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Proceedings
of the
Indiana Academy
of Science

Pettersen's Resolution Commends Indiana Academy of Science

Indianapolis — A resolution (HCR 113) authored by State Representative Mary Pettersen (D-Hammond) congratulating the Indiana Academy of Science for 100 years of service passed the House of Representatives by acclamation April 8.

"The Indiana Academy of Science is an invaluable asset to our citizens," Pettersen said. "It publishes works about scientific matters relevant to Indiana, and it fosters youth interest in science by providing grants to teachers and maintaining a Junior Academy of Science."

"The academy also funds research by its member scientists and enables the John S. Wright Library at the Indiana State Library Building to receive scientific literature from around the world," Pettersen added.

The resolution states, "That the General Assembly of the State of Indiana hereby extends its commendations to the Indiana Academy of Science for a century of productive research and activity of benefit to the State and its citizens."

A HOUSE CONCURRENT RESOLUTION

A HOUSE CONCURRENT RESOLUTION recognizing and commending the Indiana Academy of Science upon its centennial.

WHEREAS, the Indiana Academy of Science was established in the course of an organizational meeting in 1885 and is thus in its centennial year; and

WHEREAS, the Academy was incorporated December 21, 1887, when articles of association were filed with the Secretary of State of Indiana; and

WHEREAS, the scientific papers presented at the annual meetings of the Academy have been published since 1892 in a series of Proceedings volumes of which the account for 1984 will be Volume 94; and

WHEREAS, a series of Monographs has been issued dealing with scientific topics of significance to the State of Indiana; and

WHEREAS, the Academy has fostered youth activities in the field of science by providing grants to teachers and affording opportunity to present results of student research at annual meetings of the Junior Academy of Science, and

WHEREAS, the Academy has provided financial support for countless research investigations by its members; and

WHEREAS, the John S. Wright Library, established in the name of the Academy, is housed in the Indiana State Library Building; and

WHEREAS, the Proceedings and Monographs published by the Academy receive worldwide distribution and are the medium of exchange whereby the John S. Wright Library acquires numerous valuable acquisitions from other scientific organizations.

Now therefore,

**BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE
GENERAL ASSEMBLY OF THE STATE OF INDIANA, THE SENATE
CONCURRING:**

SECTION 1. That the General Assembly of the State of Indiana hereby extends its commendations to the Indiana Academy of Science for a century of productive research and activity of benefit to the State and its citizens.

SECTION 2. That the Principal Clerk of the House of Representatives is hereby directed to transmit a copy of this resolution to the Academy through this year's President, Dr. Benjamin F. Moulton.

PETTERSEN, Representative

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2. Bonding Committee: MARY LEE RICHESON, Chair (SUVON: ____ + 710 + 5546)
3. Research Grants Committee: UWE HANSEN, Chair (SUVON: ____ + 749 + 2429)

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4. Academy Representative to The American Association for the Advancement of Science: WALTER A. CORY, JR. (SUVON: ____ + 703 + 55090)
5. Academy Representative to The Indiana Natural Resources Commission: DAMIAN A. SCHMELZ (SUVON: ____ + 8970)
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INDIANA ACADEMY OF SCIENCE
SPRING MEETING OF THE EXECUTIVE COMMITTEE

April 26, 1985

MINUTES

President Benjamin Moulton called the meeting to order at 3:10 p.m. in the meeting room of Abe Martin Lodge, Brown County State Park.

Minutes of the Spring and Fall 1984 meetings of the Executive Committee were approved as distributed.

REPORTS OF ELECTED COMMITTEES

Bonding Committee

President Moulton read a letter indicating the need for renewal of the Surety Bond for the Treasurer. The Committee recommends continuation of the bond, at a cost of \$150. A motion to continue this bond was made by John Ricketts, seconded, and carried.

Academy Foundation Committee

William A. Daily, chair, reported that on March 31 the Invested Income Account had a total market value of \$116,377.69. The market value of the Foundation Account was \$42,421.50, and that of the John S. Wright Fund was \$797,865.35.

Research Grants Committee

Duvall Jones reported for Uwe Hansen that a total of \$10,113 has been awarded this Spring. A list of the awards is appended to these minutes.

REPORTS OF STANDING COMMITTEES

Membership Committee

E. Campaigne, chair, moved that all applicants for membership duly approved by the Treasurer be elected as members. The motion carried.

The Membership Committee has implemented an extensive mail campaign for membership. Eight hundred and thirty people identified through lists of AAAS members have been sent personal letters inviting them to join the Academy, and offering the bonus of an Academy publication for joining this year. Sixty four persons have joined this year, perhaps 15 because of the campaign. Books have been distributed to new members as requested. The committee is now using a list of about 280 persons from the American Chemical Society.

Committee on Emeritus Members

Robert Cooper, chair, reported that no one is currently requesting emeritus membership. He noted that Dr. Alfred H. Meyer, of Valparaiso, President of the Academy in 1955, is not currently a member and is not eligible for emeritus membership. J. Dan Webster moved that Alfred H. Meyer be elected to Honorary Membership. The motion was seconded and carried after some discussion.

Library Committee

Holly Oster, chair, reported that in March 1985 complimentary copies of *History of the Indiana Academy of Science* were mailed to 780 Academy members and 328 Indiana public and postsecondary academic libraries. Exchange copies of the *History* will be mailed with the current volume of the *Proceedings*.

Hardcover copies of *Proceedings* Volume 93 were received from the printer on April 8 and were mailed to 691 Academy members and 79 Indiana libraries. Work is progressing on mailing of paperbound exchange copies.

Notice has been received regarding state funds for printing of *Proceedings* Volumes

94 and 95, indicating that \$8,900 will be appropriate for each year of the 1985/87 biennium.

Invitations Committee

President Moulton announced that an invitation has been received from Indiana Central College for the 1986 meetings. The invitation was accepted by consensus.

Science and Society Committee

Alice S. Bennett, chair, reported that the committee met in March and discussed organizing subcommittees to deal with topics such as selection of science texts in the public schools, water pollution and waste disposal, and artificial intelligence.

The symposium topic for the Fall 1985 meeting will be the science of aging. Gerry Meunier of Ball State is planning the symposium.

Youth Activities Committee

The Junior Academy of Science was meeting at Greenwood; so the report was presented by Alice Bennett on behalf of Susan Johnson, chair.

After obtaining approval at the Fall Executive Committee meeting of the Academy, it was decided to plan a small-scale science olympiad for the Spring meeting of the Junior Academy. During the summer, plans will be formulated regarding future disposition of the olympiad.

The report also included announcement of recognition of teachers at the Fall meeting, and the brochure for science fair directors.

Plans are under way for the establishment of a State Science Fair. Two meetings have been held and subcommittees have been formed to look into details.

Upon a motion by Dr. Bennett, the report was accepted.

Science Talent Search

Walter Cory reported that of twenty-five finalists thirteen were selected to attend the annual meeting in Indianapolis. Kappa Kappa Kappa supported this event and awarded two \$1000 scholarships. He also urged the Academy to think about ways of financing Regional Science Fairs, and starting new regional fairs as well as a state fair. Alfred Schmidt commented on the high quality of the Science Talent projects and urged that the Academy recognize the teachers whose students are consistently finalists.

Representative to the Department of Natural Resources

President Moulton read a brief report by Damien Schmelz.

Centennial Committee

John Patton, chair, reported that the State Legislature has passed a resolution commending the Academy.

A special speaker for the Fall meeting is being sought.

Editor

Donald Winslow, Editor, reported that seventy six manuscripts have been accepted for Volume 94 of the *Proceedings*.

