

PROCEEDINGS OF THE TENNESSEE ACADEMY OF SCIENCE 1973

JAMES D. CAPONETTI, *Secretary*
THE UNIVERSITY OF TENNESSEE, KNOXVILLE

EXECUTIVE COMMITTEE MEETING

January, 1973

The Executive Committee Meeting of the Tennessee Academy of Science was called to order by the President at 7:30 P.M. C. 5 T. in the Walnut Room of the Henry H. Hill Student Center, George Peabody College, Nashville, on January 26, 1973. Members present were J. Gerald Parchment, President; Robert L. Amy, President-Elect; James D. Caponetti, Secretary; Robert L. Wilson, Treasurer; Gus Tomlinson, Journal Editor; John H. Bailey, Director of the Junior Academy; Paul Withart, Director of the Visiting Scientists Program; Richard J. Raridon, Director of the Collegiate Division; Wanfried L. Smith, Director of the Reelfoot Lake Biological Station; Raymond L. Tanner, Diane Nelson and Robert Martin, Members-at-Large.

The Secretary passed out printed copies of the Minutes of the November, 1972, Executive Committee Meeting and the Annual Business Meeting. They were read and approved. Twelve persons have joined the Academy since the annual meeting. A motion was passed to accept the 12 applicants into membership in the Academy. Total membership is now 817.

A piece of old business required immediate attention. This involved the selection of a site for the 1973 annual meeting. Since the meeting site cycle had revolved to the middle portion of the state, invitations from Vanderbilt University and The University of Tennessee at Nashville were considered. A motion was passed to accept the invitation of Vanderbilt for 1973 and the date was set at November 16 and 17. Another motion was passed to accept the invitation of The University of Tennessee at Nashville for 1975 provided that they could re-issue the invitation for that year. Invitations for 1974 would be considered from institutions in the western part of the state.

The Treasurer gave his report. As of January 1, 1972, the bank balance was \$8,821.77. Receipts amounted to \$1,821.00. Total cash available was \$10,642.77. Disbursements were \$6,541.46 leaving a bank balance of \$4,101.31 as of November 15, 1972. A motion was passed to accept the Treasurer's report.

The Editor submitted the following report.
A complete report on 1972 activities, including a list of manuscripts received, published and rejected for 1972, was given at the November meeting. These data will not be repeated in this report. Instead, this report represents an updating of the November report plus plans for operation during the 1973 year.

The January issue, which included the Report of the Reelfoot Lake Biological Station, nine regular manuscripts, TAS News Events and Announcements, has been published and mailed to all subscribers. Membership in the new TAS Science Advisory Committee and the Junior Academy of Science Recognition Program for 1973 were highlighted in the News and Events section of the January issue. In order to economize, a separate printing for the Director of the Reelfoot Lake Biological Station was not requested. Instead, the Editor has brought to this meeting 100 issues of the Reelfoot Report from regular back issues for use at the Reelfoot Lake Biological Station.

The backlog of papers to be published in JTAS remains modest. This allows us to publish manuscripts without the long delay which authors have experienced in the past. Six new manuscripts have been received since the November meeting, one of which is already in print. Materials for the April issue is in the hands of the printer and in the process of being set. Page proofs should be forthcoming by February 10.

A report was made at the November meeting regarding new acquisition procedures which are being implemented at the Joint University Libraries in Nashville. This new procedure means that JUL will not be subscribing for 59 issues of JTAS for reciprocal exchange after December, 1973. In order to minimize the loss of revenue for the Academy through loss of subscriptions, the Editor has worked with Dr. Grisham, Director of the

JUL system, on a joint letter to be sent to all recipients of the Journal through the reciprocal exchange program. This letter notifies them of the new acquisition procedures and urges them to place their subscriptions individually through the Treasurer of the Academy. The Editor is also working with Dr. Grisham to contact "jobbers" to give the Academy Journal some visibility over the country. This could result in some new subscriptions since most major library systems are now placing orders through such purchasing agents rather than ordering separately all materials for their libraries.

The Executive Committee approved at the November, 1972 meeting a plan by the Editor to place back copies of the Journal on microfilm. In this way the Editor hopes to alleviate the critical and recurring storage problem on back issues which has grown to major proportions at Peabody College, Vanderbilt University, Austin Peay State University and Southwestern at Memphis. The Editor has now completed arrangements with AMS Press, Inc. in New York to place back issues on microfiche. By making an inventory of JTAS back copies at Southwestern, Vanderbilt, Austin Peay, and Peabody, and by pooling their resources, it has been possible to acquire a complete set of back issues of the Journal since its inception in 1926. This complete set is now in the hands of the Editor, boxed and ready to mail to AMS Press, Inc. in New York for microfilming. Duplicate copies of the contract which has been negotiated with AMS Press, Inc. is being presented to the Executive Committee for final approval. Basically, the contract requires AMS Press, Inc. to microfilm all back and future issues of the Journal at no cost to the Academy and to provide the Academy with a royalty of 15% of the gross proceeds resulted from sales of the microfiche copies. AMS Press, Inc. bears all advertising and production costs and agrees to complete the microfilming process and return the back copy set within the period of one calendar year. The Academy agrees to give AMS exclusive rights on microfilming and to provide a complete set of the Journal for the microfilming process. Two copies of the Journal will then be mailed regularly to AMS to enable AMS to keep the JTAS microfilm up to date.

