



DEDICATION

The Indiana Academy of Science wishes to express its sincere appreciation to Dr. Donald R. Winslow for his dedicated service as the Editor of the *Proceedings* and Executive Officer of the Academy. Dr. Winslow is shown here accepting a certificate proclaiming Indiana Academy of Science Recognition Week from Gov. Bayh. Also present was Dr. Charlotte M. Boener, IAS President in 1989.

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Proceedings
of the
Indiana Academy
of Science

Part I
The Work of
the Academy

INDIANA ACADEMY OF SCIENCE OFFICERS AND EXECUTIVE COMMITTEE, 1988

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- Immediate Past President STANLEY L. BURDEN, Nussbaum Science Center
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THE COUNCIL

The Council is the principal governing body of the Academy. The Council consists of the Past Presidents, the current Officers, the Chairs of all sections and committees, the Directors of the programs of the Youth Activities Committee, and representatives of affiliated organizations. For current Council membership, see parts of this Directory listing these offices and appointments.

Budget Committee

- WILTON N. MELHORN, President
- CHARLOTTE BOENER, President-Elect
- RICHARD L. CONKLIN, Secretary
- DUVAL A. JONES, Treasurer
- ALFRED R. SCHMIDT, Director of Public Relations
- DONALD R. WINSLOW, Editor
- STANLEY L. BURDEN, Immediate Past President
- DAVID SEVER, Co-Chair, Program Committee
- RICHARD J. JENSEN, Co-Chair, Program Committee
- EDWIN SQUIERS, Science and Society Committee
- HOLLY OSTER, Library Committee
- VIRGINIA RHODES, Youth Activities Committee

FRANK GUTHRIE, Academy Foundation
 AUSTIN BROOKS, Research Grants Committee
 MARK WHITMAN, Director, Junior Academy of Science Council
 JAN WOERNER, Director, Science Olympiad
 BENJAMIN MOULTON, Chair, Publications Committee

COMMITTEE CHAIRPERSONS AND SPECIAL APPOINTMENTS

I. Elected Committees

1. Academy FoundationFRANK GUTHRIE, Chair (1990)
 ERNEST CAMPAIGNE (1989)
 MAX MARSH (1988)
 DUVAL JONES (ex-off.)
2. BondingMARY LEE RICHESON, Chair (1988)
 JOHN WHITAKER (1989)
3. Research GrantsAUSTIN BROOKS, Chair (1989)-Biology
 JOAN E. LAFUZE (1992)
 WILSON B. LUTZ (1990)-Chemistry
 JAMES E. NEWMAN (1988)-AGRICULTURE
 BENJAMIN SWARTZ (1989)-ANTHROPOLOGY
 RICHARD CONKLIN (ex-off.)

II. Standing and Ad Hoc Committees, and Special Appointments

4. Academy Representative to
 AAAS VIRGINIA RHODES (1988)
5. Academy Representative, Indi-
 ana Natural Resources
 Commission..... REV. DAMIAN SCHMELZ
6. Amendments..... WILLIAM EBERLY, chair
 (Parliamentarian)
 E. E. CAMPAIGNE
 DON WINSLOW
7. Archivist HOLLY OSTER
8. Auditing Committee..... JOHN RICKETTS, Chair
 DAVID D. CHESAK
9. Biological Survey Committee... JOHN A. BACONE, Chair
 JOHN S. CASTRALE
 JAMES R. GAMMON
 J. D. HADDOCK
 RICHARD JENSEN
 DARYL R. KARNS
 CLIFTON A. KELLER
 WILLIAM M. MCKNIGHT
 JACK R. MUNSEE
 VICTOR RIEMENSCHNEIDER

