

that he will present this information to the Executive Committee this month. He did not think that there would be any deterrent to our planning to meet together at the meeting this fall.

"This will largely be an organizational meeting; however, it would be nice to have two or three papers, short reports, and other items deemed important. If you have a paper that you would like to present, send the title to me in order that it may be included on the program. If none are received by October 10, 1969, I will contact individuals about papers by phone.

"In order to conserve money, I am going to send information to each department and hope that your secretary, student assistant, or graduate assistant can be assigned to distribute the material.

"It is my understanding that we need to have at least 15 members in order to have a separate section in geography."

A motion was passed to approve the request provided that 15 members would form the separate geography section. The President would bring the request up at the Business Meeting for the approval of the membership.

2. A motion was passed to make the Honorable

Frank J. Runyon an honorary member of the Academy for his many efforts in obtaining financial assistance for the Academy.

3. Motions were passed expressing thanks to Dr. Donald Caplenor for his excellent work as Editor of the Journal, and to Dr. Gus Lundberg for his excellent efforts as President of the Academy during 1969.

4. The Secretary read letters of invitation for the 1970 annual meeting site from Dr. C. C. Humphreys, President of Memphis State University; Dr. David Alexander, President of Southwestern at Memphis; Mrs. Lois Beach, Chairman of the Natural Science Department at Lee College; Dr. Gordon E. Hunter, Chairman of the Biology Department at Tennessee Technological University; and from Dr. John A. Patten, Head of the Biology Department at Middle Tennessee State University. After some deliberation, a motion was passed to accept the invitation of President Alexander at Southwestern at Memphis.

The meeting was adjourned at 4:20 P.M. C.S.T.

THE SEVENTY-NINTH MEETING OF THE TENNESSEE ACADEMY OF SCIENCE

NOVEMBER 21-22, 1969

THE UNIVERSITY OF THE SOUTH

The seventy-ninth meeting of the Tennessee Academy of Science was held November 21-22, 1969, at the University of the South, Sewanee, Tennessee. Dr. H. Malcolm Owen, Chairman of the Biology Department at The University of the South was Chairman of the Local Arrangements Committee, and Dr. James L. Wilson, The University of Tennessee Nashville Center, was Program Chairman.

A total of 319 persons registered for the meeting. Of these, 182 were university-college professors, 89 were university-college students, 9 were high school teachers, 2 were high school students, 8 were from the ORNL, 3 were from private industry, 14 were from state divisions, 2 were from the State Department of Education, 2 were from the U.S.D.A. Forest Service, and 8 were visitors.

The General Session was held in the Blackman Auditorium of the Woods Laboratories Building on Friday morning beginning at 10:00 A.M. C.S.T. President Gustave H. Lundberg presided and the welcome was delivered by Dr. Edward McCrady, Vice-Chancellor of The University of the South. The theme of the session was Space—Our New Frontier. Section meetings were held Friday afternoon; 66 papers were presented. The Annual Business Meeting was held in the Blackman Auditorium of the Woods Laboratories Building at 5:00 P.M. C.S.T.

The Annual Dinner was held in the dining hall of the Sewanee Military Academy at 7:30 P.M. C.S.T., Friday

evening. The attendance was 160. President Gustave H. Lundberg presided, and the address was delivered by Dr. E. Baylis Shanks, Professor of Mathematics, Vanderbilt University, Nashville, who spoke on "Mathematical Contributions to Space Exploration."

The Collegiate Division held its meeting on Saturday morning at 9:00 A.M. C.S.T. in the Blackman Auditorium of the Woods Laboratories Building. Dr. Richard J. Raridon chaired the meeting, and eight papers were presented.

ANNUAL BUSINESS MEETING

The annual business meeting of the Tennessee Academy of Science was called to order by President Gustave H. Lundberg at 5:10 P.M. C.S.T. in the Blackman Auditorium of the Woods Laboratories Building at The University of the South in Sewanee, Tennessee, on November 21, 1969. Sixty-three persons were present.

The *Secretary* reported that during 1969, there were 34 new members, one drop reported to the *Secretary*, and seven deaths. During the annual meeting, there were 34 new memberships. Academy memberships now stand at 917. A motion was passed to approve all 1969 applications for membership.

