

PROCEEDINGS

*of the*

# Indiana Academy *of Science*

*Founded December 29, 1885*

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Volume 75

1965

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

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Spring Meeting  
April 30-May 1  
Culver Military Academy

Fall Meeting  
October 7-9  
UNIVERSITY OF NOTRE DAME

Published at Indianapolis, Indiana  
1966

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2. **Instructions for Authors** appear at the end of this volume, P. 330.

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6. The Constitution and By-Laws reprinted from v. 74 are available to members upon application to the Secretary. Necrologies reprinted from the various volumes can be supplied relatives and friends of deceased members by the Secretary.

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**Metallurgical Abstracts**

**Psychological Abstracts**

**Review of Applied Entomology**

**The Torrey Bulletin**

**Zoological Record**

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OFFICERS AND COMMITTEES  
OFFICERS FOR 1965

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President ..... FRANK J. WELCHER, Indiana University  
(Indianapolis Center)  
President Elect ..... CARROLLE A. MARKLE, Earlham College  
Secretary ..... CLARENCE F. DINEEN, St. Mary's College  
Treasurer ..... JAMES C. LIST, Ball State University  
Editor ..... RICHARD A. LAUBENGAYER, Wabash College  
Director of Public Relations ..... FRANK N. YOUNG, Indiana University

CHAIRMEN ELECTED BY THE DIVISIONS

Anthropology ..... KING B. HUNTER, Indiana University  
Bacteriology ..... MORRIS WAGNER, University of Notre Dame  
Botany ..... JOHN F. SCHAFFER, Purdue University  
Chemistry ..... KENNETH COOK, Anderson College  
Entomology ..... MRS. GERTRUDE L. WARD, Earlham College  
Geology and Geography ..... JOHN B. PATTON, Indiana University  
History of Science ..... NELLIE COATS, State Library  
Mathematics (Acting) ..... ARNOLD JOHNSON, University of Notre Dame  
Physics ..... H. K. HUGHES, Indiana State College  
Plant Taxonomy ..... GAYTON C. MARKS, Valparaiso University  
Psychology (Acting) ..... JOHN F. SANTOS, University of Notre Dame  
Soil Science ..... HELMUT KOHNKE, Purdue University  
Zoology ..... WILLIAM EBERLY, Manchester College

EXECUTIVE COMMITTEE

(Past Presidents,\* Current Officers, Divisional Chairmen,  
Committee Chairmen)

*Baldinger, L. H.	Hughes, H. K.	Patton, J. B.
Carlson, K. H.	Heniser, V. H.	*Porter, C. L.
*Christy, O. B.	Hunter, K. B.	*Powell, H. M.
*Cleland, R. F.	*Johnson, W. H.	Schafer, J. F.
Coats, Nellie	Kaufman, Karl	Seymour, K.
Cook, Kenneth	Kessel, W. G.	Stockton, Sister M. Rose
Daily, Mrs. W. A.	Kohnke, Helmut	*Visher, S. S.
*Daily, W. A.	Laubengayer, R. A.	Wagner, Morris
*Davis, J. J.	*Lilly, Eli	*Wallace, F. N.
*Day, H. G.	List, J. C.	Ward, Mrs. G. L.
*Degering, E. F.	Markle, C. A.	*Weatherwax, P.
Dineen, C. F.	*Markle, M. S.	Webster, J. D.
Eberly, W. R.	Marks, G. C.	*Welch, W. M.
*Edgington, W. E.	*Mellon, M. G.	Welcher, F. J.
*Edwards, P. D.	*Meyer, A. H.	Winslow, D. R.
*Girton, R. E.	*Michaud, H. H.	Young, F. N.
*Guard, A. T.	Miller, G. R.	Youse, H.
*Haenisch, E. L.	*Morgan, W. P.	

## BUDGET COMMITTEE

Consisting of: President (Welcher), President Elect (Markle), Secretary (Dineen), Treasurer (List), Editor (Laubengayer), Director of Public Relations (Young), Retiring President (Haenisch), Director of Junior Academy (Winslow), Library Committee (Coats), Program Committee (Baldinger), Youth Activities Committee (Heniser), Relation of Academy to State (Daily). Invited participant: Former Program Chairman (Brooker).

## COMMITTEES ELECTED BY THE ACADEMY

**Trustees of the Academy Foundation:** Chairman, W. P. Morgan, Indiana Central College (1966); William A. Daily, Lilly Company (1965).

**Bonding Trustees:** Chairman, Scott McCoy, Technical High School, Indianapolis; D. J. Cook, DePauw University.

**Research Grants:** Chairman, P. Weatherwax, Indiana University (1966); K. M. Seymour, Butler University (1965); A. A. Lindsey, Purdue University (1968); J. F. Hart, Indiana University (1967); O. K. Behrens, Indianapolis (1969).

## COMMITTEES APPOINTED BY THE PRESIDENT

(President an ex officio member of all committees)

**Academy Representative on the Council of the A.A.A.S.:** W. H. Johnson, Wabash College.

**Auditing Committee:** Chairman, K. H. Carlson, Valparaiso University; W. W. Bloom, Valparaiso University.

**Youth Activities Committee:** Chairman, Virgil Heniser, Indiana University; James Ashley, South Bend Schools; Mrs. Eliz. Crider, Washington School, Indianapolis; Karl Kaufman, Butler University; Wm. Kessel, Indiana State University; Paul Klinge, Indiana University; Ralph Lefler, Purdue University; Howard Michaud, Purdue University; Woodrow Pemberton, Bosse School, Evansville; Wm. Smith, Howe School, Indianapolis; Erwin Steinkamp, New Albany School; Don Winslow, University School, Bloomington; ex officio: Robert Kent, State Dept. of Public Instruction; Mrs. Marian Rector, Muncie.

**Indiana Science Talent Search:** Director, Virgil Heniser, Indiana University; L. H. Baldinger, University of Notre Dame; Clinton Gass, DePauw University; Robert Henry, Wabash College; S. N. Postlethwait, Purdue University; Harry Zimmack, Ball State University.

**Indiana Science Fairs:** State Coordinator, Karl Kaufman, Butler University; Regional Directors: Robert Brooker, Indiana Central College (Central Indiana Regional); Gerald Doeden, Ball State University (East Central Indiana Regional); P. V. Flannery, Purdue Calumet Center (Calumet Regional); Ronald Gibbs, Indiana University (South Central Indiana Regional); Ralph Green, Purdue University (Lafayette Regional); Roger Harned, Commercial Solvents Co.

(West Central Indiana Regional); Paul Hartman, Evansville College (Tri-State Regional); Brian Hill, Indiana University, Jeffersonville (Southeastern Indiana Regional); Emil Hoffman, University of Notre Dame (Northern Indiana Regional); A. C. Koester, Valparaiso University (Northwestern Indiana Regional); Leo Kuhn, Tri-State College (Northeastern Tri-State Regional); Robert E. Wise, Purdue University, Fort Wayne (Northeastern Indiana Regional).

