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Indiana Academy of Science

Founded December 29, 1885

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WILLIAM R. EBERLY, Editor
Manchester College
North Manchester, Indiana

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Spring Meeting
April 22-24
Wabash College

Fall Meeting
October 21-22

INDIANA INSTITUTE OF TECHNOLOGY

Published at Indianapolis, Indiana
1967

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Johnson, W. H., Wabash College. Ex officio: Dineen, C. F., Saint
Mary's College; Markle, C. A., Earlham College.

SPRING MEETING

WABASH COLLEGE, Crawfordsville, Indiana

MINUTES OF THE EXECUTIVE COMMITTEE MEETING

April 21, 1966

President Carrolle A. Markle was unable to attend the meeting due to the illness of her husband, Dr. M. S. Markle. President-Elect Alton A. Lindsey presided and called the Executive Committee Meeting to order at 7:30 p.m. in Baxter Hall, Wabash College. Twenty-eight members attended the meeting.

The treasurer, Frank A. Guthrie, submitted the financial report for the period January 1, 1966 to April 21, 1966. The total balance of all accounts was \$13,730.26 as of January 1, 1966. The income during the reported period was \$31,327.48 and expended was \$18,700.75. Thus the net balance as of April 21, 1966 was \$26,266.09.

Dr. Alton A. Lindsey, the chairman of the Indiana Sesquicentennial Committee, outlined the plans of the committee and reported on the progress to date. The papers read on April 22 and 23, 1966, on Natural Features of Indiana will be published in a Sesquicentennial Volume.

The other members of the committee were Ralph E. Cleland, Indiana University; Nellie M. Coats, State Library; Clarence F. Dineen, Saint Mary's College; William R. Eberly, Manchester College; Ned Guthrie, Hanover College; Edward Haenisch, Wabash College; Warren E. Hoffman, Indiana Institute of Technology; Willis Johnson, Wabash College; Carolle A. Markle, Earlham College; and William J. Wayne, Indiana Geological Survey.

A motion was approved to give free of charge a Sesquicentennial Volume to each member of The Academy as of July 1, 1966, and to every high school library in the State of Indiana. The projected expenses of the Sesquicentennial publication and the high cost of publishing Volume 74 of the Proceedings were discussed. A motion that the total cost of the Sesquicentennial Volume and the deficit incurred in publishing Volume 74 of the Proceedings be paid from the John S. Wright Fund of The Academy Endowment Fund was approved.

The Editor, William R. Eberly, reported on the problems of editing the Proceedings and requested support of the Executive Committee to enforce the Instructions for Contributions as published in Volume 74.

Dr. Paul Weatherwas, Chairman of the Research Grants Committee, reported that all money had been expended. The Treasurer's report indicated an additional \$1,152.00 as available. The Research Grant Committee planned to process additional requests for funds.

The Visiting Scientist Program, under the direction of Dr. William G. Kessel, has had a very successful academic year.

The chairman of the Library Committee, Miss Nellie M. Coats, reported that \$10,000.00 was received March 31, 1966, from Lilly Endowment, Inc. which was in full payment of an additional grant to underwrite acquisitions and services of the John Shepard Wright Memorial Library.

An invitation from Indiana State University to be host for the Fall Meeting in 1970 was approved. Willis Johnson, Wabash College, requested that the Invitations Committee reconsider the location of the Fall Meeting in 1967, which had been set at Wabash College. The Academy is scheduled to meet in 1968 at Ball State University.

In accordance with Article II (Membership), Section 4 (Emeritus Members) of the Constitution, Mr. Dorsey P. Marting petitioned the Executive Committee for emeritus status. The petition was approved.

A motion was approved to have the Executive Committee of The Academy recommend two members of The Academy for appointment by the Governor to the State Board of Nature Preserves. This motion was in accordance with a proposed Bill for an Act creating a State Board of Nature Preserves, establishing a State System of Nature Preserves and providing for the acquisition, control and management of the same.

The chairman of the Wabash College Committee for arrangements, Willis Johnson, reported all preparations had been made for the sessions of papers and for the Dinner Meeting of The Academy. The chairman of the Program Committee, Warren E. Hoffman, stated that plans were progressing nicely.

Approved October 21, 1966

CLARENCE F. DINEEN, Secretary

MINUTES OF THE GENERAL SESSION

April 22, 1966

Following the dinner in the Student Center of Wabash College, the formal business session was called to order by the President-Elect, Alton A. Lindsey, at 7:30 p.m. Dr. Lindsey welcomed the members of The Academy and introduced the officers and guests.

The secretary presented ninety-one applications to The Academy for membership. The applications were approved.

A motion that the total cost of the Indiana Academy of Science Sesquicentennial Volume and the deficit from the publication of Volume 74 of the Proceedings be paid from the John S. Wright Fund of The Academy Endowment Fund was approved.

Dr. Donald Carmony, chairman of Indiana Sesquicentennial Commission spoke on the significance of the work of the Indiana Academy of Science. Rev. Ralph McFadden, 2nd District Congressional Candidate, spoke on the topic, "Remarks on Dialogue between Science and Politics." The Academy address entitled, "Conservation in Indiana," was given by Thomas E. Dustin, President, Engineering Writers, Fort Wayne, Indiana. Mr. Dustin, Indiana Conservationist of the Year for 1965, outlined the history and the future goals of conservation in Indiana.

The following resolutions were read by A. T. Guard, of the Resolutions Committee: "1) Be it resolved that the Indiana Academy of Science in session at Wabash College expresses its sincere thanks and appreciation to the local program committee, consisting of Dr. Willis Johnson, Chairman, Dr. Edward Haenisch, and Dr. Eliot Williams for the excellent arrangement which they made for our meetings on the Wabash College Campus. We ask them to convey our thanks to President Shearer. 2) Bt it resolved that The Academy wishes to express its appreciation to the Sesquicentennial Committee of The Academy for the arrangement of this program which has enabled The Academy, so uniquely and interestingly, to celebrate this milestone in the history of Indiana. We wish also to thank the many individuals who have participated in the program and who have prepared papers for the special publication of The Academy. 3) Our president, Dr. Carrolle Markle and her husband, Dr. M. C. Markle, are unable to be with us because of his illness. We regret his illness and hope he will soon be improved in health. Also, Dr. Richard Laubengayer who has served us so well as editor for The Academy during more than ten years is unable to be in attendance because of illness. We wish for him a speedy recovery."

Approved October 21, 1966

CLARENCE F. DINEEN, Secretary

PROGRAM

Friday, April 21

Session A, Baxter Hall

John Pelton, Butler University, presiding

- 9:30 Fleshy Fungi
J. F. Hennen, Indiana University
- 9:50 Plant Diseases
R. J. Green, Jr., Purdue University
- 10:00 Algae
W. A. Daily and Fay Daily, Lilly Research Laboratory and
Butler University
- 10:30 Lower Green Land Plants
Winona H. Welch, DePauw University
- 10:50 Higher Plants
C. H. Heiser, Jr., Indiana University
- 11:10 Forestry
W. C. Bramble, Purdue University
Concurrent Session A, Baxter Hall
R. H. Cooper, Ball State University, presiding
- 2:00 Plant Communities
R. O. Petty and M. T. Jackson, Wabash College and Indiana
State University
- 2:20 Limnology of Lakes and Streams
D. G. Frey, Indiana University
- 2:40 Free-living Invertebrates other than Insects
F. N. Young, Indiana University
- 3:00 Animal Parasites
R. M. Cable, Purdue University
- 3:20 Origin and Composition of the Insect Fauna
L. Chandler, Purdue University
- 3:40 Insect Pests of Forest, Farm and Home
J. V. Osmun and R. L. Giese, Purdue University
Concurrent Session B, Waugh Hall
J. L. Guernsey, Indiana State University, presiding
- 2:00 Bedrock Geology
R. C. Gutschick, University of Notre Dame
- 2:20 Glacial Geology
W. J. Wayne, Indiana Geological Survey
- 2:40 Physiography
A. F. Schneider, Indiana Geological Survey
- 3:00 Soils
H. P. Ulrich, Purdue University

- 3:20 Surface Waters
M. Hale, U. S. Geological Survey
- 3:40 Groundwater
C. H. Bechert, Indiana Department of Natural Resources
- 4:00 Speleology and Karst Hydrology
R. L. Powell, Indiana Geological Survey
Dinner, 6:30 p.m., Student Center
Carolle Markle, President, presiding
- Special Guest: Donald Carmony, Chairman, Indiana Sesquicentennial Commission
"Remarks on the Dialogue between Science and Politics,"
by Ralph McFadden, Lafayette, 2nd District
Congressional Candidate
- Address, "Conservation in Indiana," by Thomas E. Dustin, President, Engineering Writers, Fort Wayne, President, Indiana Isaac Walton League, and Indiana Conservationist of the Year for 1965