OTHER BUSINESS

Indiana Breeding Bird Atlas

J. Dan Webster announced the beginning of a five-year program entitled "Indiana Breeding Bird Atlas," sponsored by the Indiana Department of Natural Resources and the Indiana Audubon Society. It is funded by the non-game and endangered wildlife program of the DNR. The project is expected to be a large effort by amateur bird watchers, coordinated by Edward M. Hopkins, a member of the Academy. Dr. Webster expressed his hope that the Academy would become a sponsor, giving encouragement, moral support, publicity, and publication of the final report (contingent upon approval by the Publications Committee).

Dr. Webster moved that the Academy agree to be listed as a sponsoring organization of the "Indiana Breeding Bird Atlas" project. The motion carried.

ad hoc Committee on Financial Planning

The report was presented by John Ricketts. The committee made the following recommendations and urged their adoption and/or implementation:

1. They recommended: diversification of the John S. Wright Fund, but so as to retain at least 4,000 shares of Eli Lilly and Company stock for the foreseeable future; retention of at least \$50,000 in the Invested Income Account to serve as an emergency fund. These changes should take place over a two or three year period, always with the majority agreement of the Trustees of the Academy.

2. They believe the practice of charging a registration fee for attending meetings of the Academy should be discontinued as soon as possible.

3. They recommend that the Treasurer continue prudent investment of temporary surplus funds.

4. They recommend a substantial simplification of membership and dues categories and a permanent elimination of initiation and reinstatement fees, and propose the following schedule:

- Member - \$15
- Student Member - \$5
- Sustaining Member - \$25
- Life Member - \$250
- Honorary, emeritus members - no dues
- Club - \$10

Other categories have not been beneficial and should be deleted.

5. They recommend that the Treasurer/Budget Committee take steps to reduce the number of administered accounts.

6. They recommend that the Academy reimburse mileage at 20 cents per mile for attendance at special meetings but not for the regular Spring and Fall meetings.

Members of the committee are William A. Daily, Frank Guthrie, chair, Duvall Jones, and John Ricketts.

Following the presentation of each recommendation there was some discussion, especially Item 2 and 4.

Alice Bennett moved that Items 1, 3, 5, and 6 be approved and that action on Items 2 and 4 be deferred until the revision of the Constitution is completed. The motion carried.

Survey of Past Presidents

President Moulton wrote a letter in early January to the past twenty Presidents of the Academy for suggestions as to how and what the Academy might do during its second century. He circulated a summary of the comments of the few who have responded.

Constitution Committee

William Eberly, chair, commented on the work of the committee and moved adoption of the amended constitution as circulated. Alice Bennett moved that action be postponed until the evening business meeting. The motion to postpone carried and the meeting was recessed for dinner.

The meeting reconvened at 7:08 p.m. and detailed discussion of the Constitution began. Several motions failed. Recorded here are motions that passed and suggestions that seemed to have general assent:

Remove sex-specific language.

Article I, Sec. 3: "The Academy shall, . . . , act as an advisory body. . ."

Article II, Sec. 1: "Nomination for membership as Emeritus or Honorary shall be submitted to the Executive Committee, . . ."

Article II throughout: replace "be elected to" by "apply for" in appropriate places.
 Article III, Sec. 6: delete "and shall issue notices of all meetings."

It being time for the evening program, it was moved that the meeting be recessed until the time of the General Meeting.

Respectfully submitted,
 Richard L. Conklin, Secretary

**Indiana Academy of Science
 Spring, 1985, Research Grant Applications Funded**

<i>Principal Investigator/ Institution</i>	<i>Title</i>	<i>Funded</i>
1. R. L. Brooks Indiana University	An Investigation of Plasma Progesterone Levels . . .	\$ 1,000.00
2. D. R. Conover Ball State University	A Locational Analysis of Burial Mounds . . .	600.00
3. S. Cortwright Indiana University	Mechanisms of Community Structure . . .Pond Communities	650.00
4. R. B. Fisher Ball State University	The Dynamics of Sexual Rearousal in Female Hamsters . . .	500.00
5. J. D. Hengeveld Indiana University	Does the Starvation of Redwinged Blackbird Nestlings . . .	500.00
6. D. T. Krohne Wabash College	Genetic Structure of Population of <i>Peromyscus leucopus</i>	500.00
7. J. A. Olsen Wabash College	Superoxide Dismutase Isoenzyme Activity in Wounded Plant Tissue	900.00
8. M. Patzkowsky Indiana University	Astogeny of Water Flow Patterns in a Fossil . . .	500.00
9. B. A. Read Ball State University	The Effects of Dietary Fats on Tissue Cholesterol . . .	950.00
10. W. J. Rowland Indiana University	Processes of Mate Choice in Male Sticklebacks	1,113.00
11. P. T. Sherwood Purdue University	Gap Phase Dynamics of a Temperate Deciduous Indiana Forest	500.00
12. P. Sniogowski Indiana University	A Field Experiment in the Control of Vernal Migration . . .	900.00
13. C. H. Tomak Dept. of Highways	Archeological Research in the Coal Mining Area of Indiana	750.00
14. D. J. Watt St. Mary's College	Survey of Rare, Threatened and Endangered Species . . .	750.00
TOTAL		\$10,113.00

INDIANA ACADEMY OF SCIENCE
GENERAL MEETING, SPRING 1985

April 26, 1985

MINUTES

The evening program was an illustrated lecture by Mr. William Zimmerman, illustrator of *The Birds of Indiana*. The place was the meeting room of Abe Martin Lodge, Brown County State Park.

At 9:15 p.m., following the lecture and question period, President Benjamin Moulton called the General Meeting to order.

Minutes of the General Meeting of November 2, 1984, were approved.

E. Campaigne, Membership Committee chair, moved the approval of the election of the persons most recently nominated for membership. The motion carried.

Duvall Jones, Treasurer, presented a report on the period January 1-April 24. He reported receipts of \$6,653.45 and expenditures of \$5,364.70, and pronounced the Academy in good financial condition. Receipts at the Fall meeting were \$800 more than expenditures, thanks to the generosity of Butler University in providing facilities without charge. There are 685 paid memberships for 1985, 436 on file from 1984 not paid for 1985. Ninety members were dropped for non-payment of 1984 dues. Walter Cory moved that the Treasurer's report be accepted. The motion carried.

Program co-chairs reminded the few section chairs who were present to urge members of their sections to present papers at the Fall meeting, to be sure that one of the presenters of a paper is a member of the Academy, and to enforce the September 1 deadline for all abstracts.

The meeting was adjourned at 9:35 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE MEETING OF THE EXECUTIVE COMMITTEE

November 14, 1985

MINUTES

The meeting was called to order by President Benjamin Moulton at 7:45 p.m. in the Georgian Room, Indiana Memorial Union, Indiana University, Bloomington. Approximately thirty members were present.

The minutes of the Spring meeting of the Executive Committee were approved.

The Secretary moved that the Executive Committee recommend to the general membership that the minutes of the 1984 General Meeting be approved. The motion carried.

REPORTS OF ELECTED COMMITTEES

Academy Foundation Committee (William A. Daily)

On September 30, 1985, the Foundation Account had a market value of \$46,407.00, an increase of \$3,065.00 since 1984. Income of the John S. Wright Fund was \$40,206.72, giving it a market value of \$835,949.58. The market value of the Invested Income Account was \$133,052.39, it earned \$15,035.75 during the year.

Upon motion by E. Campaigne, the report was accepted.