**Indiana Junior Academy of Science:** Director, Don R. Winslow, University High School, Bloomington; Howard Michaud, Purdue University; Sister Marian Francis, Reitz Memorial High School, Evansville; Keith Hunning, New Haven High School; Miss Helen Reed, Manual High School, Indianapolis; Erwin Steinkamp, New Albany High School.

**Visiting Scientists:** Director, W. G. Kessel, Indiana State University; K. H. Carlson, Valparaiso University; Robert H. Cooper, Ball State University; Mrs. Eliz. Crider, Washington High School, Indianapolis; Ernest Litweiler, John Adams High School, South Bend.

**Library:** Chairman, Nellie Coats, Indiana State Library; Mrs. Lois Burton, Indiana State Library; Eli Lilly, Eli Lilly and Company; Bernard Malin, Eli Lilly and Company.

**Program:** Chairman, L. H. Baldinger, University of Notre Dame; Robert Anthony, University of Notre Dame; George Craig, University of Notre Dame; James Danehy, University of Notre Dame; P. L. Knight, St. Mary's College.

**Publication:** Chairman, R. A. Laubengayer, Wabash College; J. A. Clark, Department of Conservation; A. A. Lindsey, Purdue University.

**Relation of Academy to State:** Chairman, W. A. Daily, Eli Lilly and Company; J. A. Clark, Department of Conservation; C. F. Dineen (ex officio), St. Mary's College; R. A. Laubengayer, Wabash College.

**Membership:** Chairman, Sister M. Rose Stockton, Marian College; R. T. Arnold, Mead Johnson Center; J. Barton III, St. Joseph's College; G. H. Bick, St. Mary's College; C. L. Bieber, DePauw University; M. A. Brown, Franklin College; R. E. Broyles, Indiana University, Fort Wayne; R. Coleman, Evansville College; J. Cope, Earlham College; J. P. Danehy, University of Notre Dame; H. M. Dixon, Butler University; W. R. Eberly, Manchester College; W. C. Gunther, Valparaiso University; F. A. Guthrie, Rose Polytechnic Institute; M. E. Hodson, Marion College; Warren E. Hoffman, Indiana Technical College; W. B. Hopp, Indiana State College; R. Kent, Indiana Central College; Rev. C. J. Kroeckel, St. Joseph's College; G. M. Krueger, Taylor University; D. F. LeMaster, Huntington College; G. D. Lovell, Wabash College; Mrs. M. J. Mayo, Anderson College; G. R. Miller, Goshen College; F. L. Murphy, Vincennes University; J. J. Nisbet, Ball State University; S. N. Postlethwait, Purdue University; H. M. Powell, Indiana University, Medical Center; K. S.

Robinson, Oakland City College; J. D. Webster, Hanover College; F. J. Zeller, Indiana University.

**Fellows:** Chairman, Chemistry: K. M. Seymour, Butler University (1967); Psychology: E. J. Asher, Purdue University (1966); Soil Science: S. Barber, Purdue University (1967); Zoology: W. R. Breneman, Indiana University (1967); Entomology: L. Chandler, Purdue University (1966); Anthropology: H. E. Driver, Indiana University (1966); Bacteriology: Dean Fraser, Indiana University (1967); Plant Taxonomy: A. T. Guard, Purdue University (1965); History of Science: G. F. Hennion, Notre Dame (1965); Physics: R. W. Lefler, Purdue University (1965); Geology and Geography: Benjamin Moulton, Indiana State University (1967); Mathematics: J. C. Polley, Wabash College (1965); Botany: W. H. Welch, DePauw University (1966).

**Resolutions:** Chairman, Howard Youse, DePauw University; Lawrence Baldinger, University of Notre Dame; Shelby Gerking, Indiana University.

**Invitations:** Chairman, Glen R. Miller, Goshen College; G. D. Lovell, Wabash College; W. P. Morgan, Indiana Central College; F. D. Rossini, University of Notre Dame.

**Necrologist:** Mrs. William A. Daily, Butler University.

**Parliamentarian:** Paul Weatherwax, Indiana University.

#### SPECIAL COMMITTEES APPOINTED BY THE PRESIDENT

**Biological Survey:** Chairman, J. D. Webster, Hanover College; Leland Chandler, Purdue University; Mrs. William A. Daily, Butler University; James R. Gammon, Earlham College; Charles Heiser, Indiana University; Grady L. Webster, Purdue University; Winona Welch, DePauw University; Frank Young, Indiana University.

**Special Constitution Revision Committee:** Chairman, Paul Weatherwax, Indiana University; R. H. Cooper, Ball State University; Wm. A. Daily, Eli Lilly and Company; Harry G. Day, Indiana University; Ray T. Everly, Purdue University; Edward L. Haenisch, Wabash College; Howard H. Michaud, Purdue University; Frank J. Welcher (ex officio), Indiana University.

**Committee to Consider Change of Day of Fall Meeting:** Chairman, Harry G. Day, Indiana University; Lawrence Baldinger, University of Notre Dame; Otto K. Behrens, Eli Lilly and Company; Robert Brooker, Indiana Central College; James C. List, Ball State University; Howard Michaud, Purdue University.

## SPRING MEETING

CULVER MILITARY ACADEMY, Culver, Indiana

### MINUTES OF THE EXECUTIVE COMMITTEE MEETING

April 30, 1965

The meeting was called to order by the president, Dr. Frank J. Welcher, at 4:30 p.m. in the Little Theatre, Culver Military Academy.

The treasurer, Dr. James C. List, submitted the financial report for the period January 1, 1965, through April 15, 1965. A summary is as follows:

#### State Academy Accounts

Balance as of January 1, 1965 .....	\$ 7,238.83
Receipts through April 15, 1965 .....	7,024.40
Disbursements through April 15, 1965 .....	2,956.00
Balance as of April 15, 1965 .....	11,307.23

#### National Science Foundation Accounts (GE 4306)

Balance as of January 1, 1965 .....	\$ 4,493.94
Receipts through April 15, 1965 .....	5,000.00
Disbursements through April 15, 1965 .....	6,471.95
Balance as of April 15, 1965 .....	3,021.99

**Special Constitution Revision Committee:** Dr. Paul Weatherwax, chairman, discussed proposed amendments. In accordance with Art.

VIII. AMENDMENTS; Sec. 1. The following amendments were proposed:

In Art. III, Sec. 1, of the Constitution, the list of officers shall be amended to read as follows: President, President-Elect, Secretary, Treasurer, Editor, and Director of Public Relations, and Sections numbered 7, 8, and 9 shall be rearranged and renumbered to conform with this change.

To Art. V, Sec. 1 (7) **Publication**, the following shall be added: The Editor shall serve as Chairman of this Committee.