Saturday, April 23

Concurrent Session A, Baxter Hall

W. R. Eberly, Manchester College, presiding

- 9:00 Cave Fauna
C. H. Krekeler and E. C. Williams, Jr., Valparaiso University and Wabash College
- 9:20 Fish
J. R. Gammon and S. D. Gerking, DePauw University and Indiana University
- 9:40 Amphibians and Reptiles
S. A. Minton, Jr., Indiana University School of Medicine
- 10:00 Birds
J. D. Webster, Hanover College
- 10:20 Mammals
R. E. Mumford, Purdue University
- 10:40 Cultural History of the Indians
J. H. Kellar, Indiana University
- 11:00 Racial History of the Indians
G. K. Neumann, Indiana University
Concurrent Session B, Waugh Hall
A. H. Meyer, Valparaiso University, presiding
- 9:00 Mineral Resources
C. E. Wier and J. B. Patton, Indiana Geological Survey
- 9:20 Climate
L. A. Schaal, State Climatologist, Purdue University
- 9:40 Bioclimate
J. E. Newman, Purdue University
- 10:00 Changing Patterns in Agriculture
H. Kohnke and L. S. Robertson, Purdue University

- 10:20 Changing Patterns in Population
B. Moulton, Indiana State University
- 10:40 The State Parks
H. H. Michaud, Purdue University

The above papers are published by the Academy as a special Sesqui-centennial volume of 630 pages titled NATURAL FEATURES OF INDIANA (A. A. Lindsey, editor). This attractive blue and gold hard-bound book is available for \$4.00 from the Indiana Academy of Science, c/o Indiana State Library, 140 N. Senate, Indianapolis 46204.

FALL MEETING

INDIANA INSTITUTE OF TECHNOLOGY, Fort Wayne, Indiana MINUTES OF THE EXECUTIVE COMMITTEE MEETING

October 21, 1966

The Executive Committee Meeting of the Indiana Academy of Science was held on October 21, 1966, in the Library Conference room at Indiana Institute of Technology. The meeting was called to order at 7:30 p.m. by Dr. Carrolle A. Markle, president of The Academy. Thirty-two members were present.

The minutes of the Executive Committee and the General Session of the Spring Meeting of The Academy (April 21-23, 1966) at Wabash College were approved.

Treasurer—Dr. Frank A. Guthrie reported The Academy Funds as follows:

| | |
|--|-------------|
| January 1, 1966 balance | \$13,730.26 |
| Income to October 20, 1966 | 67,000.25 |
| Expended to October 20, 1966 | 60,698.28 |
| Balance October 20, 1966 | 20,032.23 |

The Editor—Dr. William R. Eberly discussed various aspects of publishing the Proceedings. After a lengthy discussion the following three motions were approved:

1. That the statement for contributions to the Proceedings (page 330, Volume 75) which states "When a paper is signed by more than one author, all must be members in good standing," be changed to read, "When a paper is signed by more than one author, at least one of the authors must be a member." Change effective with Volume 76 of the Proceedings.

2. That the statement for contributions to the Proceedings (page 330, Volume 75) which states, "Only papers which have been presented in person at the meeting can be accepted," be changed to read, "Only papers which have been read at the meeting can be accepted." Change effective with Volume 76 of the Proceedings.

3. The Publication Committee shall study the need and desirability of The Academy publishing monographs and shall submit a report to the Executive Committee at the 1967 Spring Meeting.

Trustees of The Academy Foundation—William A. Daily reported: in the Academy Research Fund, balance as of October 1, 1965—\$787.18; disbursements as of November 23, 1965—\$300.00; receipts as of September 30, 1966—\$705.20; ending balance, September 30, 1966—\$1,192.38. In the John S. Wright Fund, balance as of October 1, 1965—\$7,371.83; total receipts as of October 30, 1966—\$8,725.00; Indiana National Bank Fee—\$602.56; payment for Volume 74 deficit and Sesquicentennial Volume—\$22,000.00; total disbursements as of September 30, 1966—

\$22,602.56; to be transferred from income to principal in 1967—\$6,000.00.

Relation of The Academy to the State—William A. Daily stated that The Academy has requested an increase of \$1,500.00 per annum for the next biennium (1967-69).

The Library Committee—Mrs. Lois Burton undertook the supervision of a project carrying out the purposes of a third Lilly Endowment grant, \$10,000.00 made in March 1966, to underwrite the completion of files and to bind materials so acquired.

Research Grants Committee—Dr. Paul Weatherwax, chairman, reported two grants were made since the 1966 Spring Meeting which brought the total grants for 1966 to \$1,594.00.

Youth Activities Committee—Dr. Virgil Heniser summarized the activities. There are forty-three clubs affiliated with the Junior Academy. In addition to the annual meeting with the Indiana Academy of Science, the Junior Academy sponsored one regional meeting at Arlington High School in Indianapolis. Other regional meetings are being planned. Forty-seven Indiana high school seniors completed entries for the 1966 National Science Talent Search. The 1965 Regional and National Science Fairs were reported to be more successful than in previous years. Sixteen Indiana students won awards at the International Science Fair in Dallas, May 11-14, 1966. Dr. Kaufman stated that the Indiana Science Educational Fund, Incorporated, has been formally organized. The director of The Visiting Scientist Program reported the usual success of the program. There were 201 visits during the academic year 1965-66. The total for the seven consecutive years (1959-1966) was 1,469.

Membership Committee—Sister Mary Rose reported numerous activities aimed to increase the Academy membership.

Invitations Committee—Chairman Howard R. Youse recommended that The Academy accept the offer of Indiana University to host the 1967 meetings. The offer was received from President Stahr and Dean Merritt of Indiana University. A motion was approved. The schedule of future meetings is as follows: 1967 Indiana University; 1968 Ball State University; 1970 Indiana State University. The committee is taking necessary action to obtain meeting places for 1969 and 1971.

Sesquicentennial Committee—Chairman A. A. Lindsey reported that the Academy received 5,048 copies of *Natural Features of Indiana* from the printers on July 30, 1966. To date, 2,153 copies were sold, and 1,737 complementary copies were distributed to Indiana Academy of Science members, science clubs, high school libraries, officials, authors, and reviewers, for a total disposed of 3,890. The remaining 1,158 copies are available for sale through the State Library.

Public Relations Director, James Clark stated that the Sesquicentennial publication of the Academy, *Natural Features of Indiana*, received excellent publicity.

Fellows Committee—Dr. Leland Chandler, chairman, listed the following members as nominated as Fellows in The Indiana Academy of Science:

Dr. James List
Dr. Wesley Hurt, Jr.
Dr. Lee Guernsey
Dr. William Eberly
Dr. Clarence Dineen

A motion was approved to accept these members as Fellows of the Academy.

In accordance with Article II (Membership), Section 4 (Emeritus Members) of the Constitution, Mr. Raymond Elwood Girton petitioned the Executive Committee for emeritus status. The petition was approved. A motion to suspend the constitution and grant emeritus status to Frank N. Wallace was approved. Also, the minutes of Volume 75 (Page 12) of the Proceedings has a printing error: The name Dr. Paul S. Rickett should be corrected to read Dr. Paul S. Prickett.

A motion to accept the request of the Indiana Chapter of the American Meteorological Society to become affiliated with the Indiana Academy of Science was approved.

President Carolle Markle appointed the following members of a special Natural Areas Committee:

Robert Petty, Chairman
William Wayne
Carl Krekeler
Rev. Damian Schmelz
Benjamin Moulton.

Dr. Warren E. Hoffman, Program Chairman of the host institution, Indiana Institute of Technology, discussed the plans for the meetings of the Senior Academy and Junior Academy on Saturday, October 22, 1966.

The meeting was adjourned at 10:00 p.m.