Research Grants Committee (Benjamin Moulton for Uwe Hansen)

In the Spring of 1985, 16 proposals requested \$14,572.00, 14 were funded in the amount of \$10,113.00. In the Fall 17 proposals totaled \$15,655.00, of these, 16 were funded, totaling \$10,765.00. Of the \$22,500.00 allocated, then, \$21,028.00 was awarded. For high school research grants, \$1,300.00 was allocated, \$2,138.00 requested, \$1,239.00 awarded. All ten projects proposed were funded.

A list of the grants awarded is appended to these minutes.

REPORTS OF STANDING COMMITTEES

Representative to AAAS (Walter Cory)

Cory attended the meeting in Los Angeles. The question of the title of Section X, with which this Academy is affiliated, has not been resolved. Cory recommends that two students and one adult from Indiana be sent to the annual meeting of the Junior Academy of Science.

Representative to Natural Resources Commission (Damian Schmelz)

Monthly meetings are held in Indianapolis. In addition to making routine decisions regarding drillings, wildlife, and state parks, the Commission held three field meetings. One was at Spring Mill State Park; another at Michigan City to inspect a landfill pollution site, beach erosion, and salmon migration; a third at Vincennes to tour historic properties and consider problems of some wetlands areas. An issue of increasing concern is the "mining" of major aquifers.

Biology Survey and Preservation of Natural Areas Committees (John Bacone)

The Literature Project of the BSC has prepared a bibliography/reference compilation of all past scientific publications in Indiana. It may be published soon.

The Committee was a sponsor of the Northeast Indiana Natural Areas Conference at Tri-State University. A similar conference will be held at Indiana University Northwest on May 1-3. Ron Hebert of the Indiana Dunes National Lakeshore invited Academy members to submit papers to symposia on natural succession, visitor management, and shoreline processes.

The Preservation of Natural Areas Committee coordinates the work of professional preservationists with scientific and lay communities of the state. Indiana has 85 dedicated preserves totaling 10,902 acres; seven of these have been added since June, 1984. Inventories are underway for high quality natural areas and for rare species. These things have good possibilities for research projects, and several are being conducted. The committee works closely with the Nature Conservancy and the Indiana Division of Nature Preserves.

Centennial Committee (John Patton)

The only Centennial event at this meeting will be the luncheon address by John D. Hague, President of the Corporation for Science and Technology. He will speak on "The Future of Science and Industry in Indiana."

Editorial Board (Donald Winslow)

Volume 94 of the *Proceedings* should go to press in about a month. It will be a large volume because of several Centennial features and a physiographic map of Indiana.

Volume 93, containing 544 text pages, was delivered from the Western Newspaper Publishing Co., Inc., in 825 case-bound copies, 525 paper-bound, and 32 author reprints. The total cost was \$14,892.00, of which the state paid \$8,900.00.

The State Budget Agency has allocated \$8,900.00 for both 1985-86 and 1986-87.

Emeritus Membership Selection Committee (Robert H. Cooper)

There have been no applications for Emeritus membership during 1985. Cooper recommends that information concerning availability of this status be put in the *Newsletter* regularly.

Fellows Committee (Richard Conklin for Wilton Melhorn)

The names of nine persons recommended for the rank of Fellow of the Academy were presented. Upon motion by Conklin, the nominees are to be recommended to the membership at the General Meeting.

High School Fellowships (Walter Cory)

Jude Bingham and Sherry Gammer, both of Terre Haute, worked with Dr. John O. Whitaker of Indiana State University during the summer. Both are presenting papers in the Zoology Section.

Shari James of Scottsburg used the remainder of the Research Fellow funds to help with a trip to Japan which she will report to the Academy later.

Science Talent Search (Walter Cory)

Twenty-five students were interviewed and invited to Indianapolis as the guests of Tri Kappa who paid their expenses and awarded two \$1,000.00 scholarships. Thirteen were declared winners.

Invitations Committee (Donald Cook)

Indiana Central University will serve as host to the 1986 meetings. Gerald Zimmerman, one of the co-chairs is here to observe. John Batey is the other co-chair.

Dr. William Hickey of St. Mary's College has invited the Academy to meet there in 1988. A motion to accept that invitation carried.

Zimmerman announced that the General Meeting will be held November 13, 14, and 15. Other campus events preclude any earlier date. The Spring meeting will be April 25 and 26 at Spring Mill State Park. He circulated tentative schedules for both meetings.

Junior Academy (Dean Christakis)

The second Indiana Science Olympiad will be on March 22 at Indiana University Northwest. About 150 students are expected at the Junior Academy meeting tomorrow.

row. In the Senior division (grades 10-12) about 13 papers will be presented in life sciences, 4 in physical. In the Junior division (grades 6-9) there will be 4 in life sciences, 2 in physical.

Library Committee (Holly Oster)

During 1985, 255 volumes were added to the collection of the John Shepard Wright Memorial Library, bringing the total to 11,015. The library processed 249 interlibrary loan requests. The library is part of the OCLC Interlibrary loan system.

In June exchange distribution of Volume 93 of the *Proceedings* was completed. These volumes were sent to 141 domestic and 323 foreign exchange agencies.

Membership Committee (E. Campaigne)

In an extensive mail campaign 1,115 letters were sent to scientists in Indiana who were not members, at a cost of \$403.30 (36.1¢ each). As of October 1 there were 111 new members. (Duvall Jones reported 161 new members to date.) Free copies of Academy publications were offered to new members. About 30 have been requested.

To activate the dormant categories of Corporate and Institutional member, appropriate officers of some thirty corporations were contacted. Corporate members to date are:

- Eli Lilly and Co., Indianapolis
- Ball Corporation, Muncie
- International Mineral and Chemical Co., Terre Haute
- Ford Motor Company, Indianapolis
- Reilly Tar and Chemical Co., Indianapolis

Campaigne moved that election of all new members proposed be recommended to the membership at the General Meeting. The motion carried.

Nominating Committee (William Eberly)

A slate of candidates was presented. Upon motion by Eberly the slate was recommended for presentation to the members at the General Meeting.

Resolutions Committee (William Davies)

Davies moved that four resolutions be submitted to the membership for adoption:

1. Express thanks to Indiana University for serving as host to this meeting.
2. Express thanks to the Centennial Committee upon successful completion of their efforts.
3. Express support to the Indiana State Museum, and especially its effort to establish a new facility at White River State Park.
4. Express concern about the teaching of science in the public schools.

Resolutions 1 and 2 passed without debate. Two people from the state museum staff (Ronald Richards and Virginia Hamm) discussed Resolution 3 and others spoke in support of it. It passed without dissent. Resolution 4 stimulated a spirited debate and some unsuccessful efforts to amend it. It finally carried with the understanding that the wording would be changed to reflect the concerns of the Council.

Final forms of the resolutions appear in the minutes of the General Meeting.

Science and Society Committee (Alice S. Bennett)

The committee organized the symposium on the Scientific Study of Aging scheduled for November 16. Some members are meeting with the Corporation for Science and Technology.

Youth Activities (Susan Johnson)

A grant of \$1,000.00 was received from the AAAS to support high school student research projects.

The Academy will honor eight outstanding high school teachers at the General Meeting.

Dean Christakis of Marquette High School, Michigan City, has replaced Cheryl Mason as Director of the Junior Academy.

OTHER BUSINESS

Alice Bennett moved approval of the Constitution and By-Laws as distributed to the membership and modified at the meeting of the Council. The motion carried.

Duvall Jones moved that the dues for 1986 be set at \$15.00 for Members, \$10.00 for Associate Members. After some debate, the motion carried.