The following articles shall be added to the By-Laws:

#### Art. X. GENERAL PROVISIONS

Notwithstanding any provision of this Constitution or these By-Laws which might be susceptible to a contrary construction:

- (1) The Academy shall be organized and operated exclusively on a non-profit basis for scientific and educational purposes;
- (2) No part of the net earnings or other resources of The Academy shall or may under any circumstances inure to the benefit of any private shareholder or individual;

- (3) No substantial part of the activities of The Academy shall consist of carrying on propaganda or otherwise attempting to influence legislation;
- (4) The Academy shall not participate, by publication or circulation of statements or other intervention, in any political campaign on behalf of any candidate for public office; and
- (5) The Academy shall not:
  - (a) lend any part of its income or corpus without the receipt of adequate security and a reasonable rate of interest to:
  - (b) pay any compensation, in excess of a reasonable allowance for salaries or other compensation for personal services actually rendered to:
  - (c) make any part of its services available on a preferential basis to:
  - (d) make any substantial purchase of securities or other property, for more than adequate consideration in money or money's worth to:
  - (e) sell any substantial part of its securities or other property, for less than an adequate consideration in money or money's worth to: or
  - (f) engage in any other transaction which results in a substantial diversion of its income or corpus to:
    - a person who has made a substantial contribution to The Academy.

#### Art. XI. DISTRIBUTION ON DISSOLUTION

Upon dissolution of The Academy, its assets shall be distributed by the Executive Committee to one or more organizations qualifying under Section 501 (c) (3) or Section 501 (c) (6) of the Internal Revenue Code of 1954.

These proposed amendments to the constitution were approved by the Executive Committee and recommended that the amendments be submitted to the membership at the General Meeting.

**Academy Foundation:** The trustees of the Academy Foundation, Dr. William P. Morgan and William A. Daily, asked Mr. Richard C. Solaro, Assistant Trust Officer of the Indiana National Bank of Indianapolis, to explain legal aspects pertaining to the transfer of securities of The Indiana Academy of Science. After a discussion the following resolution was presented and approved:

"BE IT RESOLVED THAT, Dr. William P. Morgan and William A. Daily, the duly elected Chairman of the Trustees and Trustee, respectively, of the Indiana Academy of Science, Academy Foundation, are hereby jointly or individually authorized to sell, assign and endorse for transfer, including transfer to NOVUS & CO. as fiduciary nominee of The Indiana National Bank of Indianapolis, Indiana, certificates representing stocks, bonds, or other securities now registered or hereafter registered in the name of the Indiana Academy of Science, or in its name showing any special fund in addition to its name in the registration on the certificate."

**Research Grants:** Paul Weatherwax. Four grants totaling \$900.00 were approved by the committee during the Fall Meeting, 1964. A state-

ment of policy and of directions for making applications has been drawn up and is being revised. The revision will be presented to the Executive Committee during the fall meeting (1965). A motion was approved to allocate research funds for grant-in-aid and for publication annually by the Budget Committee of The Academy.

**Editor:** Richard A. Laubengayer reported that the galley proofs for Volume 74 (1964) should be in the hands of the authors by the end of May. The Editor plans to issue a sheet of directions for the sectional chairmen.

**Library:** Miss Nellie Coats reported that upon presentation of the need for further support, Lilly Endowment Inc. made in March a second grant to the John Shepard Wright Memorial Library of \$5,300.00.

**Director of Public Relations:** Frank N. Young requested news items from members of The Academy. A desire was expressed to have publicity throughout the year with emphasis prior to the Fall Meeting.

**Special Committee to Consider Change of Day of the Fall Meeting:** Harry G. Day. The committee reported that it would be advantageous to have a joint Saturday Meeting of the Senior and the Junior Academy. A motion was approved to have the Fall Meeting day of The Academy changed from Friday to Saturday on a three-year trial basis effective during the period 1966-68.

The interest in forming a Section in Ecology was discussed. A motion was approved to form a section on a three-year trial basis effective during the period 1966-68. It was suggested that an organizational meeting be held during the Fall Meeting (1965) at the University of Notre Dame with Dr. Donald Miller as Chairman.

A motion was approved to make Art. II, Sec. 4 (Emeritus Members) of the new Constitution retroactive to include those members with Emeritus status prior to the adoption of the new constitution. Emeritus membership was approved for Dr. Paul S. Rickett and Mr. Stephen S. Visser.

Approved October 8, 1965

CLARENCE F. DINEEN, Secretary

## MINUTES OF THE GENERAL SESSION

May 1, 1965

Following the dinner meeting in the Culver Inn Dining Room, the formal business session was called to order by the President, Frank J. Welcher, at 8:00 p.m. President Welcher introduced Major General Delmar T. Spivey, USAF (Ret), Superintendent, Culver Military Academy. General Spivey welcomed The Academy and invited the members to tour and to enjoy the Culver Military Academy facilities.

The amendments to the Constitution which were approved by the Executive committee as printed in the minutes of that committee (April 30, 1965) were presented and approved by the membership of The Academy. These amendments will be presented to The Academy at the Fall Meeting, 1965, for final action.

The secretary presented the applications of twenty-three new members and six new clubs to the membership of The Academy. The applications were approved.

An illustrated lecture on "Wildflowers of Indiana" by Mr. and Mrs. Lloyd Beesley, Cedar Grove, Indiana, was the highlight of the evening. The lecture proved interesting and educational.

The Saturday Field Trips were announced: (1) Zoology—Visit to the Bass Lake Fish Hatchery, Gary Schnicke, Fish Management Biologist. (2) Botany—Ronn N. Minne and James V. Miracle, Culver Military Academy. (3) Geology and Soils—Gerald Johnson and Allan Schneider of the Geological Survey, State of Indiana, and H. P. Ulrich, Purdue University, Department of Agronomy. (4) Ornithology—Staff, Culver Military Academy.

Howard R. Youse, Chairman of the Resolutions Committee presented the following resolutions which were approved:

"WHEREAS: The Indiana Academy of Science is deeply grateful to the Culver Military Academy for placing their facilities at our disposal during our spring meeting, be it

RESOLVED: That the Indiana Academy members here assembled express their sincere thanks to the Culver Military Academy through Major General Delmar T. Spivey, USAF (Ret), Superintendent, for all the courtesies which have been shown the Indiana Academy during this meeting.

Special appreciation and thanks are due Mr. James Kurz, Manager of the Culver Inn, for the efficient handling of our housing and meals.

We also thank Dr. Lawrence H. Baldinger, Program Chairman, and all members and leaders of the field trips for their services."

Approved, October 8, 1965

CLARENCE F. DINEEN, Secretary

FALL MEETING  
MINUTES OF THE EXECUTIVE COMMITTEE  
MEETING

UNIVERSITY OF NOTRE DAME, Notre Dame, Indiana

October 7, 1965

The Executive Committee meeting of the Indiana Academy of Science was held on October 7, 1965, in the Nieuwland Science Hall at the University of Notre Dame. The meeting was called to order at 7:00 p.m. by Frank J. Welcher, president of The Academy.

The minutes of the Executive Committee and the General Session of the Spring Meeting of The Academy (April 30, May 1) at Culver Military Academy were approved.