A motion was passed to accept the Editor's report and to allow him to proceed with the microfiche contract at his discretion.

The Director of the Visiting Scientists Program had very little to report since there have been no significant changes since his last report given at the November, 1972 meeting.

The Director of the Junior Academy submitted the following report:

The Tennessee Junior Academy of Science literature has been mailed to those students who participated in the program last year. Additional copies were mailed to all approved (Southern Association of Colleges and Secondary Schools) in the state. A total of 800 announcements have been mailed.

Requests for 296 cover sheets have been received as of today, thus indicating good participation for 1973.

The date of Friday, April 13, 1973, has been requested for the use of the Stevenson Physical Science Center at Vanderbilt University. The program will be an all day affair starting at 9:30 or 10:00 A.M. and continuing until 3:30 or 4:00 P.M.

The participants will be guests of the Tennessee Academy of Science at a special luncheon. At this meeting a Scientist of renown will be sought to speak to the group.

As in past years a Handbook of Proceedings will be published in the summer of 1973.

A motion was passed to accept the Director's report.
The Director of the Collegiate Division presented the following report: The Collegiate Division met at ETSU on November 18, 1972, in connection with the annual TAS meeting. Five papers were presented to an audience of about 40, including many faculty members. The total expenses for the meeting were

\$431.30. Each of the regional meetings scheduled for spring 1973 will have a budget of about \$200.

A motion was passed to accept the Director's report.
The following two reports were submitted by Richard J. Raridon who, as our AAAS representative, attended both the AAAS Meeting and the AAAS Council Meeting held during the AAAS Meetings in Washington, D.C., December 26-31, 1972.

Report by R. J. Raridon on the Association of Academies of Science Meeting held at the AAAS Meeting in Washington, D.C., on December 27, 1972.

The Association of Academies of Science is made up of delegates and other interested members of forty-four state, city, and regional academies of science affiliated with AAAS. It has long provided a common meeting ground for these representatives and officers of the Association to discuss problems of mutual concern. Between meetings its committees make studies of problems which are of concern to academies and report them at the annual sessions of AAAS. Sponsorship of the American Junior Academy of Science is a regular function of the AAAS.

The theme of this year's meeting was the Rational Use of Scientific and Technical Manpower. The morning speaker was Dr. Wayne R. Gruner from the office of the Asst. Director of Research, NSF. He showed a number of slides related to the recent growth of scientific manpower and some projections for the near future. The afternoon session consisted of a panel discussion. The panelists were Dr. Larry Raff, Director, Special Projects Staff, Office of Research and Monitoring, EPA; Dr. Alan R. Siegel, Director, Community Environment and Utilities Technology Div., Office of Research and Technology, HUD; and Dr. Richard B. Stephenson, Office of the Director, NIH. They each discussed the manpower outlook for their respective organizations.

At the business meeting, the nominating committee proposed Dr. Franz Rahlmann from North Dakota for President-elect and he was elected unanimously. The other officers continued. I have two more years to serve as Secretary-Treasurer of AAAS. The other main order of business was the proposed dues increase. Since all of the academies had been previously notified, there was little discussion, and the increase to \$1.05 per member of each academy was approved unanimously. A copy of the minutes of the meeting, including the various reports presented, will appear in the annual Directory and Proceedings which each academy officer receives.

The banquet was held that evening with an address by the President of AAAS for 1973, Dr. Charles E. DePoe of Northwest Louisiana University.

Report by R. J. Raridon on the AAAS Council meeting held in Washington, D.C. on December 30, 1972.

The meeting was called to order at 9:00 A.M. by AAAS President Leonard Rieser. A number of committee reports had been sent to the delegates in advance and these were not discussed. The bulk of the day's session was spent discussing the new constitution and by-laws. The constitution had been approved a year earlier but could not go into effect until the by-laws were approved. The main change will be the representation on the council by affiliated societies, such as TAS. Instead of each affiliate being entitled to one council representative, future representatives will be chosen from electorates, roughly following the lines of the current AAAS sections. This will reduce the council from about 600 to about 100. The Academies of Science will now be represented only through the AAAS which they will not take effect until 1-1-74, in time for the February 1974 AAAS meeting in San Francisco. The full council will meet for the last time at the joint Inter-American Meeting in Mexico City on June 26, 1973. Starting in 1974, TAS will not have to send a representative to the AAAS Council, but it will be even more important that we be represented at the Annual AAAS meeting.