Approved October 22, 1966

CLARENCE F. DINEEN, Secretary

Biological Survey Committee, J. Dan Webster, Chairman

Publications of 1965-1966

Dealing with the flora and fauna of Indiana

- All groups of organisms and all communities: Lindsey, A. A. *et al.* 1966. **Natural features of Indiana.** Indiana Academy of Science, Indianapolis, 597p.
- Vascular Plants: Allen, P. and Jackson, M. T. 1967. Use of large scale forest maps for teaching forest sampling methodology. Proc. Ind. Acad. of Sci. for 1966. In press.
- Beers, T. W. 1967. Rapid estimation of forest parameters using monareal and polyareal combination sampling. Proc. Ind. Acad. of Sci. for 1966. In press.
- Marks, G. C. 1967. Some taxonomic problems with *Viburnum dentatum* and some observations of *Blephilia ciliata*. Proc. Ind. Acad. Sci. for 1966. In press.
- Mayrose, Carolyn K. and Wright, Marylin K. 1967. Preliminary studies of vegetation and microclimates on 30 year old strip-mined lands. Proc. Ind. Acad. for 1966. In press.
- Mertens, T. R. and Savage, A. D. 1967. A preliminary investigation of *Polygonum*, sect. *Polygonum (Avicularis)* in Wisconsin and Indiana. Proc. Ind. Acad. Sci. for 1966. In press.
- Protozoa: Laigo, F. M. and Paschke, J. D. 1966. A microsporidian *Thelohania* sp., in *Picris rapae*. Journ. Invertebrate Pathology **8**: 269-270.
- Aschelminthes: Ferris, J. and Ferris, Virginia. 1966. Observations on *Tetradonema plicans*, an entomoparasitic nematode, with a key to the genera of the family Tetradonematidae (Nematoda: Trichosyringia). Annals Entomol. Soc. American. **59**: 964-971.
- Pfaltzgraff, George H. 1967. A preliminary study of the Gastrotricha of Northern Indiana. Proc. Ind. Acad. Sci. for 1966. In press.
- Insecta: Kabir, A. K. M. F. and Giese, R. 1966. The Columbian timber beetle, *Corthylyus columbianus* (Coleoptera: Scolytidae) in soft maple. Annals Entomol. Soc. America **59**: 894-902.
- Pedigo, L. P. 1966. A new sminthurid from north-western Indiana with a redescription of *Sminthurus trilineatus* Banks (Collembola: Sminthuridae). Journ. Kansas Entomol. Soc. for 1966. **39**: 90-98.
- Matthew, D. L. 1967. Wheat curl mite, *Aceria tulipae* (Keifer), a new record for Indiana. Proc. Ind. Acad. Sci. for 1966. In press.
- Sanders, D. P. and Dobson, R. C. 1966. The insect complex associated with bovine manure in Indiana. Annals Entomol. Soc. America **59**:955-959.
- Whitaker, J. W. and Corthum, K. W. 1967. Fleas of Vigo County, Indiana, Proc. Ind. Acad. Sci. for 1966. In press.
- Arachnoidea: Wappes, J. E. 1967. An Indiana record of *Amblyomma americanum* (Linnaeus). Proc. Ind. Acad. Sci. for 1966. In press.

- Pisces:** Aderkas, E. and McReynolds, H. E. 1966. Upper Wabash River stream survey. Fisheries Research Reports (Mimeo.) Vol. unnumbered, 7p.
Christensen, D. 1966. Progress report on channel catfish studies. Fisheries Research Reports (Mimeo.) Vol. unnumbered, 7p.
McReynolds, H. E. 1966. Recent Indiana fish collections with notes on five new or rare species. Proc. Ind. Acad. Sci. **75**: 299-302.
- Aves:** Baker, Mrs. H. A. 1965. Breeding bird census #62, grazed brushy fields and tree-bordered creek. Aud. Field Notes, **19**: 624-625.
Smith, Shelia. 1965. Breeding bird census #57, suburban edge. Aud. Field Notes. **19**: 621-622.
Webster, J. D. 1966. Winter bird population study #11. Mixed deciduous forest. Aud. Field Notes. **20**: 467-468.
Indiana Audubon Society Members. 1966. Many titles in Indiana Audubon Quarterly, Vol. 44.
Mumford, R. E. 1966. Permanent Resident Birds of Indiana (revision). Ind. Dept. Nat. Resources, Indianapolis. 56p.
- Mammalia:** Whitaker, J. O. Jr. 1966. Food of *Mus musculus*, *Peromyscus maniculatus bairdi* and *Peromyscus leucopus* in Vigo County Indiana. Journal Mammalogy **47**: 473-486.
Mumford, R. E. 1967. New distribution records for *Sorex longirostris* and *Citellus triacemlinestus* in Indiana. Proc. Ind. Acad. Sci. for 1966. In press.

Theses Completed and Placed on File Dealing with the Flora and Fauna of Indiana

- Aschelminthes:** Wong, K-Y. 1966. Effects of host species in population changes in *Pratylenchus penetrans* (Cobb). Ph.D. Purdue.
- Crustacea:** Demaree, R. S. Jr. 1966. Studies on the ecology and the external morphology of *Lernaea cyprinacea* Linnaeus of Vigo County, Indiana. M.Sc. Indiana State.
- Insecta:** Crozier, R. G. Intrastand population distribution of *Corthylus columbianus* Hopkins (Coleoptera: Scolytidae). Ph.D. Purdue.
Dolphin, R. E. 1966. The ecological life history of *Halictus (Seladonia) confusus* Sm. (Hymenoptera: Halictidae). Ph.D. Purdue.
McManus, M. L. 1966. The effect of climate integrants on population fluctuations of the Columbian timber beetle, *Corthylus columbianus* Hopkins (Coleoptera: Scolytidae). Ph.D. Purdue.
Munsee, J. R. 1966. The ecology of ants of strip-mine spoil banks. Ph.D. Purdue.
Pearson, D. L. 1966. Ecological studies of the Coleoptera associated with cow manure. M.Sc. Purdue.
Tai, L-C. 1966. Biosystematic study of the genus *Sympetrum* (Odonata). Ph.D. Purdue.
- Reptiles:** Parker, W. 1965. Reptiles of Montgomery County. B.A. Wabash.
- Aves:** Wright, V. L. 1966. Status of the Gray Partridge in Indiana. M.Sc. Purdue.
- Mammalia:** Corthum, K. W. Jr. 1966. A study of reproduction and placental scar duration in *Microtus ochrogaster* and *Microtus pennsylvanicus*. M.Sc. Indiana State.

**Work in Progress, but not yet Published, Dealing with the
Flora and Fauna of Indiana**

- Bryophyta: Lanz, L. A., DePauw. Liverworts of Indiana.
- Vascular Plants: Humbles, J. Indiana Univ. Indiana plant distribution records.
- Vertebrates,
general: Jones, G. S. Purdue. Wildlife management of strip-mined land in southwestern Indiana.
- Pisces: Gammon, J. R. DePauw. Validity of the species *Moxostoma macrolepidotum* and *M. breviceps* (Castostomidae).
Whitaker, J. O. Jr. and Wallace, D. C. Indiana State. Continued studies on the fishes of Vigo County, Indiana.
- Mammalia: Mumford, R. E. Purdue. The distribution of Indiana mammals.
Whitaker, J. O. Jr. Indiana State. Continued studies on the mammals of Vigo County, Indiana (parasites, food, habitat, reproduction).
- Animal ecology: Benda, R. and Gammon, J. R. DePauw. Normal population density and diversity of streams biota.
Gammon, J. R. DePauw. Effects of inorganic sediments on stream biota.

MINUTES OF THE GENERAL SESSION

Indiana Institute of Technology, October 22, 1966

The annual Fall Meeting of the Indiana Academy of Science was held in the Auditorium of Schick Hall of Indiana Institute of Technology, Fort Wayne, Indiana, on Saturday, October 22, 1966, at 9:30 a.m. Dr. Carrolle A. Markle, President, called the meeting to order. An address of welcome was given by Dr. Edward C. Thoma, President of Indiana Institute of Technology.

The minutes of the Executive Committee on Friday, October 21, 1966, were read by the secretary and approved as read.

Fay Kenoyer Daily read a biographical sketch of each member who had died since the 1965 Fall Meeting. These sketches are printed under Neurology in the **Proceedings** of the Indiana Academy of Science.

The meeting adjourned at 10:30 a.m.

A luncheon for the Senior and Junior Academies was held in the gymnasium at 11:45 a.m. Following the luncheon, a thought provoking address "Divergent Aims in Water Pollution Abatement" was given by Dr. William A. Spoor, Department of Biological Sciences, University of Cincinnati.

The annual dinner meeting of The Academy was held in the dining hall of Indiana Institute of Technology at 6:30 p.m. Dr. Alton A. Lindsey, President-Elect of the Academy, presided.

The secretary presented ninety-six applications for membership to the Academy. A motion was approved to accept the ninety-six applicants as members.

Dr. Harry G. Day presented the following resolutions to the Academy:

1. WHEREAS: The Indiana Academy of Science is deeply grateful to the Indiana Institute of Technology for placing its facilities at our disposal during the fall 1966 meeting, be it

RESOLVED: That the Indiana Academy of Science members here assembled express sincere thanks to the Indiana Institute of Technology through Dr. Edward C. Thoma, President, and to Dr. Warren E. Hoffman, Chairman of the Program Committee, and to the staff for the courtesies extended to the members during this meeting.