The reports of the *Treasurer*, the *Editor*, the *Director of the Collegiate Division*, the *Director of the Junior Academy*, the *Director of the Visiting Scientist Program*, the *Director of the Science Talent Search Committee*, the *President*, and the *Director of the Reelfoot Lake Biological Station* were similar to those presented

earlier at the Executive Committee meeting. Again, all reports were approved.

The chairman of the *Auditing Committee*, Dr. Myron S. McCoy, presented the same report he had submitted in writing to the Executive Committee. A motion was passed to accept the report.

The Chairman of the *Fellows Committee*, Dr. Wendell G. Holladay, was absent from the meeting so a committee member, Dr. Arlo Smith, presented the following members of the Academy as nominees to be named Fellows of the Academy:

1. Samuel R. Tipton, The University of Tennessee, Knoxville.
2. Harris J. Dark, Middle Tennessee State University, Murfreesboro.
3. H. R. DeSelm, The University of Tennessee, Knoxville.
4. Sister Adrian Marie Hofstetter, O.P., Sienna College, Memphis.
5. Richard F. Kimball, Oak Ridge National Laboratory, Oak Ridge.
6. James T. Tanner, The University of Tennessee, Knoxville.
7. James W. Ward, Vanderbilt University, Nashville.
8. H. Malcolm Owen, The University of the South, Sewanee.
9. John Patten, Middle Tennessee State University, Murfreesboro.

A motion was passed that those named be made Fellows of the Academy and to check with the AAAS to make them Fellows of the AAAS.

The chairman of the *Membership Committee*, Mr. Johnny O. Younghanse, submitted the following report:

"The membership committee embarked on a 'double the membership' campaign, enlisting the entire membership of the Academy. Each member is being supplied with two membership application cards which he is being asked to give to interested non-members among his colleagues and associates. These letters are now being processed and a number are already in the mail. Results from last year's efforts to enlist members from the various industries in the state were disappointing; however, it is suggested that this area be given more vigorous attention in the future.

"The chairman wishes to express his appreciation to the members of this committee: Robert L. Amy, Mrs. Helen C. Bell, Earl W. McDaniel, E. Powell Puckett, and Richard G. Stearns."

A motion was passed to accept the report.

The chairman of the *Necrology Committee*, Dr. Frank H. Barclay, read the names of the seven members whose deaths came to his attention during the past year.

1. Dr. Nora L. Ford, Tennessee Technological University, Cookeville.
2. Mr. Wilbur A. Nelson, Charlottesville, Virginia.
3. Dr. A. W. Ingersoll, Vanderbilt University, Nashville.
4. Dr. Willard B. Jewell, Vanderbilt University, Nashville.
5. Dr. Herman O'Dell, East Tennessee State University, Johnson City.
6. Mr. Carl S. Woodward, Johnson City.
7. Mr. J. C. Guild, Jr., Chattanooga.

A moment of silent prayer was observed for our deceased members and a motion was passed to accept the chairman's report.

The chairman of the *Program Committee*, Dr. James L. Wilson, submitted the following report:

"The program contained a total of 79 submitted titles of papers to be presented with 5 in the General Session,

4 of these centered on the space theme, and 66 for presentation in the Friday afternoon section meetings. The Collegiate Saturday morning meeting had 8 titles submitted for presentation.

"The total cost of the program was \$242.18. The cost of printing 1500 copies of the program was \$175.00 and the mailing cost was \$67.18."

A motion was passed to accept the report.

The Chairman of the *Local Arrangements Committee*, Dr. H. Malcolm Owen, was absent from the meeting. President Lundberg publicly thanked Dr. Owen for his efforts in making the annual meeting a success.

The Chairman of the *Resolutions Committee*, Dr. M. R. Mayfield, read the following resolutions:

"*WHEREAS*, The Tennessee Academy of Science, including the Collegiate Division, is enjoying a most pleasant, profitable, and well-organized series of meetings at The University of the South, and

"*WHEREAS*, The success of these meetings has resulted from the efforts of the officers and sponsors of these organizations, the chairmen of the respective sections, the members of the Committee on Local Arrangements, Malcolm Owen, Chairman, Eric Ellis, James Lowe, Arnold Mignery, and W. M. Priestly, from recognition given the meetings by the various news media, and from the generous hospitality of our host institution,

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

"*WHEREAS*, the Tennessee Department of Education, continuing to recognize the worth of the educational programs of the Tennessee Academy of Science, did provide funds for these programs from monies made available by the General Assembly of Tennessee and authorized by the Tennessee Department of Administration and Finance,

"*BE IT RESOLVED*, therefore, that the Tennessee Academy of Science expresses its sincere appreciation to the State Department of Education and to the State Department of Administration and Finance for providing these funds.