Dr. Raridon also submitted the following report on the latest activities of several collegiate academies:

In a 1972 survey of Collegiate Academy Activities, 43 Academies of Science were contacted. The following information was obtained:

8 states have Collegiate Academies or special undergraduate sections connected with the Senior Academy. (Missouri, Nebraska, N. Carolina, N. Dakota, Oklahoma, S. Dakota, Tennessee, Texas).

1 state will initiate a new collegiate section for 1973 (Iowa).
2 states are interested in starting or restoring Collegiate Academy activities or College Section Activities. (S. Carolina, Wisconsin).

15 states allow undergraduates to present papers or participate in regular Senior Academy affairs. (Alabama, Arizona, California, Hawaii, Idaho, Illinois, Kansas, Louisiana, Minnesota, New Mexico, Ohio, Oregon, Pennsylvania, Virginia, W. Virginia).

11 groups have no provisions for a Collegiate Academy or did not submit information concerning any undergraduate activities. (Florida, Georgia, Kentucky, Michigan, Mississippi, Montana, New Jersey, New Orleans Academy, Rochester Academy, Washington D.C. Academy).

5 states failed to respond to the questionnaire. (Arkansas, Colorado, Indiana, Maryland, Utah).

Five of the eight states with Collegiate Academies or special College Sections, indicated varying degrees of interest in a national Collegiate Academy meeting where their best undergraduates could present research papers. None of the groups had funds available to send an undergraduate to a national meeting. (Groups indicating an interest were: Missouri, N. Carolina, Oklahoma, Tennessee, and Texas).

During recent years, the W. Virginia and Virginia Collegiate Academies were dissolved because of a lack of student and faculty interest. Undergraduates in these states now present their research papers before the Senior Academies.

During 1972, attendance and paper presentation for the active collegiate groups were as follows:

Name of Group	Total Attendance	Number of Papers	Number of Students Per Section	
			Physics	Biology
Missouri	150	18	14	4
N. Carolina	200	21	6	15
Nebraska	80	26	15	11 (& Chem.)
N. Dakota	150	7	—	—
Oklahoma	56	7	—	—
S. Dakota	37	16	9	7
Tennessee	150	41	—	—
Texas	184	30	—	—
Totals	1007	159		
Average	113	23		

In 1967, there were 15 Collegiate Academies carrying an active work. Dr. Charles Vaughn, in 1968, reporting to the Academy Conference, listed 11 active Collegiate Academies. These were: Arkansas, Louisiana, Minnesota, Missouri, Nebraska, N. Carolina, Ohio, Oklahoma, S. Dakota, Tennessee, and Texas. It would appear that the Collegiate Academy and the undergraduate science programs in Louisiana, Minnesota, and Ohio have regressed since 1968. The Arkansas group did not respond to the questionnaire, so it is unknown if their Collegiate Academy is still functional.

It is of interest to note, that more undergraduates participate in state research activities in those states with active separate undergraduate activities. The average for 1972 was 23 students per academy. This figure is much higher than the 5-10 undergraduates contributing research papers before the regular Senior Academies of Science without special College Sections.

The Academy Conference should try to encourage more state academies to initiate special College Sections for greater undergraduate research participation.

Most of the active groups have at least two sections in their college program. These generally consist of sections in biological science and physical science.

Individual Collegiate Academy Activities:

Missouri—Activities include an annual meeting run by student officers. Cash prizes are awarded for the first and second place papers in each individual section. Undergraduates can publish their papers in the Senior Academy publication. Individual sections vary depending upon annual interest. The 1972 meeting included two sections on Physical Science and one section on Biological Science. Research fellowships are awarded to undergraduates by the Senior Academy.

Nebraska—Activities include a Spring meeting at the time of

the Senior Academy meeting. No prizes, awards, or scholarships are granted. The 1972 meeting included one combined section in biology/chemistry and a large section in physics. Undergraduates may publish papers in the Senior Academy publication.

N. Carolina Activities include an annual meeting with individual sections. Cash awards are presented for the best papers in each section. Membership in the Collegiate Academy includes over thirty science clubs plus several individuals. The Academy has its own student publication which is published twice a year—one issue for abstracts of the papers presented in the annual meeting and one issue with the winning papers in full plus meeting and one issue with the winning papers in full plus meeting and one issue with the winning papers in full plus meeting and one issue with the winning papers in full plus meeting.

N. Dakota Activities include a College Section for undergraduates. Students present their papers for competition and cash prizes.

Oklahoma Activities include one College Section for undergraduates. Research papers are presented for competition and cash prizes. The Senior Academy offers two \$150 undergraduate research fellowships each year. Undergraduates are allowed to publish in the Senior Academy publication. The annual meeting is in the fall and held at the same time as the Senior Academy meeting.