Walter Cory announced that the first Indiana Science and Engineering Fair will be held in Indianapolis on April 18 and 19, 1986. Seventy-two students, in grades 7-12, will participate.

TREASURER'S REPORT

Treasurer Duvall Jones reported the Academy's finances as of November 12, 1985.

Current Assets

Checking accounts	\$10,726.78
Savings accounts	<u>22,796.25</u>
	\$33,523.03

These are assigned to

Academy accounts	\$15,479.61
Administered accounts	<u>18,043.42</u>
	\$33,523.03

The financial report was adopted.

The number of members as of November 12 was 1,040.

The meeting adjourned at 10:10 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

Indiana Academy of Science Summer, 1985, High School Research Grants Funded

<i>Name/Sponsor</i>	<i>School</i>	<i>Title</i>	<i>Funded</i>
1. Bardol/Christakis	Marquette	Infl. of Vit. E . . .	\$ 65.00
2. Bloom/Rhodes	East Noble	Immunohisto- chem . . .	100.00
3. Bonfield/Christakis	Marquette	Immunolog. Res. II	150.00
4. Coussens/ Longenecker	John Adams	Effects of Aspar- tame	84.00
5. Goldman/Goldman	Gage Institute	Effects of Stress	150.00
6. Hamilton/ Longenecker	John Adams	Tetracycline . . .	75.00
7. Meyer/Rhoades	East Noble	Cytospora Canker	142.00
8. Owens/Christakis	Marquette	Holography	250.00
9. Quimby/ Longenecker	John Adams	Thyroidism in mice	73.00
10. Thorvik/Christakis	Marquette	Anti-cancer agents	<u>150.00</u>
		TOTAL	\$1,239.00

**Indiana Academy of Science
Fall, 1985, Research Grant Applications Funded**

<i>Principal Investigator/ Institution</i>	<i>Title</i>	<i>Funded</i>
1. G. Adams Indiana University	Intraspecific Aggregation Among Cellular Slime Molds	\$ 380.00
2. M. Berg Notre Dame	Selection of Chironomids as Food for the Mottled Sculpin	800.00
3. W. Cory Indiana University	A Study of Computer Software in Science Classes at the Secondary Level	650.00
4. A. Gardner Purdue University	Development of a Biology Career Information Course	950.00
5. P. Jordan Purdue University	Field and Laboratory Geologic Study of a Proposed Landfill . . .	900.00
6. M. Kelly Indiana University	Effect of the H-Y Antigen in Turtles with Temperature Depen- dent Sex Determination	550.00
7. K. Kolberg Notre Dame	A Fine-Structure Study of the Developmental Toxicity of Nicotine . . .	800.00
8. R. Larter IUPUI	A Computational Study of Oscillat- ing Chemical Reactions	650.00
9. P. Leavitt Notre Dame	Effects of Herbivory on Aquatic Primary Production . . .	700.00
10. D. Lipke Notre Dame	Effects and Metabolism of Bradykinin in Rainbow Trout Tissues	900.00
11. M. McNerney Rose Hulman	The Air Resistance of Golf Balls at Low Speeds	485.00
12. M. Morris Indiana University	Sexual Selection in the Gray Treefrog	500.00
13. P. Krishna Indiana State Univ.	Analysis of in Vivo Synthesis and Processing of Killer Toxin . . .	350.00
14. M. Ranjan Notre Dame	The Effects of pH on Phospholi- pase Activity in Goldfish Follicles	700.00
15. D. Sever Notre Dame	Natural Growth and Mortality of the Tiger Salamander . . .	850.00
16. A. Tuncay Indiana University Northwest	A Study of Homoaromaticity in Anions	600.00
TOTAL		\$10,765.00

INDIANA ACADEMY OF SCIENCE
MEETING OF THE ACADEMY COUNCIL

November 14, 1985

MINUTES

The Council of the Indiana Academy of Science met in the Dogwood Room of the Indiana Memorial Union, Bloomington, on Thursday, November 14, 1985.

The meeting was called to order by President Benjamin Moulton at 3:00 p.m. Council members present were Alice Bennett, E.E. Campaigne, Richard Conklin, Duvall Jones, Benjamin Moulton, and Donald Winslow. Others attending were William Eberly, Frank Guthrie, Susan Johnson, Wilton Melhorn, Holly Oster, and Victor Riemenschneider.

The proposed new Constitution and By-Laws were examined for final changes before presentation to the Executive Committee. Holly Oster pointed out that the reference to state government in the old Constitution was important for legal reasons, and Article I was restored to essentially its original wording. William Eberly commented that the Bonding Committee has few duties and might not be necessary; after some discussion it was retained. Minor corrections in wording and syntax were incorporated. If the Constitution and By-Laws are approved at the General Meeting, they will be distributed to the membership with the December *Newsletter*.

E. Campaigne moved that a committee be appointed to investigate the effectiveness of the Speakers' Bureau and consider whether a Visiting Scientist program might be a better way to get information to the schools and the public.

Further discussion of the Academy's role in disseminating science information centered around the need for an enlarged Science and Society Committee and the need to redefine the role of the Public Relations Committee. No recommendations were made.

Duvall Jones described the state educational loan program and wondered if the Academy should promote a similar program specifically directed at encouraging high school students to become science teachers. It was suggested that this might be a project for one or more of the new corporate sponsors, and that the Youth Activities Committee might study the matter.

E. Campaigne suggested that abstracts of all papers to be presented at a meeting of the Academy should be printed and made available at or before the meeting. The September 1 deadline would need to be rigorously adhered to. A special form for abstracts would be needed, probably circulated via the *Newsletter*.

A brief discussion of the question of copyright of papers published in the *Proceedings* was terminated with the agreement that more information was needed.

The meeting was adjourned at 5:30 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE GENERAL MEETING

November 15, 1985

MINUTES

The meeting was called to order by President Benjamin Moulton at 1:15 p.m. in Whittenberger Auditorium, Indiana Memorial Union, Indiana University, Bloomington.

Greetings on behalf of the University were extended by Dr. W. George Pinnell, Executive Vice President of Indiana University and President of the Indiana University Foundation.

President Moulton welcomed Dr. Paul M. Daniel, President of the Ohio Academy of Science, who was visiting as a Centennial guest.

The Secretary presented a summary of the meeting of the Executive Committee. There was no objection to the recommended approval of the minutes of the 1984 General Meeting.

E. Campagne, Membership chair, moved that all qualified applicants for membership during 1985 be elected. The motion carried.

The Secretary, acting on behalf of Fellows Committee chair Wilton Melhorn, moved that the following persons be elected to the rank of Fellow of the Academy:

James L. Ahlrichs, Agronomy, Purdue University-Lafayette
Robert M. Brooker, Chemistry, Indiana Central University
Donald D. Carr, Geology, Indiana Geological Survey
Ronald M. Cosby, Physics, Ball State University
Susan M. Johnson, Biology, Ball State University
Ralph D. Kirkpatrick, Biology, Ball State University
Harold E. McReynolds, Ecology, U.S. Forest Service, Eastern Region
Elmer Nussbaum, Physics, Taylor University
Mary Lee Richeson, Biology, IU-PU Ft. Wayne

They were elected, and those who were present received certificates of recognition.

On behalf of the Nominating Committee, William Eberly, chair, presented the following nominations to fill those elected positions that expire in 1985:

President-Elect, 2 year term (President, 1987)

Stanley Burden, Taylor University

Secretary, 1986-88

Richard L. Conklin, Hanover College

Academy Foundation, 1986-87

William A. Daily, Indianapolis

Bonding Committee, 1986

Mary Lee Richeson, Indiana-Purdue Ft. Wayne

Research Grants Committee, 1986-1990

Wilson B. Lutz, Manchester College

There being no further nominations, the Secretary was instructed to cast a unanimous ballot for the above slate of officers.