2. WHEREAS: The Indiana Academy of Science has gained prestige in the scientific community through the publication of the Sesquicentennial Volume, *The Natural Features of Indiana*, be it

RESOLVED: That the members of the Indiana Academy of Science convey special thanks to Mr. Robert McClarren, Director of the Indiana State Library, for the important role he has played in the distribution of *The Natural Features of Indiana*, published by the Sesquicentennial Committee of the Indiana Academy of Science; to Mrs. Lois Burton of the Indiana Science Library staff for her dedicated services, over and above the demands of her customary duties, in connection with the dis-

tribution of this volume; and to Dr. A. A. Lindsey, President-Elect, for his untiring efforts in the collection of the material for the book.

3. WHEREAS: The Indiana Dunes National Lakeshore has received favorable consideration in the Senate and House of the United States Government, it is further

RESOLVED: That the members of the Indiana Academy of Science who have conveyed their expressions of approval to the proper national figures in support of this project be commended for their cooperation in this action to preserve this section of Indiana for posterity as a national park, and that Senator Birch Bayh and Representative J. Edward Roush, Fifth District Congressman, receive a vote of thanks for their continued and intensive support of the legislation concerned with this movement.

The resolutions were approved.

Dr. Harry G. Day of the nominating committee read the names of the divisional chairmen for 1967. They are as follows: Anthropology,; Bacteriology,; Botany, Sam Postlethwaite, Purdue University; Chemistry, G. B. Bachman, Purdue University; Ecology, Marion T. Jackson, Indiana State University; Entomology, George H. Bick, Saint Mary's College; Geology and Geography, Al Schneider, Indiana University; History of Science, Lawrence H. Baldinger, University of Notre Dame; Physics, Konstantine Kolitschew, Indiana Central College; Plant Taxonomy, Rev. Damian Schmelz, Saint Meinrad's Abbey; Soil Science, Al Zachary, Purdue University; Zoology, J. Hill Hamon, Indiana State University.

The following slate of Officers and Committees to be elected by The Academy for 1967 was presented by Dr. Harry G. Day: President, Alton A. Lindsey, Purdue University (as 1966 President-Elect accedes Presidency according to the Constitution); President-Elect, William J. Wayne, Indiana State Geological Survey; Secretary, James R. Gammon, DePauw University; Treasurer, Frank Guthrie, Rose Polytechnic Institute; Editor, William R. Eberly, Manchester College; Director of Public Relations, James Clark, State Entomology Department; Trustee Academy Foundation, W. P. Morgan, Indiana University Indianapolis Center (1968); Bonding Committee, D. J. Cook, DePauw University, and R. M. Brooker, Indiana Central College; Research Grants Committee, W. K. Stephenson, Earlham College (1971). A motion was carried to instruct the secretary to cast a unanimous ballot for the slate of officers and committee members.

President Carrolle A. Markle delivered an excellent address, entitled "Whither the Indiana Academy of Science." The address is printed in the Proceedings of the Indiana Academy of Science.

The meeting was adjourned at 8:30 p.m.

CLARENCE F. DINEEN, Secretary

FINANCIAL REPORT OF THE INDIANA ACADEMY OF SCIENCE

January 1, 1966 through December 31, 1966

I. ACADEMY ACCOUNTS

A. 1966 Income:

| Item or Description | Income |
|--|--------------------|
| Dues & Initiation Fees..... | \$ 3,650.00 |
| Reprint Sales to Authors | |
| Vol. 74—\$1,417.60 | |
| Vol. 75— 1,128.05 | 2,545.65 |
| Proceedings Sales | 198.00 |
| John S. Wright Foundation, partial publication cost, | |
| Vol. 74 of Proceedings | 3,000.00 |
| Sales of "Natural Features of Indiana" | 7,434.83 |
| John S. Wright Foundation, partial publication cost, | |
| "Natural Features of Indiana" | 19,000.00 |
| Miscellaneous | 25.92 |
| TOTAL 1966 INCOME: | \$35,854.40 |
| Plus interest credited to savings accounts | + \$ 814.33 |
| TOTAL 1966 INCOME & CREDITS: | \$36,668.73 |
| Less 1966 Expenditures, from next page: | —\$35,063.83 |
| NET GAIN FOR 1966: | \$ 1,604.90 |
| Plus balance, January 1, 1966: | + \$ 2,661.65 |
| BALANCE, December 31, 1966: | \$ 4,266.55 |

B. 1966 Expenditures:

| Item or Description | Expenditure | Budgeted |
|-----------------------------------|-------------|------------|
| Secretary | \$ 188.15 | \$ 250.00 |
| Clerical | \$ 96.00 | |
| Postage, etc. | 92.15 | |
| Treasurer | \$ 214.45 | \$ 200.00 |
| Clerical | 100.00 | |
| Postage, etc. | 114.45 | |
| Office Supplies & Expense..... | \$ 143.19 | \$ 150.00 |
| Stationery | 137.24 | |
| Miscellaneous | 5.95 | |
| Administrative Expenses | | |
| Travel Allowance & Dues..... | \$ 150.00 | \$ 165.00 |
| President's Conting. | \$ 79.19 | \$ 125.00 |
| Program Committee | \$ 609.05 | \$ 500.00 |
| Chairman's Expenses | \$ 12.50 | |
| Printing & Mailing | 596.55 | |
| Proceedings Publication | | |
| Editorial Expenses, Vol 75..... | \$ 265.40 | \$ 400.00 |
| Printing & Mailing, Vol. 75 | \$ 1,295.28 | |
| Printing & Mailing, Vol. 74 | \$3,863.43 | \$1,075.00 |
| Junior Academy | \$ 100.03 | \$ 150.00 |
| Library Binding | | |
| From 1965 Budget | \$ 999.90 | |
| From 1966 Budget | \$ 996.20 | 1,000.00 |

| | | |
|-----------------------------------|-------------|------------|
| "Natural Features of Indiana".... | \$23,356.59 | |
| Editorial Expenses | \$ 121.76 | |
| Advertising, etc. | 625.39 | |
| Printing | 22,412.89 | |
| Mailing & Misc. | 196.55 | |
| Miscellaneous | 14.22 | |
| Reprints from Proceedings | | |
| Academy business, Vol. 74..... | 101.10 | 100.00 |
| Academy business, Vol. 75..... | 74.80 | |
| Sale to Authors, Vol. 74..... | 1,278.85 | |
| Sale to Authors, Vol. 75..... | 1,334.00 | |
| TOTAL 1966 EXPENDITURES: ? | \$35,063.83 | \$4,115.00 |

II. ADMINISTERED ACCOUNTS

| <i>Item or Description</i> | <i>Jan. 1, 1966 Balance</i> | <i>1966 Receipts</i> | <i>1966 Expenditures</i> | <i>Dec. 31, 1966 Balance</i> |
|---|-------------------------------------|--------------------------|------------------------------|--------------------------------------|
| Publications Fund (incl. "Natural Features...") ----- | \$ ----- | \$26,434.83 | \$24,613.02 | \$ 1,821.81 |
| Operational Funds ----- | 2,661.65 | 10,233.90 | 10,450.81 | 2,444.74 |
| ACADEMY ACCOUNTS: | \$ 2,661.65 | \$36,668.73 | \$35,063.83 | \$ 4,266.55 |
| Academy Research Funds | \$ 1,002.00 | \$ 2,240.58 | \$ 1,744.00 | \$ 1,498.58 |
| Science Fair | 1,679.41 | 12,208.41 | 7,780.58 | 6,107.24 |
| Science Talent Search | 2,365.77 | | 1,289.41 | 1,076.36 |
| J. S. Wright Fund | 134.28 | | | 134.28 |
| Lilly Endowment No. I | 16.77 | | 16.50 | .27 |
| Lilly Endowment No. II..... | 2,751.02 | | 2,728.44 | 22.58 |
| Lilly Endowment No. III | | 10,000.00 | 1,725.41 | 8,274.59 |
| Miscellaneous | | 56.00 | | 56.00 |
| TOTAL IN STATE ACCOUNTS:... | \$10,610.90 | \$61,173.72 | \$50,348.17 | \$21,436.45 |
| N.S.F. Grant GE-9588 | \$ 3,119.36 | \$ 8,825.15 | \$11,944.51 | |
| N.S.F. Grant GW-1110 | | 7,983.70 | 7,734.48 | \$ 249.22 |
| TOTAL IN ALL ACCOUNTS:..... | \$13,730.26 | \$77,982.57 | \$70,027.16 | \$21,685.67 |
| Bank balances: Terre Haute First National Bank, Terre Haute, Ind. ... | | | | \$ 2,393.73 |
| Lytton Savings & Loan, Los Angeles, Calif. | | | | 9,390.86 |
| First Western Savings & Loan, Las Vegas, Nev. | | | | 9,923.47 |
| | | | | \$21,708.06 |
| Less Accounts Payable (F.I.C.A. withholding)..... | | | | —22.39 |
| NET ASSETS IN BANK AND SAVINGS: | | | | \$21,685.67 |

Frank A. Guthrie,

Treasurer

December 31, 1966

March 31, 1967

We the undersigned have audited the treasurer's books of the Indiana Academy of Science for the year 1966 and have found them to be accurate and in order.