"*BE IT FUTHER RESOLVED* that these resolutions be included in the minutes of the Tennessee Academy of Science and published as a part of the Proceedings of this meeting and that copies be sent to Vice-Chancellor Edward McCrady of the University of the South; Dr. Malcolm Owen, Chairman of the Committee for Local Arrangements; the Tennessee Commissioner of Education, the Honorable Howard Warf; and the Tennessee Commissioner of Administration and Finance, the Honorable Harlan Mathews."

A motion was passed to approve the resolutions.

The Chairwoman of the *Research Committee*, Miss Sara Wood, was absent from the meeting but she had sent a report to President Lundberg who read the following chairwoman's report:

"During the year 1969, the Research Committee received three applications for support of research, as well as numerous inquiries.

"A grant of \$193.25 was approved and awarded to the Clinton High School Science Club under the direction of Ronald Killion to assist in the purchase of supplies with which to investigate the growth and development of some living organisms.

"A \$25 grant was awarded to Daniel Miller of Bearden High School (Knoxville) to be applied toward the purchase of electric components of an original design for an electromechanical pulse generator. This grant was later rejected by Mr. Miller. Thus, a balance of \$384.75 is available. One reason for this balance is that the Committee has held rather rigidly to the stated prefer-

ence of the AAAS for the use of the research money which they furnish to TAS.

"The Committee is hopeful that all of you will make an effort to publicize the availability of this research money in the high schools of your area in order that these funds may be put to good use at an early time."

A motion was passed to accept the report.

The Chairman of *Nominating Committee*, Dr. Frederick T. Wolf, proposed the following nominations for the year 1970:

1. Dr. James L. Wilson, President.
2. Dr. Richard J. Raridon, President-Elect.
3. Dr. James D. Caponetti, Secretary.
4. Dr. Robert L. Wilson, Treasurer.

There were no further nominations from the floor, and a motion was passed instructing the Secretary to cast one vote which would represent the unanimous election of each nominee to his respective office.

OTHER BUSINESS

1. The Chairmen or Spokesmen of the Ad Hoc Committees on Conservation-Preservation, Amendments to the Constitution, and Promotional Brochure, respectively submitted their reports. The full texts or statements

of the reports are in the Minutes of the Executive Committee Meeting. A motion was passed to approve all ad hoc committee reports.

2. President Lundberg reiterated the request from Dr. R. K. Wibking concerning the establishment of a separate Geography Section. The full text of the request is in the Minutes of the Executive Committee Meeting. Since no geographers were present at the annual business meeting, action on the formation of a separate Geography Section had to be deferred.

3. President Lundberg announced that the Executive Committee had accepted the invitation of President Alexander, Southwestern at Memphis, to hold the 1970 annual meeting at that campus.

4. One of the mathematicians in the audience requested that the Executive Committee consider changing the date of the annual meeting of the Academy because it conflicts with another Mathematics meeting thus making attendance at the Mathematics Section of the Academy very low. President Lundberg announced that he would ask the Executive Committee to take the request under advisement.

The annual business meeting was adjourned at 6:30 P.M. C.S.T.

REPORT OF THE TREASURER OF THE TENNESSEE ACADEMY OF SCIENCE JANUARY 1, 1969 TO DECEMBER 31, 1969

ROBERT LAKE WILSON, TREASURER
University of Tennessee at Chattanooga

	Income	Expenditures
January 1	Bank Balance	5,153.69
	Income (Deposits)	22,961.32
	Expenditures	18,187.23
December 31	Balance	9,427.78
<i>Accounts</i>	<i>Income</i>	<i>Expenditures</i>
State of Tennessee	8,500.00	11,500.00
Secretary's Office		415.60
Editor's Office		277.40
Treasurer's Office		
Treasurer's Account		600.00
Treasurer's Bond		62.50
Postage and Telephone		27.75
Auditor's Fee		30.00
Journal (Printing 3 issues)		4,006.69
Subscription and Sales	778.07	
Membership Dues	1,480.00	
AAAS	193.25	165.00
Cash Donations	10.00	
Tennessee Jr. Academy		4,096.00
Visiting Scientists Program		5,500.00
Reelfoot Lake Biological Station		339.94
Collegiate Academy		2,023.35
Research Grant (Dennis Poly)		193.25
Annual Meeting Expenses		412.25
Ford Catering Service ETSU		37.50
Totals		18,187.23