S. Dakota Activities include an annual meeting composed of two sections; one in biological sciences, and one in the physical sciences. Students voted to discontinue cash prizes in 1971. Money is a problem for the Academy. Students are allowed to publish papers in the Senior Academy publication. Abstracts of student papers are free but full papers have a page charge.

Tennessee—Activities include a state-wide meeting each fall. Three regional meetings are held each spring. Cash prizes are awarded to the better papers in biological science, physical science, and social science. Abstracts of student papers are published in the Senior Academy publication.

Texas—Activities include an annual meeting with social hour, guest speaker, business meeting, luncheon, exhibits, and field trips. Results of student research are presented before sections in biology and physical science. Cash prizes are not awarded. The Collegiate Academy has its own publication for student papers and academy business. The journal has been published since 1947.

A motion was passed to accept all of Dr. Raridon's reports.

The Director of the Reelfoot Lake Biological Station reported that he is making progress in formulating future plans for the station. A motion was passed to allow Dr. Smith to use his discretion in developing a viable biological station at Reelfoot Lake.

The Chairman of the Science Liaison Committee, Dr. Arthur W. Jones, was absent from the meeting but gave the Secretary the following report to read:

We have had no meetings, other than occasional personal conversations since November, but I think the development of objectives is proceeding as follows:

The first objective, now that a committee exists, is to build an inventory of information and resources. Each of several major areas presents problems in Tennessee to which we should be able to respond. For example "Energy" is a tremendous area for study and action. It involves pollution due to strip-mining, utilities, automobile traffic. It concerns the engineering problems of construction. It concerns city planning. Recreation, especially tourism, in the State Parks and wilderness areas, is indirectly tied to energy resources. Moreover, Energy is a subject to which various foundations are directing research and study funds. Schmidt-Bleek's group (The Appalachian Resources Project at UTK) has investigated energy problems in Appalachia, and already possesses an inventory of literature and data on that aspect of the problem.

Other examples of general problems which can be approached through scientific methods and by scientists have already been discussed by some members of the committee.

If allowed to continue as chairman of the committee I shall try to organize discussions among all its members, especially the resource people, hoping to develop guidelines by which we can interact with State leaders in helpful ways.

As our project develops, I should like to be able to call on

the Executive Committee for release of modest funds, mainly for communication and publications.

A motion was passed to accept the Chairman's report.

OTHER BUSINESS

1. A motion was passed to invite the Tennessee Section of the American Association of Physics Teachers to meet with the Academy at the 1973 annual meeting at Vanderbilt University.

2. A motion was passed to appoint Dr. Richard Raridon both representative to this AAAS Council and the newly formed Section X of AAAS.

3. The Director of the Visiting Scientists Program, Dr. Paul Wishart who is also Director of the Junior Tennessee Regional Junior Science and Humanities Symposium, requested that the Symposium become an affiliate of the Academy. The Director was asked to write a letter of request to the President.

4. A motion was passed to reduce the dues of retired members to \$4.00 with Journal and to \$1.00 without Journal. Upon retiring, a member must request "emeritus membership status" from the Treasurer. This proposed amendment in the By-Laws will be presented to the membership at the next annual business meeting (November, 1973) for a vote.

5. A budget for the academic year 1973-1974 was formulated according to available money in the Academy treasury. The Treasurer's report contains the exact figures allotted to each Academy activity and function. In conjunction with this, the Director of the Collegiate Division, Dr. Richard Raridon moved that any monies left unspent in his program be transferred to the treasury operating account. The motion was passed.

The meeting was adjourned at 11:45 P.M. C.S.T.

EXECUTIVE COMMITTEE MEETING

November, 1973

The Executive Committee Meeting of the Tennessee Academy of Science was called to order by the President at 8:30 p.m. C.S.T. in Room 6301 of the Stevenson Science Center of Vanderbilt University, Nashville, on November 15, 1973. Members present were J. Gerald Parchment, President; Robert L. Amy, President-Elect; Arthur W. Jones, Past-President; James D. Caponetti, Secretary; Robert L. Wilson, Treasurer; Gus Tomlinson, Journal Editor; John H. Bailey, Director of the Junior Academy; Paul Wishart, Director of the Visiting Scientists Program; Richard J. Raridon, Director of the Collegiate Division; Winifred L. Smith, Director of the Reelfoot Lake Biological Station; Diane Nelson and Robert Martin, Members-at-Large. The president reported that Mr. Jerry Rice of the State Department of Education has officially replaced Mr. Joe Minor as Consultant on Science Education Activities. The president is also looking for a replacement for Raymond L. Tanner as member-at-large.

The Secretary passed out printed copies of the Minutes of the January, 1973, Executive Committee Meeting. They were read and approved without correction. The Secretary further reported that since last January, there were 31 new membership applications. A motion was seconded and passed to accept the 31 applicants into membership in the Academy. Total membership at the moment is 680.