James C. List, Robert H. Cooper.

NEW MEMBERS—1966

| | |
|---|----|
| Ahrlichs, James L., 214 Wood, West Lafayette, Ind. | SS |
| Allen, Mr. Phillip R., 427 Lafayette Ave., Columbus, Ind. | Z |
| Archer, Gary L., R. #1, West Baden, Ind. | Z |
| Arnett, Dr. Ross H., Jr., Dept. of Entomology, Purdue University, Lafayette, Ind. | E |
| Bateman, Mr. Jack A., Ball State University, Muncie, Ind. | C |
| Beaver, Albert J., Agronomy Dept., Lilly Hall of Life Science, Purdue University, Lafayette, Ind. 47907 | SS |
| Beltz, Mr. David A., 755 North Emerson Ave., Indianapolis, Ind. | Ba |
| Benda, Robert Steven, Hess Trailer Court, Lot 15, 1218 S. Bloom- ington, Greencastle, Ind. | Z |
| Bergdall, Miss Irene F., Huntington College, Huntington, Ind. 46750 | M |
| Bernhardt, Dr. F. Leon, R. R. 6, Box 436J, Muncie, Ind. 47302 | H |
| Bessler, Mr. William C., Jeffersonville High School, 600 E. Court Ave., Jeffersonville, Ind. | Z |
| Biehn, Mr. William L., Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind. | Bo |
| Blair, Dr. Robert P., 3728 Berneway Drive, Fort Wayne, Ind. 46808 | C |
| Blakely, Mr. Robert L., Dept of Anthropology, Rawles Hall, Indiana University, Bloomington, Ind. 47401 | A |
| Boener, Dr. Charlotte, Science Division, Indiana State University, Terre Haute, Ind. 47809 | Z |
| Bracker, Prof. Charles E., Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind. 47907 | Bo |
| Brown, Paul, 441 East 20th, Apt. 7-C, New York, New York 10010 | |
| Bruce, Mr. David S., Dept. Biological Sciences, Purdue University, Lafayette, Ind. 47907 | Z |
| Bunger, Dr. William B., Dept. of Chemistry, Indiana State University, Terre Haute, Ind. 47809 | C |
| Burnor, Mr. Duane R., Dept. of Anthropology, Indiana University, Bloomington, Ind. 47401 | A |
| Cable, Mr. Louis W., 5223 Brendon Park Dr., Indianapolis, Ind. 46226 | G |
| Carmony, Dr. Donald F., Box 15, R. R. 3, Bloomington, Ind. | SS |
| Colglazier, Jerry M., 925 S. Pasadena St., Indianapolis, Ind. 46219 | P |
| Cook, Anna, 2301 E. 2nd, Apt. 28 Bart Villa, Bloomington, Ind. 47403 | Z |
| Corne, Audrey E., 1116 Woodlawn Ave., Indianapolis, Ind. 46203 | Ba |
| Corthum, Mr. Kenneth W., Jr., 2225 S. 6½ St., Terre Haute, Ind. 47802 | Z |
| Cory, Mr. Walter A., Jr., 2948 Oak Hill Ct., Madison, Ind. 47250 | Z |

| | |
|--|----|
| Cromer, Mr. John A., 609 S. W. 17th St., Richmond, Ind. 47374 | E |
| Crozier, Suzanne, Dept. of Anthropology, Indiana University, Bloomington, Ind. 47405 | A |
| Crowe, Mr. Dennis R., Geography Dept., Indiana State University, Terre Haute, Ind. | G |
| Culley, Dr. William J., Muscatatuck State Hospital, Butlerville, Ind. 47223 | C |
| Cummings, Richard E., 522 E. Minnesota St., Indianapolis, Ind. | Z |
| Cutshall, Dr. T. W., 4221 E. Kessler Lane, Indianapolis, Ind. 46220 | C |
| Dancis, Mr. Barry, Dept. of Zoology, Indiana University, Bloomington, Ind. 47401 | Z |
| Daniel, Mr. James F., 3960 N. Hartman Dr., Indianapolis, Ind. 46226 | G |
| Darlage, Mr. Larry, Indiana Central College, Indianapolis, Ind. | C |
| Davidson, Carol R., Assoc. Prof. Biology Dept., Oakland City College, Oakland City, Ind. 47560 | Z |
| Day, Mr. Edwin J., 114 Crown Lane, Fort Wayne, Ind. | G |
| Delia, Anthony, 23 Baker Ave., Berkeley Hts., New Jersey 07922 | C |
| Dick, Stanley, Botany Dept., Indiana University, Bloomington, Ind. 47405 | Bo |
| Dilcher, Prof. David L., Dept. of Botany, Indiana University, Bloomington, Ind. 47405 | Bo |
| Dill, Mr. William T., R. R. #1, Box 83, Delphi, Ind. 46923 | Z |
| Docter, Mr. P. J., 1716 Klondike Rd., West Lafayette, Ind. | Z |
| Dolphin, Mr. Robert E., Entomology Research Division, 1118 Chestnut St., Vincennes, Ind. 47591 | E |
| Duncan, Mr. Ronald J., 108 Rawles Hall, Indiana University, Bloomington, Ind. 47401 | A |
| Early, Frances M., 606 Miami, North Manchester, Ind. | Bo |
| Edwards, Donald M., Dept. of Agricultural Engineering, University of Nebraska, Lincoln, Nebraska | SS |
| Eilenfeldt, Miss Lynn E., 233 Scheele Hall, Valparaiso, Ind. | G |
| Eilers, Dr. Lawrence J., Life Sciences Dept., Indiana State University, Terre Haute, Ind. | Z |
| Farringer, Dr. L. Dwight, R. R. 2, Box 43A, North Manchester, Ind. 46962 | Ph |
| Finley, H. Richard, Dept. of Geography and Geology, Indiana State University, Terre Haute, Ind. 47809 | G |
| Fix, Mr. Gordon F., 6035 Winnpenny Lane, Indianapolis, Ind. 46220 | G |
| Foltz, Mr. Paul Raymond, 18 South 19th St., Terre Haute, Ind. 47809 | Bo |
| French, Mr. Robert R., Ind. Geological Survey, 611 N. Walnut Grove Ave., Bloomington, Ind. 47405 | G |
| Geer, Mr. William H., Apt. 203, 2903 Westbrook Dr., Fort Wayne, Ind. | C |
| Ginn, Mr. William E., 1536 Carroll White Dr., Indianapolis, Ind. | Z |

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|--|-------|
| Gooding, Dr. Ansel M., Dept. of Geology, Earlham College, Richmond, Ind. 47374 | G |
| Guindon, Prof. Edward P., 2431 Oxford St., Fort Wayne, Ind. 46806 | C |
| Grove, Mr. Stanley, Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind. 47907 | Bo |
| Hadley, Dr. Charles E., 900 S. Washington St., Crawfordsville, Ind. 47933 | Z |
| Hamilton, Phil, Director, Kokomo Public Library, 120 S. Main St., Kokomo, Ind. | H |
| Harrell, Mr. and Mrs. J. E., R. #6, Madison, Ind. | Z |
| Hart, Mrs. Henrietta, 1005 E. Sherman St., Marion, Ind. 46952 | Z |
| Harter, Mrs. Robert D., Dept. of Agronomy, Purdue University, Lafayette, Ind. | SS |
| Henson, Mr. Jack C., Marion Heights, Oakland City, Ind. 47560 | Bo, Z |
| Hetherington, Mr. Martin T., 2322 Apache Dr., Lafayette, Ind. 47905 | Z |
| Hibbs, Dr. Clyde W., 1508 Riley Rd., Muncie, Ind. 47304 | SS |
| Hodes, Prof. M. E., Indiana University Medical Center, 1100 W. Michigan St., Indianapolis, Ind. 46207 | C |
| Hoffer, Dr. Roger M., 1220 Potter Drive, West Lafayette, Ind. 47906 | |
| Hornuff, Mr. Lothar E., Jr., Central State College, Edmond, Oklahoma | E |
| Huber, Roger T., Dept. of Entomology, Ag. Hall, Purdue University, Lafayette, Ind. 47907 | E |
| Hudock, George A., Dept. of Zoology, Indiana University, Bloomington, Ind. 47405 | Z |
| Hull, Dr. Richard J., Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind. 47907 | Bo |
| Hults, Dr. Malcolm E., Dept. of Physics, Ball State University, Muncie, Ind. 47306 | Ph |
| Hunn, Mr. James D., 1643 W. 57th St., Indianapolis, Ind. 46208 | G |
| Hurst, Mr. Robert N., Dept. of Biological Sciences, Purdue University, West Lafayette, Ind. | Z |
| Husband, Mr. David D., 2113 Manitou Dr., Lafayette, Ind. 47905 | Bo |
| Irving, Rev. Brian H., O.F.M., 333 East Paulding Road, Fort Wayne, Ind. 46806 | M, Ph |
| Jacobs, Mr. Alan M., Dept. of Geology, Indiana University, Bloomington, Ind. 47401 | G |
| Jinks, Prof. Willard L. and Mrs. Toni G., 1317 N. Tuxedo St., Indianapolis, Ind. 46201 | Z |
| Johannsen, Mr. Christian J., 1220 Potter Dr., McClure Research Park, W. Lafayette, Ind. | SS |
| Johnson, Dr. Charles H., DePauw University, Greencastle, Ind. 46135 | M |
| Judd, Prof. Robert W., 2035 Fruit St., Huntington, Ind. 46750 | Bo |
| Kahn, Prof. Albert, Dept. of Biological Sciences, Purdue University, Lafayette, Ind. 47907 | Bo |