**Treasurer—Dr. James C. List:** Dr. List presented the treasurer's report: January 1 balance plus receipts in State Accounts as of September 30, 1965—\$18,945.07; disbursements—\$6,094.74; present balance—\$12,850.33.

January 1 balance plus receipts in NSF funds as of September 30, 1965—\$29,407.16; disbursements—\$15,662.33; balance as of September 30, 1965—\$13,744.83.

**The Trustees of the Academy Research Endowment Fund:** William A. Daily, chairman, reported as of October 7, 1965: in the Academy Research Fund, beginning balance—\$812.04; receipts—\$814.62; disbursements—\$839.48; balance as of October 1—\$787.18. In the John S. Wright Fund of the Academy Research Fund, a beginning balance—\$2,149.67; receipts—\$7,601.99; disbursements—\$9,460.32; balance as of October 1, 1965—\$291.34.

**Youth Activities Committee:** Virgil Heniser, chairman, reported that the major programs, namely, The Indiana Science Talent Search, The Indiana Science Fairs and the Indiana Junior Academy of Science, have been very successful and are developing. The number of high school science clubs increased recently from thirteen to 41.

**Visiting Scientist Program:** Dr. William G. Kessel, director, reported that the sixth consecutive year of The Visiting Scientist Program for Indiana High Schools was conducted during the 1964-65 academic year with a grant of \$14,780 from The Special Projects in Science Education of The National Science Foundation. Reception by administration, teachers and students was excellent as has been the situation every year.

**Library Committee:** As reported at the Spring Meeting of The Academy in March, 1965, in response to an application, the Lilly Endowment Inc. made a second grant, this of \$5,300, to The Academy's John Shepard Wright Memorial Library to employ personnel. A trained and

experienced librarian has been employed and the work is progressing rapidly.

**Committee on Research Grants:** Dr. Paul Weatherwax, chairman, stated that one grant for \$150 has been awarded since the Spring Meeting. Thus, a total of \$1,050 has been granted during the entire year. A statement of policy and a set of instructions for making application have been prepared for prospective applicants. A motion was approved to have the secretary of The Academy distribute this information to all the institutions of higher learning in Indiana and to membership high school clubs.

**Invitation Committee:** In the best interest of all institutions concerned, the chairman (Glen R. Miller) proposed an alteration in the previously adopted three-year schedule of Fall Meetings. A motion was approved to revise the schedule to read: Fall Meeting, 1966—Indiana Institute of Technology, 1967—Wabash College, 1968—Ball State University.

**Biological Survey Committee:** The chairman, J. D. Webster, reported a decrease in the number of publications dealing with the flora and fauna of Indiana as compared to previous years. The full report follows.

The chairman of the Bacteriology Division, Morris Wagner, explained the difficulties involved in electing at this meeting a chairman for the Bacteriology division for 1966. A motion was passed to have Mr. Wagner remain as chairman until another chairman could be elected.

In accordance with Art. II (Membership), Sec. 4 (Emeritus Members) of the Constitution, Mr. Frank D. Kern and Mr. Grant T. Wickmire petitioned the Executive Committee for emeritus status. The petitions were approved.

A motion was approved to have The Academy go on record as supporting a prospectus for a Regional Educational Research Laboratory.

The Amendments to the Constitution which were approved at the Spring Meeting (April 30, 1965) were passed by the Executive Committee and will be presented at the General Session for final approval.

Approved October 8, 1965

CLARENCE F. DINEEN, Secretary

Biological Survey Committee, J. Dan Webster, Chairman

Publications of 1964-1965

Dealing with the Flora and Fauna of Indiana

- Fungi, Hennen, J. F., 1965. The species of *Uromyces* parasitic on the grass tribe Andropogonede. Mycologia (Includes Indiana records), **57**: 104-113.
- Uredinales: Cummins, B. G., 1966. The Uredinales that parasitize the Three-Awn Grasses. Proc. Ind. Acad. Sci. for 1965. In press.
- Cummins, G. B. and P. Ramachar, 1965. The species of *Puccinia* on the Paniceae. Mycopat. Mycol. Appl. (Includes Indiana records), **25**: 7-60.
- Vascular Plants: Bliss, L. C. and G. W. Cox, 1964. Plant community and soil variation within a Northern Indiana Prairie. Amer. Midl. Naturalist, **72**: 115-128.
- Glassman, S. F., 1964. Grass flora of the Chicago Region. Amer. Midl. Naturalist (Includes northwestern Indiana), **72**: 1-49.
- Jackson, M. T. Microclimatic Differences and their Effects on Spring Flowering Phenology. (Study done at Allee Memorial Woods, Parke County, Indiana.) Ecology, in press.
- Marks, G., 1966. An introduced *Polygonum* in Porter County. Proc. Ind. Acad. Sci. for 1965. In press.
- Mertens, T. R., 1965. Preliminary studies on the genus *Polygonum*, sect. *Polygonum* (Avicularia) in North America. Proc. Ind. Acad. Sci. for 1964. **74**: 307.
- Crustacea: Eberly, W. R., 1966. A new troglobitic Isopod (Asellidae) from Southern Indiana. Proc. Ind. Acad. Sci. for 1965. In press.
- Insecta: Chandler, L., 1966. Wasps of the tribes Stizini and Bembiini in Indiana. Proc. Ind. Acad. Sci. for 1965. In press.
- Siverly, R. E., 1965. Notes on the biology of *Psorophora ciliata* (Fabricius) in Indiana. Proc. Ind. Acad. Sci. for 1964. **74**: 194-195.
- Siverly, R. E., 1966. Occurrence of *Culiseta minnesotae* Barr in Indiana. Proc. Ind. Acad. Sci. for 1965. In press.
- Pisces: Erman, D. C. and R. E. Mumford, 1966. A preliminary list of the fishes of Tippecanoe County, Indiana. Proc. Ind. Acad. Sci. for 1965. In press.
- Amphibia: Rubin, D., 1965. Occurrence of the spadefoot toad, *Scaphiopus holbrookii* (Harlan), in Vigo County, Indiana. Herpetologica. **21**: 153-154.
- Aves: Baker, Mrs. H. A., 1964. Breeding census #46. Grazed, brushy fields and tree-bordered creek. Aud. Field Notes, **18**: 573-574.
- Kirkpatrick, R. D., 1966. The introduction of the Japanese Quail (*Coturnix c. japonica*) in Indiana. Proc. Ind. Acad. Sci. for 1965. In press.
- Indiana Audubon Society Members, 1965. Many titles in Indiana Audubon Quarterly, Vol. **43**.