Faye Kenoyer Daily, Necrologist, presented the following names of Academy members whose deaths had been noted since the 1984 meeting:

Thomas Barton

Nina E. Gray

Barry P. Bone

Flora Naderson Haas

Arthur C. Brookley

William G. Kessel

William B. Bunger

George F. Martin

John J. Doyle	Henry R. Mathias
John Favinger	Thomas Osttick
Ernest H. Gerkin	

A moment of silence was observed in their honor.

William Davies, chair of the Resolutions Committee, presented the following resolutions, all of which were adopted.

- WHEREAS: The Indiana Academy of Science is deeply grateful to Indiana University for the invitation to hold the 101st annual meeting on the Bloomington campus; and
- WHEREAS: The administration, faculty, staff and students alike have cooperated admirably in providing us their facilities and support for this 101st annual meeting of the Indiana Academy of Science; be it
- RESOLVED: That the Academy members here assembled express their sincere appreciation to Dr. John W. Ryan, President of the University, and Dr. Kenneth R.R. Gros Louis, Vice-President of the Bloomington campus, for all the courtesies that have been extended to the Academy during this meeting. We are especially grateful to Drs. Ernest Campaigne, Walter Cory, and Donald Winslow, Co-Chairmen of the Program Committee, and to the members of their committee for the arrangements of the entire program and for the comfort and conveniences provided our members. We also express our sincere thanks to all members who organized and participated in the symposium "The Scientific Study of Aging."

* * * * *

- WHEREAS: The combined efforts of the Centennial Committee and the Program Committees of 1984 and 1985 brought outstanding scientists to speak to the Academy, organized memorable field trips, obtained favorable publicity for science and for the Academy, and arranged for other events and amenities appropriate to the Centennial celebration of the Academy,
- BE IT RESOLVED: That the Indiana Academy of Science expresses its appreciation to Dr. John Patton, Dr. Philip St. John, Dr. Donald Winslow, Dr. E. Campaigne and to the other committee members who gave freely of their time and effort to make the observance of the Academy Centennial so successful.

* * * * *

- WHEREAS: Grade inflation, social promotion, and other factors have seriously eroded meaningful standards for academic performance of students in the public schools of Indiana, and
- WHEREAS: Academic preparation of Indiana's high school graduates has frequently been judged inadequate by various groups, including: high school graduates who have difficulty in reaching their desired professional goals; industrialists who find their employees lacking in basic learning skills; and college professors who find that they have to provide remedial instruction for their students, and
- WHEREAS: The present patchwork of state-required tests produces results

which have little use in studies of academic problems in Indiana's public schools,

BE IT RESOLVED: That the Indiana Academy of Science supports and encourages H. Dean Evans, State Superintendent of Public Instruction, in his efforts to develop minimal state standards for course content and for student achievement in fundamental science and mathematics courses in the secondary schools, as well as for science and math content and achievement for grade levels in the elementary schools, of Indiana.

* * * * *

WHEREAS: The Indiana Academy of Science is directed, constitutionally, to promote scientific research and the diffusion of scientific information in a scholarly manner, and has interest in improving science education in the public schools, and in informing the general public of the level of scientific knowledge, and

WHEREAS: The Indiana State Museum and Historic Sites in following its mandate to collect, preserve and interpret Indiana natural and cultural history, maintains academic curatorial positions and provides educational services to the public school system and disseminates knowledge to the general public through exhibition and public programming, and

WHEREAS: The Indiana State Museum is seeking to increase and enhance its program of artifact/specimen collection, research capability, educational and public programming by inclusion in a museum complex in White River State Park, Indianapolis, this expansion presently limited by insufficient collection, laboratory and office space, and structural and environmental limitations of the present facility, and

WHEREAS: The Indiana Academy of Science has in the past supported action for an improved facility for the Indiana State Museum, be it

RESOLVED: That the Indiana Academy of Science supports efforts of the Indiana State Museum to establish a new facility in the White River State Park, Indianapolis.

RESOLVED: That the Indiana Academy of Science and the Indiana State Museum have inclusive goals in science and in education and should promote a close working relationship.

Youth Activities chair Susan Johnson introduced the eight high school teachers who were the finalists and semi-finalists in the 1985 Indiana competition of the Presidential Search for Excellence in Science and Mathematics teaching:

Finalists: Carole R. Goshorn (National Winner)
Columbus East High School
Columbus, IN 47201
Gordon Mendenhall
Lawrence Central High School
Indianapolis, IN 46226
Joseph D. Ruhl
Jefferson High School
Lafayette, IN 47905

Semi-finalists:

Diane Wilson Burnett
Warren Central High School
Indianapolis, IN 46229

Gladysmae Good
Arlington High School
Indianapolis, IN 46226

George Hultgren
Rogers High School
Michigan City, IN 46360

Allen T. King
Seventh Grade Building
New Castle, IN 47362

Douglas L. Waldman
Homestead High School
Fort Wayne, IN 46804

Each was presented a book, and Carole Goshorn spoke briefly.

Alice Bennett moved acceptance of the new Constitution and By-Laws as distributed to the membership and approved by the Executive Committee, directing the President to make any necessary editorial and typographic changes. The motion carried with no dissenting votes.

The business having been concluded, the President presented Speaker of the Year Dr. Jane Butler Kahle, Professor of Biological Sciences and Education, and Associate Dean of the Graduate School, Purdue University, West Lafayette, who spoke to the title, "Scientific Literacy: The Missing Link."

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE BUDGET COMMITTEE MEETING

December 14, 1985

MINUTES

The meeting was called to order by President E. Campaigne at 9:30 a.m. in Room 159A of the Indiana State Library, Indianapolis.

Members present and their area of interest were: E. Campaigne (President), Stanley Burden (President-elect), Richard Conklin (Secretary), Duvall Jones (Treasurer), Alfred Schmidt (Public Relations), Benjamin Moulton (Publications, Past President), Donald Winslow (Editor), Gerald Zimmerman (Program), Holly Oster (Library), Susan Johnson (Youth Activities), William Daily (Academy Foundation), Alice Bennett (Science and Society), Uwe Hansen (Research Grants); by invitation, Walter Cory (Research Fellowships), John Bacone (Biology Survey).

Minutes of the December 1, 1984, Budget Committee meeting were reviewed and approved.

Winslow and Campaigne circulated a report of the 1985 Fall meeting. It showed that Academy attendance was 479, Junior Academy 201, total income was \$3,830.00, expenses, \$4,400.00. The deficit can be met from reserves.

Zimmerman requested that he be informed of the number of members of each section, to help in assigning rooms at Indiana Central.

Hansen moved that the registration fee for the 1986 Fall meeting be \$10. Bennett moved to amend this fee to \$7 for non-members, \$5 for members. After considerable discussion the amendment carried.

Schmidt suggested that a directory be published, listing the names and addresses of members alphabetically, by zip code, and by section.

Schmidt also suggested that it be proposed to Council that certificates of appreciation be awarded to outstanding teachers.

Joyce M. Martello of BMA Associates, Inc., Indianapolis, reviewed a proposal submitted by her firm to establish a central office, perform the billing and membership roles of the Secretary and Treasurer, and assist in conference planning. After her presentation, Moulton moved that the President appoint a committee to investigate the question of establishing an Executive Secretary's office or some similar arrangement. The motion carried.