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|---|-----------|
| Kalland, Mr. Gene, Dept. of Zoology, Indiana University, Bloomington, Ind. | Z |
| Kampmeyer, Susan, 1472 Crestwood Drive, Chattanooga, Tenn. 37405 | Bo |
| Kellog, Dr. Thomas F., 1205 Woodward Ave., South Bend, Ind. | C |
| Kemper, Mr. Byron W., Stanford Medical School, Stanford, Calif. | C |
| Kern, Mr. Orville L., Indiana Institute of Technology, 1600 E. Washington, Fort Wayne, Ind. | Ph |
| Kiefer, Prof. Wayne E., Dept. of Geography-Geology, Valparaiso University, Valparaiso, Ind. | G |
| Kirby, Miss Bonnie, R. R. 2, Wabash, Ind. | Z |
| Kirkpatrick, Dr. Charles M., Forestry and Conservation, Purdue University, Lafayette, Ind. | Z |
| Klotz, Dr. John W., Concordia Senior College, Fort Wayne, Ind. 46805 | Bo |
| Kolberg, Mr. D. W., Dept. of Geography, Valparaiso University, Valparaiso, Ind. | G |
| Konrath, Mr. Robert, 822 25th St., South Bend, Ind. 46615 | Bo |
| Labavitch, Mr. John, Wabash College, Waugh Hall, Crawfordsville, Ind. 47933 | Z |
| Lawrence, Mr. Vinnedge M., Dept. of Entomology, Purdue University, Lafayette, Ind. 47907 | E |
| Leavis, Mr. Paul C., 9841 Lorelei Drive, Cincinnati, Ohio | Ba, Ps, C |
| Leon-Gallegos, Mr. Hector M., Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind. | Bo |
| Lewis, Dr. Jon E., Pitman-Moore Division of the Dow Chemical Co., P. O. Box 10, Zionsville, Ind. 46077 | Z |
| Lindsey, Mr. Frank A., Evansville Museum of Arts & Science, 411 S.E. Riverside Dr., Evansville, Ind. | Z |
| Link, Mr. Henry Adolph, R. R. 2, Dekalb Co., Waterloo, Ind. 46793 | Bo |
| Little, Mr. Robert M., 6363 Monitor Drive, Indianapolis, Ind. 46220 | A |
| Luther, Mr. Frederic, 4515 Marcy Lane (239), Indianapolis, Ind. 46205 | G |
| MacDonald, Mr. Ronald R., 618 Washington St., Oakland City, Ind. 47560 | G |
| Mayrose, Mrs. Carolyn J., 6114 West Lakeview Dr., Apt. 171, Indianapolis, Ind. 46224 | Bo |
| MacLean, Mr. David B., Agriculture Hall, Purdue University, Lafayette, Ind. | E |
| McCrumby, Mrs. Eleanor L., 17 Anthony Apts., Muncie, Ind. | A |
| McFee, Dr. William W., Agronomy Dept., Purdue University, Lafayette, Ind. | SS |
| Menke, Mr. Robert, St. Henry Rd., Huntingburg, Ind. 47542 | Bo |
| Morgan, Prof. Fred D., 2320 College Ave., Huntington, Ind. 46750 | Z |
| Merkle, Mr. George W., R. R. 1, North Manchester, Ind. | C |

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|--|------|
| Merritt, Prof. Neal R., 508 N. Wayne, North Manchester, Ind. | G |
| Meyer, Mr. Robert W., Entomology Dept., Agriculture Hall, Purdue University, Lafayette, Ind. | E |
| Michael, Prof. Harold L., 1227 N. Salisbury St., West Lafayette, Ind. 47906 | SS |
| Miles, Prof. Robert D., 1724 Sheridan Rd., West Lafayette, Ind. 47906 | G |
| Miller, Mr. Louis V., Indiana Geological Survey, 611 N. Walnut Grove, Bloomington, Ind. | G, C |
| Miller, Carl D., Ind. Central College, Indianapolis, Ind. | Ba |
| Miller, Paul A., 1709 North 20th St., Lafayette, Ind. 47904 | SS |
| Miyakawa, Dr. Kozaburo, Indiana Institute of Technology, Fort Wayne, Ind. | Ph |
| Montgomery, Mr. Michael E., Box 632, Earlham College, Richmond, Ind. | E |
| Moore, Mr. Andrew E., 926 S. Kenwood, Indianapolis, Ind. | Z |
| Mouzin, Mr. Thomas E., 1118 Chestnut St., Vincennes, Ind. 47591 | E |
| Murray, Mr. Charles E., 306 E. Central St., Bluffton, Ind. | G |
| Myers, Mr. William E., 213 W. Jefferson, Crawfordsville, Ind. 47993 | PT |
| Neidhardt, Dr. Frederick C., Dept. of Biological Sciences, Purdue University, Lafayette, Ind. | Ba |
| Nelson, Dr. Joseph S., Dept. of Zoology, Indiana University, Bloomington, Ind. 47401 | Z |
| Neuhouser, Dr. David L., R. R. 1, North Manchester, Ind. | M |
| Nicholson, Miss Judy M., 5340 Camden St., Indianapolis, Ind. 46227 | Z |
| Nyman, Mr. Dale J., U. S. Geological Survey, Rm. 516, 611 N. Park Ave., Indianapolis, Ind. | G |
| Oliver, Mr. Patrick F., 1218 Alden Rd., Muncie, Ind. 47303 | Z |
| Owen, Dr. Donald E., Dept. of Geography and Geology, Indiana State University, Terre Haute, Ind. | G |
| Oyer, Dr. Edwin B., Dept. of Horticulture, Purdue University, Lafayette, Ind. | Bo |
| Parks, Mr. Francis, R. R. 2, Box 91, Centerville, Ind. 47330 | Bo |
| Poppe, Mr. Robert H., 1400 N. State Parkway, Chicago, Ill. 60610 | Z |
| Pickard, Mrs. Barbara L., DePauw University, 607 Anderson St., Apt. 4, Greencastle, Ind. | Z |
| Pfaltzgraff, Mr. George H., College Box 742, North Manchester, Ind. | Z |
| Quinney, Dr. Paul R., Butler University, Dept. of Chemistry, 4600 Sunset Ave., Indianapolis, Ind. 46207 | C |
| Rarick, Mr. Reeve Dee, 611 N. Walnut Grove Ave., Bloomington, Ind. | G |
| Reeves, Mr. Richard A., Indiana Institute of Technology, 1600 E. Washington Blvd., Fort Wayne, Ind. | Ph |
| Rhoades, Dr. Marcus M., Botany, Indiana University, Bloomington, Ind. 47401 | Bo |