- Webster, J. D., 1964. Breeding bird census #7. Tornado-disturbed Beech-Maple forest. Aud. Field Notes, **18**: 548-549.
- Webster, J. D., 1965. Winter bird population study #11. Tornado-disturbed Beech-Maple forest. Aud. Field Notes, **19**: 423-424.
- Mammalia: Humphrey, S. R. and J. B. Cope, 1966. A population dynamics study of a *Myotis lucifugus* colony in Boone County, Indiana. Proc. Ind. Acad. Sci. for 1965. In press.
- Mumford, R. E., 1964. A melanistic prairie vole. Journal of Mammalogy, **45**: 150.
- Whitaker, J. O., Jr. and Zimmer, G., 1965. Additional *Mustela nivalis* records for Indiana. J. Mamm., **46**(3): 516.

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

- Fungi: Mislivec, P. B., 1965. The importance of soil type and of soil pH as factors in the occurrence of the aspergilli in Vermillion County, Indiana. M.Sc. Indiana State.
- Protozoa: MacLean, Bonnie K. Internal parasitism of *Bombus* Spp. in Indiana. M.Sc. Purdue.
- Insecta: Eldridge, B. F., 1965. The influence of environmental factors on blood-feeding and hibernation in mosquitos of the *Culex pipiens* complex. Ph.D. Purdue.
- Hendricks, D. E., 1964. The ectoparasites and other arthropod associates of *Citellus tridecemlineatus tridecemlineatus* (Mitchill). M.Sc. Purdue.
- McWilliams, J. G., 1965. Seasonal distribution bionomics of mosquitos in a woodlot, Tippecanoe County, Indiana. M.Sc. Purdue.
- Wood, G. R., 1965. The insect pollinators of species and cultivars of *Cucurbita*. M.Sc. Purdue.
- Amphibia, Reptilia: Rubin, D., 1965. Amphibians and reptiles of Vigo County, Indiana. M.Sc. Indiana State.
- Aves and Mammalis: Gough (Meadows), Betty Jane, 1964. Seasonal use by birds and mammals of a wildlife food and cover planting. M.Sc. Purdue.
- Shoesmith M. W., 1965. An evaluation of established multiflora rose hedges as wildlife habitat. M.Sc. Purdue.
- General Ecology: Erman, D. C., 1965. A preliminary aquatic study of impoundments at Jasper-Pulaski State Game Preserve in northwestern Indiana. M.Sc. Purdue.

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

- Fungi: Cummins, G. B. and A. C. Green. Purdue and Univ. Wisconsin. Rust fungi on Aveneae.
- Cummins, G. B. Purdue. Manual of the grass rust fungi of the world.
- Parmalee, J. A. Purdue. Revision of N. Amer. *Puccinia* on Compositae: Helianthae.

- Vascular Plants: Eilers, L. J. Purdue. A biosystematic study of the genus *Sullivantia*.  
 Allen, P. Purdue. Detailed mapping of an undisturbed hardwood forest in Owen County, Indiana.  
 Jackson, M. Purdue. Evaluation of two taxa of Indiana hard maples.  
 Humbles, J. Indiana University. Indiana plant distribution records (A continuing study).  
 Gordon, D. Indiana University. Monograph of *Gleditsia* (Leguminosae).
- Insecta: Munsee, J. R. Purdue. The ecology of ants in the spoil banks of a strip-mine.  
 Hamon, J. H. and J. S. Hasiman. Indiana State. The succession of saprophagous arthropods on carasses of animals.
- Pisces: Whitaker, J. O., Jr., and D. C. Wallace. Indiana State. The fishes of Vigo County, Indiana.
- Aves: Williams, E. C., Jr. Wabash. Population studies on the box turtle, *Terrapene carolina*.  
 Mumford, R. E. Purdue. Taxonomy and Distribution of the birds of Indiana.  
 Hoekstra, T. W. Purdue. Ecology and population dynamics of gallinaceous birds on Crane Naval Ammunition Depot.  
 Thurman, J. R. Purdue. Ruffed grouse ecology in southern Indiana woodlands.  
 Hamon, J. H. Indiana State. The systematic position of the Chat, *Icteria virens*.  
 Wright, V. L. Purdue. Ecology of the Hungarian Partridge in Indiana.
- Aves and Mammalia: Burton, J. P. Purdue. Wildlife management of strip-mined land in southwestern Indiana. First study.  
 Jones, G. S. Purdue. Wildlife management of strip-mined land in southwestern Indiana. Second study.  
 Martinka, R. R. Purdue. Wildlife population changes following multiflora rose hedge eradication.
- Mammalia: Mumford, R. E. A statewide survey of the present status of Indiana mammals.  
 Whitaker, J. C., Jr. Indiana State. Mammals of Vigo County, Indiana.  
 White, C. Purdue. The dynamics and ecology of the white-tailed deer (*Odocoileus virginianus*) in southern Indiana.
- General Ecology: Hamon, J. H. Indiana State. A survey of parasites of some Indiana birds.  
 Troyer, Barbara. Indiana State. Some preliminary studies on the succession of bacteria responsible for maceration of birds.

## MINUTES OF THE GENERAL SESSION

University of Notre Dame, October 8, 1965

The annual meeting of the Indiana Academy of Science was held in the auditorium of the Memorial Library at the University of Notre Dame, Notre Dame, Indiana, on October 8, 1965. Dr. Frank J. Welcher, President of The Academy, called the meeting to order at 9:30 a.m.

Rev. Joseph S. McGrath, University of Notre Dame, welcomed The Academy to the Campus. Dr. Frederick D. Rossini, Dean of the College of Science, University of Notre Dame, spoke on the "Centennial of Science."

The minutes of the Executive Committee Meeting on October 7, 1965, were read and approved as read.

Mrs. William A. Daily, The Academy Necrologist, read a biographical sketch of members who had died since the 1964 Annual Meeting. These sketches are printed under Necrology in the Proceedings of the Indiana Academy of Science.

Dr. Paul Weatherwax, chairman of the Special Constitution Revision Committee, reviewed the actions of the committee. In accordance with the recommendations of the Executive Committee, Dr. Weatherwax moved that the amendments to the Constitution, as printed in the minutes of the Executive Committee, April 30, 1965, be adopted by The Academy. The motion was carried. Thus, the amendments are an official part of the Constitution (Article VIII, Amendments, Sec. 1).

President Welcher introduced Dr. Milton Burton, Professor of Chemistry, Director of the Radiation Laboratory, University of Notre Dame. Dr. Burton delivered a stimulating lecture on "The Nature of Science and Research."

The meeting was adjourned at 11:25 a.m.

The annual dinner meeting of The Academy was held in the North Dining Hall of the University of Notre Dame at 6:30 p.m. Dr. Carrolle A. Markle, President-Elect of The Academy, presided. Dr. Markle introduced the guests and officers at the speaker's table and gave special recognition to out-of-state guests.

Dr. James C. List presented the applications for new membership to The Academy. The applications were approved.

Dr. Howard Youse presented the following resolutions to The Academy which were approved:

1. That the Academy members here assembled express their sincere thanks to the University of Notre Dame through Rev. Theodore M. Hesburgh, President of the University for all the courtesies which have been extended to the Academy during this meeting.