Johnson noted that the Science Olympiad has been included in her budget request. There was some discussion of high school research grants. It was suggested that the Youth Activities Committee send a letter to high schools reminding them of the program. Applications for grants will continue to go to the Research Grants Committee.

Bennett explained that her budget request included funds for reactivating the Speakers Bureau, and for symposium brochures. A topic is needed for the 1986 symposium. She suggested that an award might be established to reward leadership in research by teachers in colleges.

Hansen reported little change in request for research grants. The \$1,500.00 limit per grant still seems appropriate. About \$600.00 is needed for mailing brochures. The President thanked Dr. Hansen for his service as Research Grants chair.

Cory reported that the research fellowships have made more teachers aware of the importance and stimulation of research. However, the stipend is so small that few teachers can afford to take advantage of it. Perhaps the Academy should seek outside help for support of this program.

Burden asked for \$1,500.00 additional allocation to membership for the publication of a new brochure.

Jones suggested that new members should be given some tangible evidence of membership. Moulton proposed a card attached to the annual dues statement.

Bacone presented a request for funds for a survey of endangered invertebrates and lower vascular plants in Indiana. The Biology Survey Committee should present a report for publication in the *Proceedings*.

Jones moved the following shifts in funds from line items in the 1985 budget: \$300 from Reprints to Secretary, for mailing proposed Constitution.

\$180 from Finance Committee to President, General Office (\$80) and Membership (\$100).

Awards from high school research papers, and mailing of books to new members to be paid from miscellaneous.

The motion carried.

Jones moved adoption of the following budget for 1986:

Income

Dues	\$13,800.00
Reprints, Vol. 93	2,750.00
Interest	2,100.00
Reserve funds	2,600.00
	<u>\$21,250.00</u>

Expenditures

Management & General expenses

President	
General Office	\$ 600.00
President's Contingency Fund	250.00
Secretary	400.00
Treasurer	1,050.00
Editor	750.00
Membership Committee	1,500.00
Officer Travel	150.00
CPA Fees	550.00
Program Services	
Reprints	2,500.00
Newsletter	900.00
Public Relations	500.00
Programs for meetings	2,500.00
Junior Academy	1,200.00
Youth Activities Committee	1,250.00
Speaker of the Year	700.00
Section Chairs	50.00
AAAS Representative	300.00
Biological Survey Committee	2,000.00
Miscellaneous	100.00
Transfers to Administered Accounts	
Library binding	1,500.00
Publications: Mailing	900.00
Science & Society Committee	1,600.00
	<u>\$21,250.00</u>

Hansen moved the following allocation of money from the trust funds:

Fiduciary fees	\$ 4,000.00
Research grants for Senior Academy	
Members	22,500.00
Research fellowships	5,000.00
Publications	
<i>Proceedings - Volume 94</i>	5,000.00
<i>Climate of Indiana</i>	15,000.00
<i>Butterflies of Indiana</i>	20,000.00
<i>Endangered Species</i>	4,000.00
Symposium booklet (Science and Society)	1,500.00
Brochure on research grants/postage	800.00
Awards for research	300.00
	<u> </u>
	\$78,100.00

The motion carried.

Campaigne distributed copies of a proposal to amend Article VI, Section 3 of the By-Laws, and related Sections. No action was called for.

The meeting adjourned at 12:15 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

Indiana Academy of Science
Financial Report
1 January — 31 December 1985

I. ACADEMY ACCOUNTS

	Income and Transfers	Budgeted	Expenditures and Transfers	Budgeted
Dues	\$10,725.73	\$ 9,250.00		
Reprints: Vol. 93	1,232.60	2,750.00		
Vo. 94	572.25			
Interest	2,705.00	2,700.00		
Reserve funds for Centennial expenses		2,000.00		
Transfer from Administered Accounts	553.87			
Management & General expenses				
President				
General Office			\$ 500.48	\$ 530.00
President's Contingency Fund			250.00	250.00
Secretary			638.79	700.00
Treasurer			727.75	750.00
Editor			322.87	400.00
Membership Committee			542.24	600.00
Finance Committee			42.00	70.00
Officer Travel			150.00	150.00
CPA Fees			525.00	550.00
Program Services				
Reprints			1,412.80	2,200.00
Newsletter			900.00	900.00
Public Relations			150.00	150.00
Programs for meetings			1,623.94	2,000.00
Junior Academy			629.77	1,000.00
Youth Activities Committee			580.34	1,250.00
Speaker of the Year			700.00	700.00
Section Chairs			0.00	50.00
AAAS Representative			400.00	400.00
Biological Survey Committee			0.00	1,000.00
Centennial Committee			0.00	2,000.00
Miscellaneous			40.00	100.00
Transfers to Administered Accounts				
Library binding			1,500.00	1,500.00
Publications: Mailing			700.00	700.00
Science & Society Committee			750.00	750.00
TOTALS	\$15,789.45	\$16,700.00	\$13,085.98	\$18,700.00

II. ADMINISTERED ACCOUNTS

	January 1 Balance	1985 Transfers & Income*	1985 Transfers & Expenditures	31 December Balance
J.S. Wright Library Fund	\$ 134.28	\$ 0.00	\$ 0.00	\$ 134.28
Lilly Library Fund	7,119.96	0.00	116.44	7,003.52
Library Binding	2,412.20	1,500.00(T ₁)	0.00	3,912.20
Meeting Fees & Expenses	875.18	702.00(I)	724.50	852.68
Publications				
Printing: <i>Proceedings</i> :	1,952.89	4,281.60(T ₂)	4,281.60**	1,952.89*
Monographs		854.73(T ₂)	854.73	
Mailing: <i>Proceedings</i>	747.58	700.00(T ₁)	694.12	753.46
Monographs		873.24(T ₂)	873.24	
Sale of Publications	4,282.61	947.35(I)	85.72	5,144.24
Research Fellowships	149.25	3,000.00(T ₂)	3,000.00	149.25

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Research Grants & Awards	-3,936.46	1,335.00(I) 21,178.00(T ₁)	22,341.54	-3,765.00
Science & Society	259.67	750.00(T ₁)	455.80 553.87(T ₁)	0.00
Science Talent Search	1,264.61	3,348.72(I)	2,375.19	2,238.14
TOTALS	\$15,261.77	\$ 39,470.64	\$ 36,356.75	\$ 18,375.66

*I: Income from external sources

T₁: Transfer from Academy Trust Funds.T₂: Transfer from Academy Accounts.T₂: Transfer to Academy Accounts**: The State of Indiana paid an additional \$8,900.00 toward printing of the *Proceedings*.