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|--|----|
| Roberts, Mr. Allan, 120 Hayes Rd., Richmond, Ind. 47374 | Z |
| Robinson, Mr. Tully M., 4828 E. 19th St., Indianapolis, Ind. 46218 | G |
| Rodeffer, Mr. Michael J., 1140 E. Washington, Muncie, Ind. 47305 | A |
| Rosso, Mr. Wayne A., 2118 S. Sixth St., Lafayette, Ind. | Z |
| Roth, Dr. J. N., Dept. of Biology, Goshen College, Goshen, Ind. 46526 | Z |
| Saksena, Mrs. Sudha S., E-103 Bicknell Apt., Indiana University, Bloomington, Ind. | A |
| Schwartz, Mr. Ward, 1457 Parkview Ave., Whiting, Ind. 46394 | Z |
| Sebastian, Glenn R., 330 S. 17th St., Terre Haute, Ind. | G |
| Senterfit, Dr. Laurence B., Chas. Pfizer & Co., Inc., Terre Haute, Ind. 47802 | Ba |
| Siddiqi, Dr. Akhtar H., Dept. of Geography, Indiana State University, Terre Haute, Ind. | G |
| Simmons, Miss Kathleen, 171 South Park Dr., Seymour, Ind. 47274 | Z |
| Snodgrass, Mr. John B., Wabash College, Crawfordsville, Ind. 47933 | |
| Spencer, Mr. Harley O., Mishawaka Public Library, 122 N. Hill St., Mishawaka, Ind. 46544 | |
| Starr, Dr. Theodore J., Lobund Laboratory, Notre Dame, Ind. | Ba |
| Stevenson, Dr. Jerry L., Biology Dept., Anderson College, Anderson, Ind. 46012 | Ba |
| Straley, Mr. David B., Oakland City College, Oakland City, Ind. 47560 | Z |
| Streator, Mr. James T., 103 N. Elm St., North Manchester, Ind. 46962 | C |
| Suagstad, Edward S., Dept. of Entomology, Purdue University, Lafayette, Ind. | E |
| Swelstad, Mr. Jack, 316 N. Jordan St., Bloomington, Ind. | Z |
| Swenson, Miss Mary Karen, Indiana University Medical Center, 1100 W. Michigan, Indianapolis, Ind. 46207 | C |
| Swindell, Prof. Robert James, Chemistry Dept., Indiana Institute of Technology, Fort Wayne, Ind. 46803 | C |
| Szegedy, Dr. Lasuo, 229 W. Maple Grove Ave., Fort Wayne, Ind. 46806 | C |
| Telinde, Mr. Harvey D., Dept. of Biological Sciences, Purdue University, Lafayette, Ind. 47907 | Bo |
| Tendam, Dr. D. J., Dept. of Physics, Purdue University, Lafayette, Ind. 47907 | Ph |
| Tiano, Mr. Donald E., 1402 E. Dudley, Indianapolis, Ind. | Ph |
| Thompson, Mr. Daniel J., Indiana State University, Terre Haute, Ind. | Z |
| Tschannen, Miss Marilyn, Dept. of Geography, Northwestern University, Evanston, Ill. | E |
| Van Camp, Mr. and Mrs. D. L., 400 Jordan Rd., Indianapolis, Ind. 46217 | E |
| (Wallace), Sister M. Jean Vianney, C.S.C., Saint Mary's College, Notre Dame, Ind. 46556 | Z |

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|---|----|
| Wappes, Mr. James E., Dept. of Entomology, Purdue University, Lafayette, Ind. | E |
| Weimer, Dr. Harry R., 719 N. Sycamore St., North Manchester, Ind. 46962 | C |
| Webb, George W., Dept. of Geography and Geology, Indiana State University, Terre Haute, Ind. | G |
| Weismiller, Mr. Richard A., Dept. of Agronomy, Purdue University, Lafayette, Ind. 47907 | SS |
| Weiss, Melford S., Dept. of Sociology and Anthropology, Ball State University, Muncie, Ind. | A |
| Welker, Dr. George W., Dept. of Biology, Ball State University, Muncie, Ind. 47306 | Ba |
| White, Mr. Charles E., 2441 E. Northview Ave., Indianapolis, Ind. 46220 | E |
| White, Charley M., Dept. of Forestry and Conservation, Purdue University, Lafayette, Ind. | Z |
| Wicke, Brian, 727 Davidson Rd., Nashville, Tenn. 37205 | C |
| Windell, Dr. John T., Northwest Campus, Indiana University, 3400 Broadway, Gary, Ind. 46408 | Z |
| Wolf, Mr. Ronald J., 4160 Guilford Ave., Indianapolis, Ind. 46205 | G |
| Wong, Mr. Tim Tun Yuey, 1118 Chestnut St., Vincennes, Ind. | E |
| Wright, Mrs. Marilyn J., Apt. D, 624 Candle Berry Ct., Kirkwood, Mo. 63122 | Bo |
| Yeh, Miss Nancy W. S., Dept. of Biology, Ball State University, Muncie, Ind. | E |
| Yoder, Mr. Larry R., 2427 Chapman Rd., Huntertown, Ind. 46748 | Bo |
| Young, Mrs. Frances N., University Senior High School, Bloomington, Ind. 47401 | M |
| Young, Dr. Ralph W., 1600 E. Washington Blvd., Indiana Institute of Technology, Fort Wayne, Ind. 46803 | M |

INDIANA JUNIOR ACADEMY OF SCIENCE

Thirty-Fourth Annual Meeting

OFFICERS

President: James Spreen, New Haven Senior High School, New Haven

Vice President: Dennis Waltke, Division of University Schools,
Bloomington

Secretary: Mary Ellen Lancaster, Franklin Central High School, Acton

JUNIOR ACADEMY COUNCIL

Dr. Howard Michaud, Chairman, Purdue University, Lafayette

Mr. Keith Hunnings, New Haven Senior High School, New Haven
(1965-1969)

Mr. F. Ray Saxman, Hartford City High School, Hartford City
(1966-1970)

Mr. Charles Souers, Division of University Schools, Bloomington
(1966-1970)

YOUTH ACTIVITIES COMMITTEE

Prof. Virgil Heniser, Chairman, Indiana University, Bloomington

Prof. Donald R. Winslow, Director, Junior Academy, Division of
University Schools, Bloomington

PROGRAM

October 22, 1966

8:00 A.M.-11:30 A.M.

Registration and Election of Officers in the Main Lobby of the Anthony Building. Club representatives may file their ballots with the Junior Academy Council representative stationed in the lobby.

8:30 A.M.-10:00 A.M.

Junior Academy Council Interviews for "Best Boy" and "Best Girl" Awards. Students nominated for an interview should register in Room A-175.

9:30 A.M.-10:00 A.M.

General Business and Welcome, Room A-371. James Spreen presiding.

10:15 A.M.-11:30 A.M.

Junior Academy members should visit with Senior Academy members in their morning "paper sessions." Hanser and Schick Halls. Programs will be available at registration.

11:45 A.M.-1:45 P.M.

Luncheon with Senior Academy. Gymnasium.

2:00 P.M.-3:45 P.M.

Presentation of papers. Rooms A-371 and A-269, if necessary.
Dennis Waltke presiding in A-371.

3:45 P.M.-4:00 P.M.

Announcements and adjournment.

STUDENT PAPERS—PHYSICAL SCIENCE

Room A-371, James Spreen, Presiding

1. A New Duodecimal Notation
Malinda Finch, Portland Senior High School, Portland
2. Construction and Operation of an Expansion Cloud Chamber with a Helmholtz Coil
Mary Lancaster, Franklin Central High School, Acton
3. A Spark Chamber for Amateur Research
John W. Peterson, Brebeuf Preparatory School, Indianapolis
4. The Production of High Energy Particles for Nuclear Experiments
Steve Jost, Muncie Central High School, Muncie
5. Ionic Propulsion
Douglas A. Stephen, Portland Junior High School, Portland
6. The Adhesion of Ice Crystals in Precipitation and Proposed Methods for Its Investigation
James J. Peterson, Brebeuf Preparatory School, Indianapolis
7. Platinum Decoration Techniques in Stress Corrosion of Al-2024
Alfred C. Mecklenburg III, Hartford City High School, Hartford City
8. The Production of an Efficient Oxidizer for Sounding Rockets
David Lesniak, Griffith Senior High School, Griffith
9. The Story of Glass
Robert J. Michaelis, Brebeuf Preparatory School, Indianapolis
10. Condition in the Silicon Controlled Switch
James Spreen, New Haven Senior High School, New Haven

STUDENT PAPERS—BIOLOGICAL SCIENCE

Room A-269, Dennis Waltke, presiding

1. The Hydrophilic and Lipophilic Balance of Emulsions
Larry Jackson, George Washington High School, Indianapolis
2. The Effect of Testosterone Applied to the Comb of Rooster and Pullet Chicks
Georgia Dimmick, Portland Junior High School, Portland
3. The Effect of Gibberellic Acid on *Penicillium notatum*
Sandra Kay Satterfield, Muncie Central High School, Muncie
4. The Effects of Aspirin on Mice
Dan Henkel, Brebeuf Preparatory School, Indianapolis
5. A Survey of Fishes in a Drainage Ditch in Griffith, Indiana
Douglas Wayne Deedrick, Griffith Senior High, Griffith
6. Comparing Corn Hormones
Betty Sue Settle, Portland Senior High School, Portland

7. Antibiotics from a Spice Rack or "Spicy Antibiotics"
Sandra Shepherd, George Washington High School, Indianapolis
8. A Study of the Effects of *Haemonchus contortus* of Ovine Origin in Lambs and Kids
Stephen Weber, Huntington County Community High School, Huntington
9. Research in Endocrinology
Mary Elizabeth Richardson, Hartford City High School, Hartford City

MINUTES OF THE THIRTY-FOURTH ANNUAL MEETING OF THE INDIANA JUNIOR ACADEMY OF SCIENCE

The thirty-fourth annual meeting of the Indiana Junior Academy of Science was held on Saturday, October 22, 1966, on the campus of the Indiana Institute of Technology, Fort Wayne, Indiana. President James Spreen opened the meeting and introduced Dr. Young, a representative of Indiana Institute of Technology, who welcomed the academy to the campus.