The Treasurer submitted a fiscal year report. As of July 1, 1972, the balance was \$7,296.71. Receipts, which included the state appropriation, amounted to \$21,004.25. Total assets were \$28,300.96. Disbursements were \$20,604.19 leaving a bank balance of \$7,696.77 in the operating account as of June 30, 1973. The savings account amounts to \$5,579.27.

A motion was passed to accept the report of the Treasurer.

The Editor submitted the following report:

Four numbers of volume forty-eight have been published since the annual meeting last November. Each issue was published and mailed on schedule during this time. In addition to the regular annual inclusions in the Journal, i.e. proceedings, news items, awards and current events, abstracts, reports, index, etc., the 1973 volume contains thirty-five regular manuscripts. The breakdown by subject area for the 1973 publications is as follows:

Reelfoot Lake Report	1
Abstracts	2 sets
Botany	9
Chemistry	3
Geology-Geography	5
Zoology	9
General Medical Sciences	2
Physics-Astronomy	2
High School Science	2
Engineering	1
Proceedings	1
Annual TAS Address	1
News Events (sets)	4
Index to Volume 48	1

The January, 1974 issue of JTAS is in preparation. October 29, 1973, ten manuscripts, fully marked and completely edited for publication, were placed in the possession of the printer for the January 1974 issue. Page proofs have been promised by the middle of November. In addition to the manuscripts already scheduled for the January issue, ten additional manuscripts are in the hands of the editor and in some phase of preparation for publication (three are being reviewed by sectional editors, four are under author revision, and three have been accepted). The breakdown by subject area for the manuscripts to be included in the January, 1974 issue and the ten manuscripts in preparation are as follows:

January 1974 Issue	
Math	1
Botany	3
Geog.-Geology	1
High School Sci.	1
Zoology	3
Science Edu.	1
Ten Manuscripts in Preparation	
Botany	2
High School Science	1
Zoology	4
Science Education	3

The current backlog of ten manuscripts to be published compares with ten in 1972, twenty-five in 1971, and thirty-four in 1970. Since we have a small backlog, new manuscripts are being published rapidly. For example, thirty-five new manuscripts were received during 1973. Twenty-five of these have already been published or are scheduled for publication in the January issue 1974. Thus, a well written manuscript of reasonable length has an excellent chance of being published within a few months after it has been submitted to JTAS. This should encourage writers to avail themselves of JTAS for their publications. The editor would welcome the assistance of the Executive Committee and all members of the Academy in soliciting new, short, well-written manuscripts for the Journal.

Editorial and clerical assistance continues to be done by students who work part-time at the expense of the Academy. Total operating costs of the Editor's Office to the Academy averaged slightly less than \$182 per month in 1973, as compared to \$165 per month in 1972. Although the high student turn over rate makes this procedure difficult, it is the least expensive operating procedure with respect to cost to the Academy. By continuing to utilize student help, it should be possible to hold the monthly costs for 1974 to less than \$200 per month.

Members of the Executive Committee may remember that the Joint Universities Library in Nashville notified the Academy last year of the discontinuation on fifty-nine Journal subscriptions which were used for reciprocal exchange with other libraries. During the year, the editor joined with the JUL Director in a joint letter notifying the fifty-nine subscribers of the change in the JUL program and urging them to subscribe individually to JTAS. Dr. Robert Wilson, Treasurer, then followed up by billing the fifty-nine subscribers individually for subscriptions for the coming year. Although Dr. Wilson will report on new subscriptions, it is my understanding that most of these fifty-nine agencies have now subscribed individually to JTAS. Hopefully, we have been able to minimize the loss of subscriptions by this procedure.

At the November, 1972 meeting, the Executive Committee authorized the editor to negotiate with AMS Press, Inc. in New

York for the purpose of microfilming back copies of the Journal to alleviate the space problem that exists in housing back copies at Peabody, Vanderbilt University, and Austin Peay State University. Following this authorization, the editor proceeded to put together a complete set of back issues of the Journal by "pooling" the resources of APSU, Peabody and Vanderbilt. Finally, a complete set back to 1926 was compiled. A contract with AMS Press, Inc. to place all back issues on microfilm and microfiche was negotiated and signed by the editor February 1, 1973. The contract did not require additional funds from the Academy. The complete back copy set was then forwarded immediately to AMS Press, Inc. with the contractual agreement that microcopy would be completed and the back issues returned to the editor within one year. Confirmation of this contract and agreement to proceed with microfilming was received from Mr. John Hopper, Editor-in-Chief April 2, 1973. However, problems with this contract have arisen in the Fall which surfaced only after telephone contact was made with AMS to inquire about the rapidly with which microfilming was proceeding. These difficulties and an up-to-date progress report on any solution of them will be reported orally by the editor.