III. SUMMARY

	Academy Accounts	Administered Accounts	Total
Balance: 1 January 1985	\$12,356.71	\$15,261.77	\$27,618.48
1985 Income	15,789.45	39,470.64	55,260.09
1985 Expenditures	13,085.98	36,356.75	49,442.73
Balance: 31 December 1985	\$15,060.18	\$18,375.66	\$33,435.84

IV. BANK BALANCES (as of 31 December 1985)

Super NOW Account			
Northwest National Bank, Rensselaer, IN Acct# 21-0497-4			3,071.82
Hi-Fi Checking Account			
Northwest National Bank, Rensselaer, IN; Acct# 70-0325-4			7,224.83
Savings Accounts			
Farmers National Bank, Remington, IN; CD #2408862			2,200.80
#302641			2,200.80
State Bank of Rensselaer, IN-CD #100211766			10,600.79
Purdue National Bank, Lafayette, IN CD #66594185			5,000.00
Indiana Federal S&L, Rensselaer, IN CD #10-0140111			3,136.80
TOTAL			\$33,435.84

V. SUMMARY OF TRUST FUNDS

	Research Acct. (430-00-0)	Wright Fund (430-01-9)	Invested Income (430-02-8)
Assets (1 January 1985)			
Cash	\$ 192.45	\$ -2,957.71*	\$ 8,517.54
Tax Value of Investments	36,728.68	372,482.23	105,504.39
Tax Value of Account	\$ 36,921.13	\$ 369,524.52	\$ 114,021.93
Income and Transfers			
Dividends	646.20	25,802.00	0.00
Interest	2,432.86	14,988.78	14,083.81
Income from Sales	0.00	20.69	-188.36
Transfer from Wright Fund			35,909.64
Expenditures and Transfers			
Fiduciary Fees	0.00	-4,855.98	0.00
Transfer to Invested Income	0.00	-35,909.64	0.00
Distributions to Programs	-300.00	0.00	-29,887.57
Assets (31 December 1985)			
Cash	471.51	-3,132.55*	8,793.73
Tax Value of Investments			
Short Term Investments	7,100.00	27,200.00	25,300.00
Bonds	19,947.18	110,224.97	99,845.72
Stocks	12,181.50	235,277.95	0.00
Tax Value of Account	\$ 39,700.19	\$ 369,570.37	\$ 133,939.45
Market Value of Principal	\$ 47,266.91	\$1,010,978.65	\$ 120,024.73

*Negative balances due to computer error; corrected on 2 January.

VI. NOTES

Membership as of 31 January 1986. The Treasurer's records show that the Academy has 1146 paid memberships for 1985: 46 sustaining, 15 sustaining family, 563 senior, 31 senior family, 245 regular, 11 regular family, 96 student, 98 emeritus, 4 honorary, 5 life, 26 club, 5 corporate, and 1 institutional. Also there were:

13 members deceased (included in totals above)

115 members on file from 1984, but not paid for 1985

156 new members for 1985 (included in totals above). The Centennial Membership Campaign brought in 53 of these new members.

12 previous members reinstated in 1985 (included in totals above)

1 person resigned

88 persons were dropped for nonpayment of 1984 dues.

Dues structure for 1985:	\$	2.00 for student memberships
		5.00 for memberships and club memberships
		10.00 for senior memberships
		25.00 for sustaining memberships
		2.00 additional for family memberships
		300.00 for life memberships
		150.00-500.00 corporate memberships
		50.00-100.00 institutional memberships

Reprints: All authors of papers in Volume 93 of the *Proceedings* have paid for the reprints which they ordered. Cost of the reprints to the Academy was \$1,412.80. Authors paid the Academy \$1,418.45 for reprints.

Publications: Sales of reprints, monographs and *Proceedings* in 1985 totaled \$2,752.20.

Research Grants: Funds totaling \$21,087.00 have been awarded as shown in the report of the Research Grants Committee.

Grants Received: The State of Indiana contributed \$8,900.00 toward publication of the Academy *Proceedings*. Kappa Kappa Kappa Sorority made \$2,500 available for awards and expenses for the Science Talent Search for Indiana high school students.

The American Association for the Advancement of Science granted \$1,200 to be used by high school students for research.

Public Service Indiana provided funds for a teacher's workshop in conjunction with the Science Talent Search of 1986.

The John S. Wright Fund, one of the Academy's trust accounts, supports most of the Academy's research grant programs, as well as research-related publications such as the *Proceedings* and monographs.

VII. BUDGET FOR 1986

The following budget was approved by the Budget Committee in the meeting of 14 December 1985.

Anticipated Income

Academy Accounts	
Dues	\$13,800.00
Interest	2,100.00
Reprint Charges to Authors: Vol. 94 & 95	2,750.00
Reserve funds	2,100.00
Administered Accounts	
Meeting Fees	2,000.00
	Total
	\$22,750.00

Budgeted Expenditures

Academy Accounts	
Management & General expenses	
President	
General offices	\$ 600.00
President's Contingency Fund	250.00
Secretary	400.00

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Treasurer	1,050.00
Editor	750.00
Membership Committee	1,500.00
Officer Travel	150.00
CPA Fees	550.00
Program Services	
Reprints	2,500.00
Newsletter	900.00
Public Relations	500.00
Programs for meetings	2,500.00
Junior Academy	1,200.00
Youth Activities Committee	1,250.00
Speaker of the Year	700.00
Section Chairs	50.00
AAAS Representative	300.00
Biological Survey Committee	2,000.00
Science & Society Committee	1,600.00
Miscellaneous	100.00
Transfers to Administered Accounts	
Library binding	1,500.00
Publications: Mailing	900.00
Sub-total	\$21,250.00
Administered Account	
Meeting Expenses	1,500.00
Total	\$22,750.00
Trust Funds	
Anticipated Income and Expendable Funds	
IAS Foundation (00430-00-0)	\$ 2,500.00
J.S. Wright Fund (00430-01-9)	35,000.00
Invested Income Account (00430-02-8)	133,000.00
TOTAL	\$ 170,500.00
Approved Expenditures	
Fiduciary Fees	\$ 4,000.00
Research Grants for Senior Academy Members	22,500.00
Research Fellowships for Secondary School Teachers	5,000.00
Publications	
Proceedings - Volume 93	5,000.00
Climate of Indiana	15,000.00
Butterflies of Indiana	20,000.00
Endangered Species	4,000.00
Symposium booklet (Science & Society)	1,500.00
Brochure on research grants/postage	800.00
Awards for outstanding research papers	300.00
TOTAL	\$ 78,100.00

Respectfully submitted,

Duvall A. Jones, Treasurer

We, the undersigned, have audited the Treasurer's records for the Indiana Academy of Science for the year 1985 and have found them to be accurate and in order.

 Andrew G. Mehall

 John Ricketts

 , 1986

 , 1986

INDIANA JUNIOR ACADEMY OF SCIENCE

Spring Meeting

The Spring Meeting of the Indiana Junior Academy of Science was held on April 27th, 1985 at Center Grove High School in Greenwood. A liaison was formed with the National Science Olympiad in order to provide a meeting for the Indiana Olympiad members. Both Academy and Olympiad members were able to compete in the following events: Name That Organism, Rocks to Riches, Periodic Table Quiz, Facts in Five, Metric Estimation, Science Bowl, Pentathlon, Fermi Questions, and Password.

During the business meeting of the Junior Academy, Jeff Terry was elected vice-president and Dorothy Balac, secretary; both are from Hammond Gavit High School. Since Steve Rogers was president-elect (before the constitution change) he assumed the duties of president.

Eight schools were present. Division I winners were Gavit Middle School (1st place) and Charlestown Jr. High School (2nd place). Division II winners were Seymour H.S. and Hammond Gavit H.S. (tied for 1st place) with Bedford North Lawrence placing third.

Wilma Griffin and Carolyn Hayes, along with their Science Club at Center Grove did an excellent job of hosting the meeting.