2. Special appreciation and thanks are due Dr. Lawrence H. Baldinger and his committee for the planning of the general session and the efficient manner in which all other arrangements for the conduction of the Academy business were made.

3. Indiana Dunes National Lakeshore

WHEREAS: Many scientists and educators have expressed their personal support for the Indiana Dunes National Lakeshore, including the scientifically valuable non-contiguous area, as planned by the National Park Service, and

WHEREAS: The important role of this unique area in the development of biology and geology is universally appreciated, be it therefore

RESOLVED: That the Indiana Academy of Science favors the Indiana Dunes National Lakeshore proposal, and be it further

RESOLVED: That the Secretary of the Academy be instructed to convey this resolution to appropriate officials, and that our Director of Public Relations be empowered to release it to the public media.

Dr. Harry G. Day, chairman of the nominating committee, read the names of the divisional chairmen for 1966 which had been elected in the divisional meetings. They are as follows: Anthropology, Emily J. Blasingham, Loyola University; Bacteriology, Morris Wagner, University of Notre Dame; Botany, C. Franklin Bishop, Goshen College; Chemistry, Robert E. Davis, Purdue University; Ecology, Donald E. Miller, Ball State University; Entomology, Ray T. Everly, Purdue University; Geology and Geography, Lee Guernsey, Indiana State University; History of Science, Lawrence H. Baldinger, University of Notre Dame; Physics, Robert Wise, Purdue University (Fort Wayne); Plant Taxonomy, Jack Humbles; Soil Science, James M. Smith, Anderson College; Zoology, Russell E. Mumford, Purdue University.

The following slate of officers and committees to be elected by The Academy for 1966 was presented by Dr. Harry G. Day, the Nomination Committee chairman: President, Carrolle A. Markle, Earlham College (as 1965 President-Elect accedes Presidency according to the Constitution); President-Elect, Alton A. Lindsey, Purdue University; Secretary, Clarence F. Dineen, Saint Mary's College; Treasurer, Frank Guthrie, Rose Polytechnic Institute; Editor, William R. Eberly, Manchester College; Director of Public Relations, James Clark, State Entomology Department; Trustee Academy Foundation, William A. Daily, Eli Lilly and Company (1967); Bonding Committee, Donald J. Cook, DePauw University, and R. M. Brooker, Indiana Central College; Research Grants Committee, Winona H. Welch, DePauw University (1970), and H. H. Michaud, Purdue University (1968). Howard H. Michaud was elected to replace Dr. A. A. Lindsey (President-Elect). Special nomination: Richard A. Laubengayer (retiring editor) as Honorary President. A motion was carried to cast a unanimous ballot for the slate of officers and committee members.

President Frank J. Welcher presented a scholarly address entitled, "Metal Chelates." The address is printed elsewhere in the Proceedings of the Indiana Academy of Science.

The meeting was adjourned at 9:30 p.m.

CLARENCE F. DINEEN, Secretary

FINANCIAL REPORT OF THE INDIANA ACADEMY OF SCIENCE

January 1, 1965 through December 31, 1965

	<i>Jan.</i> <i>1, 1965</i>		<i>Dec.</i> <i>31, 1965</i>	
	<i>Balance</i>	<i>Receipts</i>	<i>Disbursed</i>	<i>Balance</i>
1. Academy Proper .....	801.10	4,918.38	3,057.83	2,661.65
2. Academy Funds for Research.....	802.00	350.00	150.00	1,002.00
3. J. S. Wright Memorial Library and Lilly Endowment .....	721.95	0.00	570.90	151.05
4. Lilly Endowment Grant II.....	0.00	5,300.00	2,548.98	2,751.02
5. Science Fair .....	3,102.40	0.00	1,422.99	1,679.41
6. Science Talent Search .....	1,811.38	2,000.00	1,445.61	2,365.77
<b>Total in State Accounts .....</b>	<b>7,238.83</b>	<b>12,568.38</b>	<b>9,195.31</b>	<b>10,610.90</b>
N.S.F. Grant GE 4306 .....	4,493.94	5,000.00	9,493.94	0.00
N.S.F. Grant GE 9588 .....	0.00	5,968.15	2,848.79	3,119.36
<b>Total in all Academy accounts.....</b>	<b>11,732.77</b>	<b>23,536.53</b>	<b>21,539.04</b>	<b>13,730.26</b>

Bank balances, American National Bank & Trust Company, Muncie, Indiana

Checking Account ..... 2,607.18  
Savings Account ..... 11,123.08

13,730.26

Signed James C. List  
James C. List  
Treasurer  
December 31, 1965

April 13, 1966

We the undersigned have audited the treasurer's books of the Indiana Academy of Science for the year 1965 and have found everything in good order.

William W. Bloom  
Robert J. Hanson

## NEW MEMBERS—1965

Adelaide, Sister Mary, Marian College, Indianapolis, Ind.	Bo
Albright, Dr. Jack Lawrence, Dept. of Animal Sciences, Purdue University, Lafayette, Ind.	Z
Antonis, Miss Alike, 416 W. Marion St., South Bend, Ind. 46601	Bo
Barter, Mr. David Henry, 2645 Hulman St., Terre Haute, Ind.	G
Beesley, Mr. and Mrs. Lloyd, R. R. 1, Box 106, Cedar Grove, Ind.	Bo
Bell, Mr. Henry L., 403½ E. Third St., North Manchester, Ind. 46962	Z
Brown, Dr. Mary J., 3111 East St. Joseph St., Indianapolis, Ind. 46201	Z
Clark, Donald L., R. R. 1, West Baden, Ind.	M, Ph
Clifford, Brian Curtis, Dept. of Botany and Plant Pathology, Lilly Hall, Purdue University, Lafayette, Ind.	Bo
Courtney, James S., Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind.	Bo
Coburn, Dr. Stephen P., 3808 Knollercrest Road, Fort Wayne, Ind.	C
Conrad, Miss Phyllis, Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind.	Bo
Davis, Mr. John V., 52149 Helman Rd., South Bend, Ind. 46637	Bo, Z
Demaree, Richard S., Jr., 100 Farrington St., Apt. 213, Terre Haute, Ind.	Z
Dhonau, Dr. C. A., Vincennes University, Vincennes, Ind.	C
Dybel, Michael W., 2907 Strong Street, Highland, Ind.	C
Eisinger, William, Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind.	Bo
Ellingson, Dr. R. C., Research Center, Mead Johnson & Co., Evansville, Ind. 47721	C
Eliel, Prof. Ernest L., Dept. of Chemistry, University of Notre Dame, Notre Dame, Ind.	C
Everly, Melvin Eugene, 243 West Graham Ave., Lombard, Ill.	Z
Foster, Miss Janice C., 318 Waldron Street, West Lafayette, Ind.	E
Gates, Dr. Louise W., 109-C English Bldg., Ball State University, Muncie, Ind.	Ps
Gilbert, Dr. Scott K., Pride Company, Inc., Glen Haven, Wis.	Bo
Grant, Kenneth E., 311 W. Washington St., Room 212, Indianapolis, Ind. 46240	SS
Hall, Miss Dawn, 127 North 2nd West, Brigham City, Utah	Bo
Horowitz, Dr. Alan Stanley, Geology Dept., Indiana University, Bloomington, Ind.	G
Huffman, Mr. and Mrs. John Curtis, University Apts. W-303, Bloomington, Ind.	C