The Joint Universities Library in Nashville notified the editor in August that it can no longer provide storage space for an appreciable number of back copies of JTAS which the University has accumulated over the years. The back issues are not a complete set. Instead, they represent substantial numbers of assorted issues which were not sold during past years. The copies have been placed in storage boxes and are ready for transport. Dr. Robert Martin has kindly agreed to help with transportation and storage of these back copies at Tech Aqua if the damp storage space there is acceptable. Also, the editor had contemplated making complementary copies of these back issues available to TAS members at the November meeting. The Executive Committee will be asked for advice.

In making the joint announcement to each of the subscribers in the reciprocal exchange program with JUL, it became apparent to the editor that many libraries today are purchasing through "jobbers" rather than for individual journals as they have done in the past. In recognition of this fact, the editor is systematically contacting jobbers to make it known that JTAS is available and can be purchased for libraries through the jobber procedure. In this way, the editor hopes to increase subscriptions in the future by having JTAS listed by the jobbers in their catalogs. It remains to be seen as to what effect this may have on subscriptions during the coming years.

JTAS SUMMARY REPORT FOR 1973

1. The total number of manuscripts published in 1973 was 35, which is an increase of one over 1971 and a decrease of one compared to 1972.
2. The backlog of manuscripts to be published is down to ten from a high of 34 in 1970 and 25 in 1971. This means that a new manuscript submitted for publication in the Journal has an excellent chance of being published within a few months if it is reasonably short and well written. In fact of the 35 new manuscripts received in 1973, 25 have already been published or are in page proof form for the January issue. Several of the remaining manuscripts have been received within the past few weeks.
3. Manuscripts which are currently received for publication in JTAS show a wider distribution with respect to subject areas than in previous years. Although Zoology and Botany papers are still the most numerous, manuscripts in High School Science and Mathematics, General Science, Geography and Geology, and manuscripts of general interest to scientists over the state, etc., have become more numerous during the past year.
4. The January, 1974 issue is currently being set by the printer. In addition to the Reelfoot Lake Biological Report, the January issue will include 9 or 10 manuscripts, most of which were submitted for publication during the last 5 months.
5. The April, 1974 issue will carry two or three very important manuscripts on the Two-Year College System in Tennessee.
6. Academy members are requested to support the Academy Journal by sending their manuscripts first to JTAS for consideration. With the low backlog of manuscripts, well-written papers can now be published with little delay.

A motion was passed to accept the Editor's report.
The Director of the Visiting Scientists Program submitted the following statistical summary of activities for the academic year:

Contacts Made	
Number of visits	66
Number of students contacted	10,234
Number of teachers contacted	249
Number of classes contacted	217
Number of Scientists on Roster	
	83

Fields Represented

Astronomy, Biology, Chemistry, Ecology, Engineering, General Science, Geology and Geography, Mathematics, Medicine and Pharmacy, Physics, Psychology

A motion was passed to accept the Director's report.

The Director of the Junior Academy presented his report as follows:

1. The completion and mailing of the TJAS-Handbook and Transactions for the 1972 academic year was completed and mailed to TJAS participants and participating schools for 1971-1972.

2. Completion and mailing of TJAS announcements for 1972-1973 mailed to public and private high school officials and science teachers in Tennessee.

3. Approximately 200 papers were received from high school students by the deadline date as announced (March 1).

4. A panel of readers from the respective science staffs at East Tennessee State University processed and rated the papers in each of six categories.

5. 15 papers were selected to be read at the TJAS spring meeting, held on the Vanderbilt campus. Eight of these invited students were from Waverly Central High School. Due to this concentration, much travel money was saved. However, this was indeed not the intent of such selection. Dr. Gus Tomlinson represented the Academy in extending greetings to the young scientists.

6. During the Summer and Fall of 1973, the 1973 Handbooks were prepared, printed, and distributed on schedule.

7. Approximately 115 requests for Coversheets have been received for participation in the 1973-1974 programs. Other requests are anticipated prior to February.

8. The attached financial statements reflected some of the activities of the past year and project activities for the 1973-1974 school year. Energy problems and other conditions could conceivably effect further changes as the school year progresses. These will be handled as events unfold.

9. I am grateful to ETSU for many contributions of a cooperative staff and administration for facilities and professional staff for help where needed.

10. The completion of the 1973-1974 program will represent nine years that I have served as director of the Junior Academy.

11. To ETSU, the TAS senior academy, the State Department of Education, and Vanderbilt University, and the high school science teachers we owe thanks for much untold help.

12. Following my retirement at ETSU, in June, 2 have received encouragement to continue with the Junior Academy program by Dr. William Pafford, Chairman General Science and Science Education Department.

13. I would like to recommend that Dr. Pafford be designated as my successor to direct the Junior Academy.

14. Mrs. Jean Knox, Science Education departmental secretary has done much to see that everything moved on schedule. Her help has been invaluable.

A motion was passed to accept the Director's report. Moreover, the other members of the Executive Committee convinced Dr. Bailey that he should continue as Director of the Junior Academy. A motion was passed to allow Dr. Bailey to remain Director and that the Executive Committee turn down his petition of resignation.

