranging appropriate publicity for TAS via the ORNL Public Relations Department. I'll be pleased to announce the winner this Friday to those gathered at the TAS Annual Meeting.

Since I've carried the ball for this award for two years now, it is probably quite appropriate for it to be handed to someone else for the year 2000. Perhaps Mike Daley will do it since the idea originated with him".

Discussion followed related to encouraging award recipients to become TAS members. Also, companies who are offering award nominees should be encouraged to become industrial members. Chairperson Lundy will contact Membership Chairperson John Schommer on the matter. A motion to establish a membership fee of \$1000 for industrial members was approved.

Long Range/Strategic Planning Committee: Chairperson George Murphy submitted the following report: "The committee, composed of George Murphy, Steven Murphree, Diane Nelson, Andy Sliger, and David Yarborough, recommends that the initiative approved in the 1997 Planning Report continue to be evaluated on an annual basis and implemented as the Executive Committee deems feasible. We commend those individuals who have been instrumental in the successful implementation of a number of the 1997 recommendations. We have no new initiatives to recommend at this time."

Publicity Committee: Chairperson Teresa Fulcher presented the following report: "1. The chairperson has made arrangements to have an article on the Tennessee Academy of Science in the July/August 2000 issue of *The Tennessee Conservationist*. *The Tennessee Conservationist* is a bimonthly publication of the Tennessee Department of Environment and Conservation with a circulation of approximately 20,000. The article must be written and submitted by April 2000 and will include historical information as well as present status and programs offered by the Academy.

2. Tennessee Academy of Science informational displays were set up at two conferences held in the state: A. Dr. John Schommer, Chair of the Membership Committee, had a display and membership information at the Tennessee Math Teachers Association meeting. B. Teresa Fulcher, Chair of the Publicity Committee, had a display and membership information at the East Tennessee Education Association meeting held in Knoxville, October 29, 1999.

3. Press releases announcing the 109th Annual Meeting of the Tennessee Academy of Science (mentioning involvement of the local colleges or universities) were sent to the following daily newspapers: Chattanooga Free Press, Chattanooga Times, The Cookeville Herald-Citizen, The Johnson City Press, The Kingsport Daily News, The Knoxville News-Sentinel, The Memphis Commercial Appeal, The Murfreesboro Daily News Journal, The Nashville Tennessean, The Union City Daily Messenger, and the Jackson Sun.

A prototype of the Tennessee Academy of Science brochure is being presented to the Executive Committee at the 109th Annual Meeting for approval."

Chairperson Fulcher asked Executive Committee members to review the TAS brochure and offer suggestions. Treasurer Har-

ris will distribute copies of the brochure to new members. A motion to accept the report of the Publicity Committee Chairperson was approved.

REPORTS FROM STANDING COMMITTEES

Auditing Committee: (report presented by committee chairperson R. K. Fletcher Jr.) "The Audit Committee, consisting of Dr. David Yarborough, Dr. Robert E. Martin, and Dr. R. K. Fletcher Jr., had an audit as required by the Academy for the year ending June 30, 1999 prepared by Mr. James F. McKinnie, MBA, Cookeville, Tennessee. He examined the receipts and disbursements records and found everything in order and the accounting system well maintained. The committee recommends approval of the financial report based on this audit. The committee also wishes to commend Dr. John W. Harris, treasurer, for his efforts and meticulous job in keeping good financial records for the Academy".

Included in the report is the following from auditor, James F. McKinnie: "I have examined the receipts and disbursements records of the Tennessee Academy of Science for the fiscal year ended June 30, 1999, and in my opinion the attached Cash Receipts and Disbursements Statement correctly reflects the cash position of the organization at June 30, 1999. 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 December 15, 1999".

TENNESSEE ACADEMY OF SCIENCE

Cash Receipts and Disbursements
For Year Ended June 30, 1999

Receipts

Membership Dues	\$15,463.00
Capital Gains—Vanguard	7,279.03
Dividends—Vanguard	4,488.00
Annual Meeting Fees	4,110.00
Interest Earned	2,591.90
Library Subscriptions	2,590.00
Journal Page charges	1,183.00
Fees	340.00
Contributions	255.00
Miscellaneous	15.00
Total Receipts	\$38,314.93

Disbursements:

Tennessee Junior Academy of Science	\$10,026.62
Printing and Publications	3,513.36
Treasurer's Office Expense	817.65
Collegiate Division	1,026.78
Science Olympiad	1,000.00
Accounting Fee	950.00
Annual Meeting	3038.13
Secretary's Office Expense	744.53
AAAS Expenses	500.00
Plaques	278.21
Annual Dues and Fees	265.00
Board Meeting	224.91
Insurance Bond	100.00
Miscellaneous	251.20

Total Disbursements	\$22,736.39
Cash Increase from Operations	\$15,578.54
Cash Balance, July 1, 1998	\$205,795.10
J. C. Bradford—Unrealized Loss	[18.75]
Vanguard—Unrealized Gain	4,346.27
Cash Balance, June 30, 1999	\$225,701.16

Name: Tennessee Academy of Science ID NO:62-6020107

TENNESSEE ACADEMY OF SCIENCE

Summary of Cash Accounts
June 30, 1999

Firststar Bank

Cookeville, TN 38501

NOW Account	\$5,489.47
Savings Account	30,043.36
Total	\$35,532.83

Tennessee Technological University

Cookeville, TN 38505

Agency Account	\$269.57
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Vanguard Financial Center

Valley Forge, PA 19482-2600

Vanguard Star Fund	\$149,555.51
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U. S. Postal Service

Lawrence, Kansas

Postage Account	\$500.00
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J. C. Bradford & Co.