Jacobs, Merle E., Goshen College, Goshen, Ind. 46526	Z
Johnson, Mr. Gerald Homer, 412 Campus View Apts., Bloomington, Ind.	G
Jones, Daniel David, Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind.	Bo
Keller, Dr. M. Wiles, 518 Carrolton Blvd., W. Lafayette, Ind.	M
Kline, Dr. Richard M., Eli Lilly & Co., Research Labs, Greenfield, Ind.	Ba
Lair, Mr. Ben, Geography Dept., Valparaiso University, Valparaiso, Ind.	G
Lee, Howard Wm., Indiana Geological Survey, Bloomington, Ind.	G
Leman, Samuel E., 621 W. Plymouth St., Bremen, Ind.	C
Lorentzen, Dr. Keith E., Indiana University, Northwest Campus, 3400 Broadway, Gary, Ind.	C
Manalis, Richard S., Dept. of Anatomy and Physiology, Indiana University, Bloomington, Ind.	Z
Medvick, Mr. Charles, P. O. Box 210, Terre Haute, Ind. 47808	SS
Meyer, Frederick R., Dept. of Anatomy and Physiology, Indiana University, Bloomington, Ind.	Z
Miranda, Dr. Thomas J., 16731 Brick Road, Granger, Ind.	C
Mollenhauer, Dr. Hilton H., Charles Kettering Research Lab, Yellow Springs, Ohio	Bo
Morré, Dr. D. James, Dept. of Botany and Plant Pathology, Purdue University, Lafayette, Ind.	Bo
Mulcare, Donald J., Dept. of Biology, University of Notre Dame, Notre Dame, Ind.	Z
Mussell, Harry W., Dept. of Botany, Purdue University, Lafayette, Ind.	Bo
Myers, Dr. Ruth L., 109-A English Bldg., Ball State University, Muncie, Ind.	Ps
Olson, Dr. J. Bennet, Biological Sciences, Purdue University, West Lafayette, Ind.	H
Palmer, Arthur N., Dept. of Geology, Indiana University, Bloomington, Ind.	G, SS
Pasto, Prof. Daniel J., Dept. of Chemistry, University of Notre Dame, Notre Dame, Ind.	C
Pettersen, Mrs. Mary J., 6920 Kennedy Ave., Hammond, Ind.	Bo, C
Piwonka, Robert W., Dept. of Anatomy and Physiology, Indiana University, Bloomington, Ind.	Z
Reshkin, Mr. Mark, Indiana University Northwest Campus, Gary, Ind. 46408	G
Santos, Dr. John F., Dept. of Psychology, University of Notre Dame, Notre Dame, Ind. 46556	Ps
Savage, Dr. Earl John, Dept. of Biology, University of Notre Dame, Notre Dame, Ind.	Bo

Souder, Donald L., Dept. of Anthropology, Indiana University, Bloomington, Ind.	A
Souers, Charles V., 2552 E. 8th St., Bloomington, Ind.	Ba
Stucky, Billie W., 111 S. Bryan Ave., Bloomington, Ind.	Bo, Z
Sulzbach, Mary Diane, Cascade Terrace, Burlington, Iowa	E
Thaeler, Dr. Charles S., Jr., Indiana University, South Bend Campus, South Bend, Ind.	Z
Tieken, Al J., Box 63, Haubstadt, Ind.	Z
Wagner, Morris, Lobund Laboratory, Notre Dame, Ind.	Ba
Walton, George W., R. 1, Farmersburg, Ind.	Ph
Wence, Ronald Lee, 2901 Ronan St., Apt. 4, Midland, Mich. 48642	C
Winters, John L., Jr., 406 Conduitt Dr., Mooresville, Ind.	PT

# INDIANA JUNIOR ACADEMY OF SCIENCE THIRTY-THIRD ANNUAL MEETING

## OFFICERS

President: John Darsee, John Adams High School, South Bend  
Vice President: Ed Emery, New Albany High School, New Albany  
Secretary: Micky O'Leary, Reitz Memorial High School, Evansville

## COUNCIL

Dr. Howard Michaud, Chairman, Department of Forestry and Conservation, Purdue; Miss Helen Reed (1962-1966), Manual High School, Indianapolis; Mr. Erwin Steinkamp (1963-1967), New Albany High School, New Albany; Sister Marian Francis (1964-1968), Reitz Memorial High School, Evansville; Mr. Keith Hunnings (1965-1969), New Haven Senior High School, New Haven

## YOUTH ACTIVITIES COMMITTEE

Prof. Virgil Heniser, Chairman, Coordinator for School Science, Morrison Hall 108, Indiana University, Bloomington, Indiana 47405.

## DIRECTOR

Prof. Donald R. Winslow, Science Department, Division of University Schools, Bloomington, Indiana 47405

## PROGRAM

October 9, 1965

8:30 A.M.—10:00 A.M.:

Registration and Election of Officers in the Rathskeller of the La Fortune Student Center, Bldg. 43. Club representatives may file their ballots with the Junior Academy Council representative.

9:30 A.M.—12:00 Noon:

Junior Academy Council Interviews for "Best Boy" and "Best Girl" Awards. Room 239, Nieuwland Science Hall, Bldg. 52. Interviewees will register at room 239.

10:00 A.M.—12:00 Noon:

Tours. Rathskeller of the LaFortune Student Center, Bldg. 43.

11:30 A.M.—1:00 P.M.:

Lunch. Cafeteria, South Dining Hall, Bldg. 16, or The Huddle, Bldg. 43.

1:30 P.M.—3:30 P.M.:

Annual business meeting. John Darsee, President, presiding. Engineering Building Auditorium, Bldg. 40.

Greetings. Mr. Ernest Litweiler, John Adams High School, South Bend.