The Director of the Collegiate Division submitted the following report:

The TAS Collegiate Division held regional meetings during the spring of 1973 at Carson-Newman College, David Lipscomb College, and Union University. The abstracts of 36 papers which were presented at these meetings were printed in the October, 1973, issue of the TJAS. The total expenses for the three

meetings were \$396.72, bringing the total for the 1972-73 school year to \$881.32. A total of five papers were submitted for the 1973 fall meeting at Vanderbilt, one of which will be given in the Chemistry Section due to a scheduling conflict.

After a motion was passed to accept the Director's report, he read the following letter from Granvil C. Kyker of the Oak Ridge Associated Universities, Inc. dated November 13, 1973.

This will confirm our recent discussion regarding prizes for the best papers presented in the Collegiate Division of the Tennessee Academy of Science.

The Tennessee Institute of Chemists is pleased to offer a scroll and a prize of \$10.00 to the student judged to present the best paper at each of the three regional meetings held each spring on a college campus in East, Middle, and West Tennessee.

If the Tennessee Academy of Science accepts this proposal, please notify the Tennessee Institute of Chemists of the three selected awardees. Dr. Gerald Goldstein is the current president of TIC and communications during this fiscal year should go to him. I have written this for the attention of Tennessee Academy of Science at the suggestion of Dr. Goldstein.

A motion was passed to the effect that the Executive Committee accept the offer as stated in the letter.

The Academy's representative to the AAAS Council, Richard J. Raridon, submitted the following report:

I attended the last session of the Council which met under the conditions of the old AAAS constitution. The meeting was held in the Ballroom of the Fiesta Palace Hotel in Mexico City on June 26, 1973. The minutes were published in the October 26, 1973, issue of Science. Dr. Leonard M. Rieser presided. He announced the scheduling of a second Arden House Conference, to be held in the spring of 1974 to reassess the Association's objectives, policy issues, and functions.

Some time was spent discussing the procedures for implementing the new AAAS constitution which is now in effect. The Council which meets on February 28, 1974, in San Francisco will be composed of about 100 members who will be elected from sections. The Tennessee Academy of Science will no longer have a direct council representative but will be represented indirectly in two ways. TAS is affiliated with Section X, a new general section, and is entitled to appoint a delegate to the Section X committee. One member of this committee will serve on the council and will report back to the affiliates. TAS is also affiliated with the Association of Academies of Science which will meet in San Francisco on February 26, 1974. I will be attending this meeting as secretary-treasurer of AAS. AAS will have two AAAS council representatives who will report back to all of the affiliated academies.

Under the new AAAS constitution, the nomination and election of Fellows has been changed. There will be a Council Committee on Fellows which will present a slate of nominees numbering not greater than 0.3% of the AAAS membership, which means a maximum of about 400 next year. We can still submit the names of TAS fellows for consideration as AAAS fellows but I would propose that such action come through the TAS executive committee and be limited to only one or two names each year.

I went to Washington in May at the invitation of AAAS to serve on the nominating committee for Section X officers. Dr. S. Fred Singer is acting secretary of this section and was chairman of the committee. Since the various academies make up the majority of the societies affiliated with Section X, they can have a great deal to say about the activities of the Section. I feel we should be represented at the Section X committee meetings whenever possible.

After a motion was passed to accept the representative's report, another motion was passed to continue to nominate Academy Fellows as Fellows of AAAS. The Secretary was requested to have the Fellows Committee selected two nominees from the list of Fellows, write a vita on each, and have the Secretary submit the nominations to Section X of AAS. A third motion was passed to appoint Dr. Raridon (1) AAS delegate and (2) delegate to the Section X Committee.

The Director of the Reelfoot Lake Biological Station reported that after careful investigation and deliberation on his part, he has concluded that the Academy should move from the present station site to a new location which is being developed by the State Department of Conservation. A motion by the Director was seconded and passed requesting the President of the

Academy to write one letter to Mr. Criley offering the Academy's cooperation in developing a biological station at a new site as recommended by Director Smith, and a second letter to the Game and Fish Commission informing them that the Academy wishes to return the present station site to their jurisdiction. Since a station as such would not now exist, a motion had to be passed changing Dr. Smith's title to Director of the Reelfoot Lake Program, and allow him to initiate plans for a new station. The Director then moved that he be allowed to recommend and appoint Drs. Robert E. Martin of Tennessee Technological University; Ted R. James, Randy Cate, and Mr. Wilburn A. Sliger all of The University of Tennessee at Martin as members of an Advisory Committee to aid him in the planning for a new station. The motion passed.