Cheryl Mason
Director, IJAS

Fall Meeting

Schools and Clubs Participating in the 53rd Annual Meeting of the Indiana Junior Academy of Science Competition, Nov. 15, 1985, Indiana University, Bloomington, IN: Michigan City Marquette, "Greek Mafia," 2 clubs; Dean Christakis, teacher Hammond Gavit, 2 clubs; Michael Kobe and Laurel Krol, teachers Fort Wayne Canterbury, 2 clubs; Megan Caldwell, Kathie Sessions, and Jill Burnett, teachers Franklin Central, 1 sr. club; Barb Fengya, teacher Kendallville East Noble, "Bi-Phy-Chem," 1 sr. club; Virginia Rhodes, teacher Paoli, "Science Research Team," 1 sr. club; Tom Anderson, teacher Center Grove, "Science Club," 1 club; Wilma Griffin, teacher Muncie Northside, 2 clubs; Susan McConnell, teacher Munster, 1 club; Donald Ullman, teacher W. Lafayette Harrison, 1 club; Marie Martinek and Mark Whitman, teachers Bedford North Lawrence, 1 club; Lewis Holt, teacher Evansville North, 1 club; Helen Fleck and Gerald Kirkman, teachers Bloomington North, 1 student: John Warren, and Mr. Warren, father Batchelor Middle, 1 teacher: Judy Douglas Borden, 1 club; Thomas Lockmund, teacher Hammond Gavit Middle, 1 jr. club; Bill Fariss and Miss Hiers, teachers Edgewood Jr. HS, 1 club; Barbara Engle and Jo Gilbertson, teachers (2 clubs—one jr. grades 7-9 club and one sr. grades 10-12 club; each club may enter two Polemic teams, two oral paper presenters, one poster presenter, two final paper writers, and one outstanding junior scientist [beginning in 1986, only students of grade 12 may be nominated for outstanding jr. scientist]; in the junior division,

there is no competition for outstanding scientist and paper writers; Polemics teams can have up to four entrants each; no limit was placed on the number of student observers per club)

We congratulate and thank all who helped to make the meeting so successful this year: Susan Johnson, Don Winslow and Duvall Jones of the Youth Activities Committee; the IJAS Council: Mrs. Rhodes, Mr. Kobe, Mr. Fariss, Mrs. Mason, and Mr. Anderson; the teacher-sponsors of each club; the student presenters, Polemics participants, student observers; the judges; also, Al Ruesink of the Dept. of Biology, Indiana University; Ed Moss of the IU News Bureau; and the IJAS Officers.

A total of 201 students attended the meeting.

Dean G. Christakis, Director

Oral Paper Presenters—Sr. Div. Life Sciences

- 1st Lance Payton, Paoli, "Mapping Genetic Recombinations of Genome Transfer During Interrupted Conjugation of *E. coli*: Phase III"
- 2nd Ann Thorvik, Marquette, "The Effects of Estrogen and Testosterone as Anti-Cancer Agents Using Bacterial Carcinogenic Testing"
- 2nd Douglas Jansen, East Noble, "Toxicity Testing of Environmental Pollutants Using a New Tadpole Indicator System"
- 3rd Todd A. Scherer, Franklin Central, "Subcloning of a Nuclear Suppressor Gene of Mitochondrial Mutation M990 Involved in the Production of ATP"
- 3rd Valerie Lamos, Canterbury, "Survival of the Steadiest: An Analysis of the Effect of Tension on Student Achievement in Regard to Student Testing Situations"

Oral Paper Presenters—Sr. Div. Physical Sciences

- 1st Mark Owens, Marquette, "Real Time Transmission Holographic Interferometry Determination of Nanometric Movement in Transparent Medium as Applied to Water Channel Flow Visualization of Various Test Specimens"
- 2nd Christopher Moses, Canterbury, "Complex Evaluation Functions vs. Deep Ply Searches in Microcomputer Chess Programs"
- 3rd Paul Chojenski, Hammond Gavitt, "A Study of Skeletal Structures Associated with Flow Patterns in *Fistulipora*, A Fossil Encrusting Bryozoan"
- Honorable Mention

Oral Paper Presenters—Jr. Div. Life Sciences

- 1st Ashely Couch, Canterbury, "Mnemonic Devices as Learning Aids"
- 2nd Laura Mannion, Gavitt, "The Effects of Acid Rain on the Germination and Growth of Plants"
- 2nd Mark Mackiewicz, Gavitt, "The Effects of Antibiotics on *Bacillus cereus*"
- 3rd Janette DeFelice, Gavitt Middle, "The Effects of Hormonal Regulation by Gibberelin, B-Nine and a Combination of Gibberelin and B-Nine on the *Pisum sativum*"

Oral Paper Presenters—Jr. Div. Physical Sciences

- 1st Cynthia Larmore, Canterbury, "The Capacity of Sodium Citrate, Dehydroryaluminum, Sodium Carbonate, and Magnesium Hydroxide to Effectively Lower the Acidity of a Chemical Solution"
- 2nd Daren Daigle, Marquette, "The Basis, Structure and Manipulation of a Computer Environment"

Outstanding Jr. Scientist of Indiana

Winner: Mark D. Owens, Marquette, Michigan City, Senior

Runner-up: Gene DeFelice, Gavit, Hammond, Senior

Both students are invited to the American Assoc. for the Advancement of Science/Amer. Jr. Academy of Science Convention in Philadelphia.

Poster-Presenters—Sr. Division

- 1st Kim Cochard, East Noble, "The Effects of Methylxanthines on the CF₁ Strain White Mice"
- 2nd Eric Bonfield, Marquette, "Immunological Research: A Study of Prescribed Medications Using a Double Diffusion Antigen-Antibody Precipitation"
- 2nd Kim Noble, Center Grove, "Fetal Alcohol Syndrome in *Mus musculus* (mice)"
- 3rd Tarini Ramaprakash, Canterbury, "The Importance of Winter Kill: A Parametric Study of Raccoon Distemper as a Function of Climate Severity in Northern Indiana"

Poster Presenters—Jr. Div.

- 1st Chrissy Owens, Marquette, "Enzymes; The Source of Fermentation"
- 2nd Jennifer Mackel, Canterbury, "Minimizing Wind Resistance by Altering Shapes"
- 3rd Andrew Lewis, Gavit, "The Ruby Laser"

Written Final Papers—Sr. Div. Life

- 1st Todd Scherer, Franklin Central, "Subcloning of a Nuclear Suppressor Gene of Mitochondrial Mutation M990 Involved in the Production of ATP"
- 2nd Ann Thorvik, Marquette, "The Effects of Estrogen and Testosterone as Anti-Cancer Agents Using Bacterial Carcinogenic Testing"
- 3rd Holly Gaudreau, Paoli, "Examination of Possible Teratogenic Effects of Exogeneous Compounds on Developing Chick Embryos"
- 4th Mae-Mae Shieh, Harrison, "The Characterization of an Acetyl-Co^A Carboxylase Related Protein"
- 4th Alvina Ma, Muncie Northside, "The Relative Importance of Chemical and Behavioral Inhibition in *Rana catesbeiana*"
- 4th Dorothy Balac, Gavit, "Tomato Plant Tissue Culture"

Written Final Papers—Sr. Div. Physical

- 1st Mark Owens, Marquette, "Real Time Transmission Holographic Interferometry: Determination of Nanometric Movement in Transport Medium as Applied to Water Channel Flow Visualization of Various Test Specimens"
- 2nd Gene DeFelice, Gavit, "The Use of Beer-Lambert's Law for Simultaneous Quantitative Analysis of Heavy Metals with Computer Analysis"

Polemics (Team of Students working together on a test of scientific knowledge)

Senior Division

Junior Division

- | | | | |
|----------------------|------------------|----------------------|----------------|
| 1st Marquette | 3rd Center grove | 1st Marquette | 3rd Canterbury |
| 2nd Franklin Central | 3rd Gavit | 2nd Muncie Northside | 3rd Gavit |
| 2nd Marquette | 3rd Munster | 2nd Marquette | 3rd Gavit |

The Polemics Test for 3 or 4 member teams was based on a knowledge of Fermi estimations, metric estimations, rock and mineral identification, chemistry, physics, Newton's Laws, biological, general science, current science, and terminology. Many of the questions were patterned after the style used in the National Science Olympiad.