NEW MEMBERS TENNESSEE ACADEMY OF SCIENCE FOR 1969

Allbritten, Dr. Herbert G., Dept. of Chemistry, Memphis State University, Memphis, Tenn. 38111
 Allen, Mrs. Frances Bell, Rt. 4, Box 332, Dickson, Tenn. 37055
 Barlow, Mrs. Sarah F., 1023 Trinity Dr., Murfreesboro, Tenn. 37130
 Barna, Mrs. Tanya Gay, 1609 Phelps Ave., Hopkinsville, Ky. 42240
 Barr, Mr. Jim L., Dept. of Earth Sciences, Tenn. Tech. Univ., Cookeville, Tenn. 38501
 Bauder, Dr. Walter J., Bryan College, Dayton, Tenn. 37321
 Beavers, Mrs. Sylvia G., Rt. 1, Birchwood, Tenn. 37308
 Bell, Dr. James Spencer, 858 Madison Ave., Memphis, Tenn. 38103
 Berry, Mr. Albert G., Meharry Medical College, Nashville, Tenn. 37208
 Berry, Miss Betsy L., Biology Dept., The Univ. of Tenn., Martin, Tenn. 38237
 Bickford, Mr. Gary R., Dept. of Chemistry, Middle Tenn. State Univ., Murfreesboro, Tenn. 37130
 Biggins, Dr. Charles J., Biology Dept., Memphis State Univ., Memphis, Tenn. 38111
 Blum, Dr. Kurt E., Box 321, Middle Tenn. State Univ., Murfreesboro, Tenn. 37130
 Bowie, Dr. William Thompson, Dept. of Chemistry, Fisk Univ., Nashville, Tenn. 37203
 Bulow, Dr. Frank J., Dept. of Biology, Tenn. Tech. Univ., Cookeville, Tenn. 38501
 Busse, Mr. James W., Box 9268, 216 Waconda Drive, Knoxville, Tenn. 37920
 Carter, Mr. Charles D., Box 234, Ewing, Virginia 24248