The Chairman of the Science Advisory Committee (Dr. Arthur Jones) stated that the committee should remain viable and look into the present energy crisis. Dr. Jones also expressed dismay over the rapid passage of the new evolution bill. President Parchment then read a letter he sent to the Governor concerning the new law, and also read the reply received from Governor Dunn. These letters follow:

Members of the Executive Committee of the Tennessee Academy of Science have requested me to urge you to veto the recent legislation concerning "any textbook used for teaching in the public schools, which expresses an opinion of, or relates to a theory about origins or creation of man and his world" (Senate Bill 394 and House Bill 459 as amended).

There are many objections to this legislation as proposed. Some of these objections are:

1. It would eliminate the better textbooks in scientific fields.
2. The proposal would mix the teaching of science with the teaching of religion.
3. The wording used is a loose terminology that makes the regulations vague.
4. Many copies of sound contemporary texts would have to be discarded at a considerable cost to the taxpayers.

Thank you for your letters with regard to legislation concerning the teaching of theories of creation in the public schools. As introduced, this bill affected all textbooks but was amended to apply only to biology texts.

This bill received several other amendments during the debate in the legislature; three of these were very significant. An amendment proposed by the Administration reaffirmed the duty of the State Textbook Commission for the selection of textbooks. An amendment by Senator Hamilton, the prime sponsor, removed the requirement that equal printed space and wordage for each theory be included in each book. And an amendment by Representative Victor Ashe provided that the purposes of the bill could be accomplished through the use of supplementary materials in the same textbook.

Both the feasibility and cost of implementing the original bill raised serious questions about its advisability. Some objections to the bill were remedied, however, by the amendments to the bill, especially the amendment sponsored by Representative Ashe. Following extensive research, I decided to allow this bill to become law without my signature.

I trust that these brief comments illustrate the reasons for my action on this legislation, and I appreciate your interest in this matter.

Since Dr. Parchment becomes Past-President of the Academy on January 1, 1974, he also becomes Chairman of the Science Advisory Committee.

OTHER BUSINESS

1. The President read a letter from Dr. Robert E. Martin who is also Director of the Tech Aqua Biological Station:

I wish to express the appreciation of the Tech Aqua Biological

Station Advisory Group to the Tennessee Academy of Science for making possible awards of full scholarships for the Summer '73 Session at Tech Aqua to three outstanding students in Tennessee.

Ten applicants were considered with awards going to:

Miss Phyllis Ann Guthrie—UT Martin
Mr. David W. Robertson—Martin College, Pulaski
Mrs. Sylvia K. Wagoner—UT Martin
These were Junior and Senior biology majors with QPAs of 3.9 and 4.0.

These students took courses and completed research projects which are presently being written up for submission to the spring meetings of the Collegiate Division.

I believe the availability of these scholarships were of great value in recruitment and in recognition of academic excellence.

Please convey my appreciation to the Executive Committee of the Tennessee Academy of Science. We would greatly appreciate consideration being given to similar awards for the Summer '74 Session if Academy funding permits.

A motion by Dr. Martin was passed to make three \$431.00 awards to the Tech Aqua Station for the summer of 1974 to be used for scholarships only at the discretion of the Executive Committee of the Station. The increase over last year was necessary due to increased costs.

2. The President commented that the validity of the new evolution law would be tested in the courts. A motion was passed putting the Academy on record as supporting the testing of the constitutionality of the new law in the courts.

3. The President read the following letter from Mr. D. W. Yambert who is Environmental Biologist for the Tennessee Game and Fish Commission:

I have recently taken the position as Environmental Biologist with the Tennessee Game and Fish Commission. Primarily, but not exclusively, our work will deal with non-game values and research.

Dr. John Bailey, East Tennessee State University has suggested that I write you requesting that you, at your coming Academy of Science Meeting at Nashville November 15-17, advise your group of the creation of this position. We will be very interested in receiving suggestions either formerly from the academy or from individual members for the formation of a non-game plan for the Commission. This will include both long-term research and management of non-game species and also immediate attention to more crucial subjects such as endangered species or habitats.

I would appreciate very much your selection of a broad interest group, from your membership in each of the three divisions of the state, with whom I can meet by the end of the year to help develop a sound reasonable non-game policy for the Commission.

I will also be in contact with the Tennessee Ornithological Society, Audubon Society and the State Wildlife Society Chapter to determine as accurately as possible the needs and direction of this program from the standpoint of those most qualified to help.

A motion by Dr. Jones was passed requesting the President to write to Mr. Yambert referring him to the Science Advisory Committee.

4. The Secretary reported that only one institution from the western part of the state had submitted an invitation for the Academy's 1974 annual meeting. This invitation came from The University of Tennessee Medical Units at Memphis. A motion was passed to accept the invitation subject to the approval of the new Chancellor of the Medical Units, Dr. Edmond D. Pellegrino. The original invitation was extended by the former Chancellor, Dr. Joe Johnson. The Program Chairman and President-Elect, Dr. Robert L. Amy, stated that he would investigate the matter further.

The meeting was adjourned at 12:20 a.m. C.S.T.