Cookeville, TN 38501

Cash Account	\$24,787.00
United States Treasury Note	15,056.25

Total	\$39,843.25
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Cash Balance, June 30, 1999	\$225,701.16
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A motion to accept the auditor's report was approved.

Fellows Committee: Chairperson Charles R. McGhee submitted the following report: "The Fellows Committee received two nominations for Fellow of the Tennessee Academy of Science in 1999. Letters of recommendation have been received and considered by all members of the committee. The nominees are Dr. Rubye Torrey of Tennessee Technological University and Dr. Steven Murphree of Belmont University. Both candidates have served the academy long and well, and are qualified in every respect to receive the honor.

Please find enclosed copies of their letters of commendation. It is the recommendation of the Fellows Committee that they be approved for recognition during the coming TAS meeting."

A motion to approve the nominees for Fellow of the academy passed unanimously.

Membership Committee: Chairperson John Schommer reported that he had mailed over 140 letters to academic officers at Tennessee colleges and universities requesting lists of new hires. He received responses from approximately 20 schools. New faculty hired in math and sciences were contacted. A booth with posters and brochures promoting TAS membership was manned at the Tennessee Math Teachers Association annual meeting. No new members resulted from this effort. Chairperson Schommer plans to work with Industry/Government Chairperson Lundy to investigate industrial membership possibilities. Plans are being made to attend the 2000 TSTA annual meeting. Chairperson Schommer's contacts with other state academies reveal that most have similar problems recruiting new members. Attempts to acquire discounted tickets for TAS members from the Tennessee Aquarium and several museums failed.

Necrology Committee: Members of the committee and other TAS members submitted the names of the following persons to be remembered at the 1999 annual meeting: Dr. Vernon R. Allen, Chemistry, TTU; Dr. Jerry B. Ayers, Associate Vice-President for Research, Life Member, TTU; John H. DeWitt Jr., Nashville; Dr. Granvil C. Kyker, ORNL, Oak Ridge; Dr. John T. Moore, physician, Algood, TN; Dr. Robert F. Sears, Physics, APSU; Dr. Jubran M. Wakim, Chemistry, MTSU. A moment of silence will be observed at the annual meeting to honor these deceased members.

Nominating Committee: Chairman and Past President Kline presented for approval the following slate of officers for year 2000: Dr. Martin Stewart, President-elect; Mrs. Sarah H. Swain, Secretary; Dr. John W. Harris, Treasurer. The slate was approved by vote of the Executive Committee and will be presented for approval by the membership at the annual business meeting 19 November 1999.

Research Committee: Chairperson Rudy Gostowski reported to President Murphree that judges had been selected to judge presenters and that certificates would be prepared for winners.

Resolutions Committee: Sallie Noel, Resolutions Committee Chairperson, presented a Resolution of Appreciation. The Executive Committee voted to accept the resolution, and to present it to the membership for approval at the 1999 annual business meeting.

REPORTS FROM AD HOC COMMITTEES

David Wilson and Martin Stewart reported for the ad hoc committee planning for the joint meeting with the Kentucky Academy of Science (KAS). At this time a two-day meeting is being planned for 2001 at Middle Tennessee State University (MTSU). Wilson and Stewart expect to meet on the MTSU campus with KAS representatives in December 1999 to continue discussions.

Michael Daley has worked to advance the causes of the TAS

Visiting Scientist Program and TAS participation in state science fairs as judges and mentors of student participants. President Murphree and President-elect Wilson reported on recent efforts to solicit TAS members to serve as mentors for high school students working on science projects. Twenty-six TAS members responded. The list was sent to Nashville secondary science teachers who responded enthusiastically to the TAS support. Currently, Nashville Hume Fogg Magnet School has fourteen projects underway and Nashville's Martin Luther King Jr. Magnet School has 12 projects in progress. President-elect Wilson praised Geraldine Farmer, Coordinator for Science Education, Metropolitan Nashville Schools, for her support and assistance.

OLD BUSINESS

President Murphree reported that he had received formal invitation from the provost of Belmont University to use the Belmont campus as the site for the 2000 annual meeting. TAS last met at Belmont University in 1986.

Discussions are continuing with TSTA officers regarding plans for a joint meeting with TAS in the near future. Locating a meeting site large enough to accommodate both groups is a problem that has not yet been resolved.

NEW BUSINESS

Treasurer John Harris proposed the following TAS Travel Reimbursement Guidelines and Procedures:

"1. The Academy will reimburse travel expenses incurred by Executive Committee members while conducting Academy business, subject to approval by the president. Subsequent to the travel, a requisition must be submitted to the Treasurer. State guidelines will be used to determine allowable rates of reimbursement. (Current in-state travel rates are as follows: 28 cents per mile for automobile travel; \$50–60 + tax for lodging, depending upon the location; and \$30 per day for meals and incidentals.)

2. Executive committee members are encouraged to seek funding for travel from other sources and to share costs, where possible, by car-pooling and sharing motel rooms.

3. These guidelines will apply to the individual designated by the Executive Committee to represent the Academy at the annual AAAS meeting.

4. All new Executive Committee members are to be informed of these guidelines."

A motion to accept the proposed guidelines was approved.

Director Jack Rhoton announced that the Junior Academy will hold its annual meeting at Pearl Cohn Comprehensive High School, Nashville, April 21, 2000. Executive Committee members were encouraged to attend.

At 10:15 PM CST President Murphree adjourned the Executive Committee meeting.