The minutes of the thirty-third meeting of the Juunior Academy were read by the secretary, Mary Lancaster. With one correction the minutes were approved as they were read.

Mr. Sauders, from New Haven, was next introduced to make an announcement of a Polemic planned for the spring. On the 15 of April the Polemic is going to be held at New Haven Senior High School. Mr. Sauders encouraged students to come because he felt it would be a rewarding day. More material on the Polemic will be sent to the various science clubs in the area.

After the short business meeting, for the first time in the history of the academy, the Junior Academy spent the remainder of the morning listening to papers presented by the Senior Academy. The students went to various sections such as physics, chemistry, ecology and botany.

At noon a luncheon was held in the Gymnasium for the Junior and Senior Academy. After the luncheon Dr. William A. Spoor of the University of Cincinnati gave a talk entitled "Divergent Aims in Water Pollution Abatement."

In the afternoon the Junior Academy broke up into two groups to hear papers. President James Spreen presided at the physical science division, while Vice-President Dennis Waltke presided at the biological science division.

After presentation of the nineteen papers in the two divisions, Dr. Theodore Star, representing the Indiana Branch of the American Society for Microbiology, gave an award for the best paper presented in the area of microbiology. A certificate and a check for \$25.00 was given to Sandy Satterfield of Muncie Central High School whose paper was "The Effect of Gibberellic Acid in *Penicillium notatum*." A certificate was given to Stephen Weber from Huntington County Community

High School for his talk entitled "A Study of the Effects of *Haemonchus contortus* of Ovine Origin in Lambs and Kids." Mr. Hunnings next announced the winners of the "Best Girl" and "Best Boy" awards. The "Best Girl" was Mary Lancaster of Franklin Central High School whose paper was entitled "Construction and Operation of an Expansion Cloud Chamber with a Helmholtz Coil." Alfred Mecklenburg of Hartford City High School was the "Best Boy." His paper was entitled "Platinum Decoration Techniques in Stress Corrosion of Al-2024."

Mr. Winslow made some final announcements to the Academy. He presented charters to science clubs of the following schools who were new members in the academy: Angola High School, Griffith Senior High, Kennedy Memorial High School and Ladywood High School of Indianapolis. To New Haven Science Club who had done a fine job as host, to the Council and to the officers, Mr. Winslow gave a special thanks. Next year's meeting is to be held at Indiana University with the following officers: Steve Jost of Muncie Central High School, President; John Peterson of Brebeuf Preparatory School, Vice-President; and Valerie Savage of University School, Secretary.

James Spreen adjourned the thirty-fourth annual meeting of the Indiana Junior Academy of Science at 3:35.

Respectfully submitted,
MARY LANCASTER, Secretary

INDIANA JUNIOR ACADEMY OF SCIENCE

1966-1967

| <i>Town</i> | <i>Club and School</i> | <i>Sponsor</i> |
|----------------|--|---------------------------|
| Acton | Sigma Mu Chapter of FSA, Franklin Central H. S. | Margaret Richwine |
| Bedford | Bedford Science Problems Research Group, Bedford H. S. | Paul Hardwick |
| Bloomington | National Scientific Honor Society, Bloomington H. S. | Orville Long |
| Bloomington | E. Wayne Gross Academy, University H. S. | Billie Stucky |
| Bloomington | MSE Academy, University Junior High | Charles Souers |
| Clarksville | Clarksville H. S. Science Club, Clarksville Junior, Senior H. S. | Gerald K. Sprinkle |
| Columbus | Science Club, Columbus Senior H. S. | L. N. Carmichael |
| Crawfordsville | Up-N-Atom, Crawfordsville, H. S. | David Wells |
| Evansville | Reitz Memorial Chapter of FSA, Reitz Memorial H. S. | Charles Hames |
| Fort Wayne | Albertus Magnus Science Club, Central Catholic H. S. | Sr. Winifred |
| Fort Wayne | Phy-Chem Club, Elmhurst H. S. | Ruth Wimmer |
| French Lick | Springs Valley Science Club, Springs Valley H. S. | D. L. Clark |
| Gary | Andrean Biology Club, Andrean H. S. | Sr. Marie Antoine |
| Gary | Mu Alpha Theta, Andrean H. S. | Sr. M. Nadine, SS.C.M. |
| Gary | Biology Club, Lew Wallace H. S. | Lola Lemon |
| Griffith | Griffith Junior High Science Club, Griffith Junior H. S. | Fred Meeker |
| Griffith | Griffith Senior High Science Club, Griffith Senior H. S. | Geraldine R. Sherfey |
| Hammond | Chemistry Club, Oliver P. Morton H. S. | Mary J. Pettersen |
| Hartford City | Hartford City H. S. Science Club, Hartford City H. S. | F. Ray Saxman |
| Highland | Science Club, Highland H. S. | Jon Hendrix |

| <i>Town</i> | <i>Club and School</i> | <i>Sponsor</i> |
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| Huntington | Aristotelian, Huntington Catholic H. S. | Sr. M. Petrona |
| Huntington | Science, Huntington H. S. | Robert Diffenbaugh |
| Indianapolis | Arlington Science Club, Arlington H. S. | David Blase |
| Indianapolis | Nature Club, Arsenal Technical H. S. | Michael Simmons |
| Indianapolis | Brebeuf Science Club, Brebeuf Preparatory School | Rev. Richard J. Middendorf, S. J. |
| Indianapolis | Science Club, Howe H. S. | Jerry Motley |
| Indianapolis | Kennedy Research Center KRC, Kennedy Memorial H. S. | Sr. Mary Alexandra |
| Indianapolis | Mendelian Science Club, Ladywood H. S. | Sr. Helen Jean |
| Indianapolis | North Central H. S. Science Club, North Central H. S. | Robert Prettyman |
| Indianapolis | Science Club, George Washington H. S. | Mrs. E. H. Crider |
| Indianapolis | Science Club of Westlane, Westlane Junior H. S. | John Van Sickle |
| Jamestown | Science Club of Granville Wells, Granville Wells School | Cecil O. Bennington |
| La Porte | Bi-Phi-Chem Club, La Porte H. S. | Frances M. Gourley Byron Bernard |
| Lebanon | Junior Explorers of Science, Lebanon Junior H. S. | Tom Ewing |
| Logansport | Lewis Cass H. S. Science Club, | Raymond T. Kizer |
| Madison | Madison Science Club, Madison Consolidated High | David Dunkerton |
| Muncie | Muncie Central Science Club, Muncie Central H. S. | Bill Norris William Beuoy |
| New Albany | Science Club, New Albany Senior H. S. | John Moody |
| New Haven | New Haven Science Club, New Haven H. S. | Keith Hunnings |
| Portland | Science Club, Portland-Wayne Township Junior H. S. | Mary Zehner |
| Portland | Portland Senior H. S. Science and Mathematics Club, Portland Senior H. S. | Ralph Settle Robert Freemyer |
| South Bend | Junior Izaak Walton League, John Adams H. S. | Ernest Litweiler |

| <i>Town</i> | <i>Club and School</i> | <i>Sponsor</i> |
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| South Bend | JETS Junior Engineering Technical Society, Central H. S. | Lawrence K. Cox |
| South Bend | Second Year Biology Class, Clay H. S. | John V. Davis |
| South Bend | IONS Club, J. W. Riley H. S. | John Marker |
| South Bend | Science Research Group, Andrew Jackson H. S. | Robert C. Smith |
| Terre Haute | Pius X Science Teens, Schutle H. S. | Sr. Thomas Mary |
| Tipton | Tipton H. S. Science Club, Tipton H. S. | Richard Garst Fredrick Calhoun |
| Vincennes | Sikma Tau Science Club, St. Rose Academy | Sr. Suzanne |