Program of Papers:

1. The Use of Chromatography in the Detection of Amino Acids. James Gruver, IONS, Riley High School, South Bend.
2. The Effect of Atmospheric Conditions in Indianapolis on Airborne Microbial Flora. Lynette Woods, Science Club, George Washington High School, Indianapolis.
3. A Variation of the Classic Auxin Experiment. Betty Sue Settle, Portland Junior High School Science and Math Club, Portland.
4. The Effects of Electricity, Magnetism, and Light on the Growth and Pigment Production of Two Molds. Suzanne Bartlett, E. Wayne Gross Academy, University Schools, Bloomington.
5. The Research and Development of a Practical X-Ray Machine for the Amateur Physicist. Mark E. Wyss, Brebeuf Science Club, Brebeuf Preparatory School, Indianapolis.
6. Bioelectricity. Hugh Hanlin, Junior High School Science and Math Club, Portland.
7. Nuclear Magnetic Resonance. Mary Lancaster, Sigma Mu, Franklin Central High School, Acton.
8. The S.C.S. and its Two-Transistor Analogy. James Spreen, Phi Chi Science Club, New Haven High School, New Haven.
9. Construction and Operation of a Gas Laser. Robley Evans, Portland Senior High School Science and Mathematics Club, Portland High School, Portland.
10. Is the Entire Gastrovascular Cavity Essential for Digestion in the Hydra? Kathleen Gibson, IONS, Riley High School, South Bend.
11. The Effect of Cations on Amino Acid Polymerization in the Rabbit Reticulocyte. Gordon B. Linn, Sigma Mu, Franklin Central High School, Acton.
12. A Supplement to Deam's *Flora of Indiana*. Malinda Finch, Portland Senior High School Science and Mathematics Club, Portland High School, Portland.
13. A Comparison Study of the Lands. Lauren Baldea, Biology Club, Lew Wallace High School, Gary.
14. The Effect of Clouds upon Solar Radiation. J. D. Ellis, E. Wayne Gross Academy, University Schools, Bloomington.
15. The Validity of the Presence of Visual Pigment in Ungulates. Louise Kelty, Phi Chi Club, New Haven Senior High School, New Haven.
16. Experiments to Determine the Function of the Thyroid in its Effect on the Interrelationship between the Basal Metabolic Rate and Cardiovascular Activity of *Rana pipiens*. John Darsee, Junior Izaak Walton League, Adams High School, South Bend.

Presentation of Charters.  
Presentation of new officers.  
Presentation of Junior Academy Council and special guests.  
Presentation of awards.  
Adjournment.

## MINUTES

The thirty-third annual meeting of the Indiana Junior Academy of Science was held on Saturday, October 9, 1965, on the campus of Notre Dame University, South Bend, Indiana. The President, John Darsee, opened the meeting and introduced the host, Mr. Litweiler, who briefly welcomed all members, sponsors, and guests to the meeting.

In the absence of Mickey O'Leary, secretary, John introduced Carolyn Hacker, secretary pro tem, who read the minutes of the thirty-second annual meeting of the Junior Academy. No additions or corrections were offered and the minutes were approved as they were read.

Following the reading of the minutes was the presentation of papers. A total of sixteen papers, as listed in the program, covering varied student projects were heard.

President John Darsee then presented Mr. Winslow, director of the Junior Academy of Science. Mr. Winslow thanked Mr. Litweiler for acting as host and then presented charters for new clubs. Mr. Winslow told the Academy that next year's meeting (1966) would be held at Fort Wayne, at Wabash in 1967, and Ball State in 1968. Mr. Winslow made an appeal to all members, sponsors, and guests present to bring forward to him any suggestions for the improvement of next year's program.

Mr. Winslow then announced the new officers for next year's Academy. They are: President, James Spreen of New Haven; Vice President, Dennis Waltke of University School, Bloomington; Secretary, Mary Ellen Lancaster, Franklin Central High School, Acton.

The meeting then was turned over to Miss Helen Reed, senior member of the Council, who announced the winners for "Best Boy" and "Best Girl" in science. She explained that this award is given to a boy and girl who has done outstanding and extensive work in science. The "Best Boy" in science for 1965 was John Darsee, Adams High School, South Bend. The "Best Girl" in science for 1965 was Mary Ellen Lancaster, of the Sigma Mu Club, Franklin Central High School. Suzanne Bartlett, University High School, Bloomington, received an award for outstanding work in the field of microbiology from the Indiana Branch of the American Society for Microbiology.

Professor Winslow then made a few concluding remarks in which he stated that Mr. Hunnings of New Haven would be the host for the Junior Academy for next year.

Two hundred three students and twenty seven sponsors registered for the meeting.

President John Darsee adjourned the meeting at 3:20 p.m.

Respectfully submitted,  
CAROLYN HACKER, Secretary pro tem

# INDIANA JUNIOR ACADEMY OF SCIENCE

1964-1965

<i>Town</i>	<i>Club and School</i>	<i>Sponsor</i>
Acton	Sigma Mu Chapter of FSA, Franklin Central H. S.	Allan Morgan
Bedford	Bedford Science Problems Re- search Group, Bedford H. S.	Paul Hardwick
Bloomington	National Scientific Honor Society, Bloomington H. S.	Orville Long
Bloomington	E. Wayne Gross Academy, Uni- versity H. S.	Billie Stucky
Bloomington	Albert Schweitzer Academy, University Junior High	Elliott Koyanagi
Bloomington	H. J. Muller Academy, University Junior High	Lew E. Wise
Bloomington	MSE Academy, University Junior High	Charles Souers
Columbus	Science Club, Columbus Senior H. S.	L. N. Carmichael
Crawfords- ville	Up-N-Atom, Crawfordsville, H. S.	David Wells
Evansville	Reitz Memorial Chapter of FSA, Reitz Memorial H. S.	Sr. Marian Francis
Fort Wayne	Albertus Magnus Science Club, Central Catholic H. S.	Sr. Winifred Ruth Wimmer
Fort Wayne	Phy-Chem Club, Elmhurst H. S.	
French Lick	Springs Valley Science Club, Springs Valley H. S.	D. L. Clark
Gary	Biology Club, Lew Wallace H. S.	Lola Lemon
Griffith	Griffith Junior High Science Club, Griffith Junior H. S.	Fred Meeker
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
Huntington	Aristotelian, Huntington Catho- lic H. S.	Sr. M. Petrona
Huntington	Science, Huntington H. S.	Robert Diffenbaugh
Indianapolis	Arlington Science Club, Arling- ton H. S.	David Blase
Indianapolis	Nature Club, Arsenal Technical H. S.	Michael Simmons

<i>Town</i>	<i>Club and School</i>	<i>Sponsor</i>
Indianapolis	Brebeuf Science Club, Brebeuf Preparatory School	Rev. Richard J. Middendorf, S.J.
Indianapolis	Science Club, Howe H. S.	Miss Jerry Motley
Indianapolis	Manual H. S. Science Club, Manual H. S.	Wayne E. Dunbar David Otto
Indianapolis	North Central H. S. Science Clubs, 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
Madison	Madison Science Club, Madison Consolidated H. S.	David Dunkerton Walter A. Corey, Jr.
New Albany	Science Club, New Albany Senior H. S.	Erwin Steinkamp
New Haven	New Haven Science Club, New Haven H. S.	Keith Hunnings
Portland	Portland Senior H. S. Science and Mathematics Club, Portland Senior H. S.	Ralph Settle Robert Freemyer
Portland	Science Club, Portland-Wayne Township Junior H. S.	Bill Norris
South Bend	Junior Izaak Walton League, John Adams H. S.	Ernest Litweiler
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
Terre Haute	Pius X Science Teens, Schulte H. S.	Sr. Thomas Mary
Vincennes	Sigma Tau Science Club, Saint Rose Academy	Sr. Suzanne