- Chapelaine, Mr. Perry A., Rt. 4, Box 137, Franklin, Tenn. 37064
- Clark, Dr. Roy W., Chemistry Dept., Middle Tenn. State Univ., Murfreesboro, Tenn. 37130
- Cox, Dr. Edmond R., Biology Dept., Tenn. Wesleyan College, Athens, Tenn. 37303
- Dailey, Mr. John L., II, 105 North Second Ave., Paden City, W. Va. 26159
- Davis, Mr. Robert McVeigh, 1895 Vinton Ave., Memphis, Tenn. 38104
- Diamond, Dr. Thomas Dennison, Dept. of Zoology and Entomology, The Univ. of Tenn., Knoxville, Tenn. 37916
- Eskind, Dr. Irwin B., 21st and Hayes Bldg., Nashville, Tenn. 37203
- Ezell, Mr. James Jeffery, 1810 E. 7th St., Hopkinsville, Ky. 42240
- Freeman, Mr. George L., Jr., 809 N. Tenn. Blvd., Murfreesboro, Tenn. 37130
- Goodlet, Dr. James S., Jr., 1059 Merriwether, Apt. A., Memphis, Tenn. 38103
- Gurley, Miss Betty Lue, Rt. 4, Frankie Dr., Dyersburg, Tenn. 38024
- Henderson, Mrs. Jo K., 116 Cumberland View Dr., Oak Ridge, Tenn. 37830
- Henson, Dr. Wesley J., Biology Dept., Univ. of Tenn., Martin, Tenn. 38237
- Higdon, Miss Sarah H., Middle Tenn., State Univ., Box 495, Murfreesboro, Tenn. 37130
- Holland, Miss LaVerne H., 3604 Batavia Street, Nashville, Tenn. 37209
- Inscho, Mr. F. Paul, Chemistry Dept., Hiwassee College, Box 65, Madisonville, Tenn. 37354
- Kirksey, Mr. Graden H., Dept. of Chemistry, Auburn Univ., Auburn, Ala. 36830
- Lancaster, Mr. Joel R., Dept. of Earth Sciences, Tenn. Tech. Univ., Cookeville, Tenn. 38501
- Magee, Mr. Maurice, Ducktown, Tenn. 37326
- Martin, Mr. William H., III, General Science Studies, Box 786, Eastern Ky. Univ., Richmond, Ky. 40475
- Mignery, Mr. Arnold Louis, Silviculture Laboratory, U.S. Forest Service, Sewanee, Tenn. 37375
- Nagel, Dr. Jerry W., 1603 Chickees Street, Johnson City, Tenn. 37601
- Nelson, Dr. Charles H., Dept. of Biology, The Univ. of Tenn., Chattanooga, Tenn. 37403
- O'Donnell, Mr. Kerry L., Room 516, I.U. Student Union, 1300 W. Michigan Ave., Indianapolis, Indiana 46202
- Osman, Dr. Gamal E., Div. of Science and Math, Lane College, Jackson, Tenn. 38301
- Parrish, Miss Judith Ann, 1127 Glendale Lane, Nashville, Tenn. 37204
- Perfetti, Dr. Patricia A., Dept. of Biology, The Univ. of Tenn., Chattanooga, Tenn. 37403
- Phillips, Mr. Lanny G., Rt. 4, Johnson City, Tenn. 37601
- Pirkle, Mr. Jerry M., Box 472, Middle Tenn. State Univ., Murfreesboro, Tenn. 37130
- Porcella, Mr. Russell A., c/o Bryan College, Dayton, Tenn. 37321
- Prudhon, Mr. Rolland A., 605 Highland Ave., Maryville, Tenn. 37801
- Ray, Mr. Donald Lee, 2809 Druid Drive., Nashville, Tenn. 37211
- Rhoton, Mr. Otis G., East Tenn. State Univ., Box 5328, Johnson City, Tenn. 37601
- Robinson, Dr. Charles N., Dept. of Chemistry, Memphis State University, Memphis, Tenn. 38111
- Rowland, Miss Cathie, 628 N. Moore Road, Chattanooga, Tenn. 37411
- Runyon, The Honorable Frank J., 201 Cherokee Trail, Clarksville, Tenn. 37040
- Schwartz, Dr. Donald, Graduate School, Memphis State Univ., Memphis, Tenn. 38111
- Sharma, Dr. G. K., Biology Dept., The Univ. of Tenn., Martin, Tenn. 38237
- Shehi, Mr. George Michael, Dept. of Biology, Univ. of Tenn., Chattanooga, Tenn. 37403
- Shockley, Dr. Dolores C., Meharry Medical College, 1005 18th Ave., North Nashville, Tenn. 37208
- Simco, Dr. Bill A., Department of Biology, Memphis State Univ., Memphis, Tenn. 38111
- Slater, Dr. Carl D., Dept. of Chemistry, Memphis State Univ., Memphis, Tenn. 38111
- Smith, Mrs. Sally S., Jasper, Tenn. 37347
- Spangler, Dr. G. W., Dept. of Physics, Univ. of Tenn., Chattanooga, Tenn. 37403
- Speight, Mr. David Larry, Cleveland State Community College, Cleveland, Tenn. 37311
- Stevens, Mr. Rodney K., Tenn. Tech. Univ., Cookeville, Tenn. 38501
- Wakim, Dr. Jubran M., Dept. of Physical Sciences, Univ. of Tenn., Martin, Tenn. 38237
- Weatherspoon, Dr. Dan M., Dyersburg State Community College, Box 910, Dyersburg, Tenn. 38024
- Wescott, Dr. Lyle D., Jr., Christian Bros. College, 650 E. Parkway, South, Memphis, Tenn. 38104
- White, Mr. Charles A., 340½ 8th St., N.E., Cleveland, Tenn. 37311
- Williams, Mr. Billy James, Dyersburg State Community College, Box 910, Dyersburg, Tenn. 38024
- Williams, Dr. James David, Biology Dept., Belmont College, Nashville, Tenn. 37203
- Wittnig, Dr. John J., Psychology Lab, V.A. Hospital, Murfreesboro, Tenn. 37130
- Woods, Dr. John E., Biology Dept., Tenn. Wesleyan College, Athens, Tenn. 37303
- Wright, Mr. James E., Box 66, Hiwassee College, Madisonville, Tenn. 37354
- Zuber, Dr. William, Jr., Chemistry Dept., Memphis State Univ., Memphis, Tenn. 38111