- JOHN R. SCHROCK
JOHN O. WHITAKER
10. Editorial Board,..... DONALD R. WINSLOW, Chair
Proceedings (1988-90)
(term for all members HANS O. ANDERSEN
coincides with RITA BARR
term of Chair) ERNEST E. CAMPAIGNE
WILLIAM R. CLARK
ROBERT F. DALE
JAMES R. GAMMON
JAMES H. KELLAR
BENJAMIN MOULTON
VAN E. NEIE
JOHN F. PELTON
ALFRED SCHMIDT
J. DAN WEBSTER
TERRY R. WEST
JOHN O. WHITAKER, JR.
11. Emeritus Member Selection
Committee..... ROBERT H. COOPER, Chair
HARRY G. DAY
HOWARD H. MICHAUD
WINONA H. WELCH
12. Fellows Committee..... WILLIAM R. GOMMEL (1990), Chair
MARVIN CARMACK (1988)
JACK ALBRIGHT (1989)
JOHN BACONE (1990)
JACQUES W. DELLEUR (1988)
FRANK K. EDMONDSON (1988)
DONALD P. FRANZMEIER (1990)
UWE HANSEN (1989)
JAMES KELLAR (1989)
JACK MUNSEE (1989)
MARY LEE RICHESON (1989)
MICHAEL J. SINSKO (1989)
CHARLES E. WIER (1988)
HAROLD ZIMMACK (1989)
13. High School Teacher Research
Fellows..... DENNIS G. PETERS, Chair
AUSTIN BROOKS
SUSAN SPEECE
JOHN WHITAKER
14. Indiana Science Talent Search .. DONALD WINSLOW, Chair
AUSTIN BROOKS
RUSSELL COVERDALE
JO ANN JANSING
ALFRED SCHMIDT
HAROLD ZIMMACK

15. Invitations Committee MARSHALL P. CADY, Chair
 GEORGE R. PARKER
 JOHN RICKETTS
16. Junior Academy Council MARK WHITMAN, Director
 W. THOMAS ANDERSON, JR.
 MICHAEL KOBE
 VIRGINIA RHODES
17. Library Committee HOLLY OSTER, Chair
 LOIS BURTON
 JAMES A. CLARK
 WILLIAM A. DAILY
18. Membership Committee CHARLOTTE M. BOENER, Chair
 PAUL E. BARONOWSKI
 JAMES BERRY
 STEPHEN M. CHMIEL
 DUVAL A. JONES (ex-off.)
 BARBARA KANE
 EDWARD LAVAGNINO
 JAMES E. NEWMANN
 VICTOR RIEMENSCHNEIDER
 GERALD SEELEY
 FRANK L. STANONIS
 EUGENE D. WEINBERG
19. Necrologist FAY K. DAILY
20. *Newsletter* Editor ALFRED E. SCHMIDT
21. Nominations BENJAMIN MOULTON, Chair
 ERNEST E. CAMPAIGNE
 STANLEY J. BURDEN
22. Parliamentarian WILLIAM R. EBERLY
23. Preservation of Natural Areas MARION T. JACKSON, Chair (1990)
 JOHN A. BACONE (1988)
 JOHN H. CLEVELAND (1990)
 BURNELL C. FISCHER (1990)
 CARROLLE MARKLE (Honorary)
 JOHN MUTZ (1988)
 GEORGE PARKER (1989)
 VICTOR RIEMENSCHNEIDER (1989)
 ROBERT C. WEBER (1988)
 WILLIAM WEEKS (1989)
 WINONA WELCH (Honorary)
 LARRY R. YODER (1990)
24. Program Committee DAVID SEVER, Co-Chair
 RICHARD JENSEN, Co-Chair
25. Public Relations Committee ALFRED R. SCHMIDT, Co-Chair
 DUVALL JONES, Co-Chair
 JEAN BECKMAN
 CHARLOTTE BOENER
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INDIANA ACADEMY OF SCIENCE MEETING OF THE EXECUTIVE COMMITTEE

February 6, 1988

MINUTES

The meeting was called to order by President Wilton Melhorn at 10:05 a.m. in the conference room of the Indiana State Library. Those present were Melhorn, Charlotte Boener, Stanley Burden, Ernest Campaigne, Richard Conklin, Duval Jones, Holly Oster, Alfred Schmidt, and Donald Winslow.

Minutes of the December 12, 1987, Executive Committee meeting were approved.

Melhorn made several announcements:

The Treasurer has agreed to a settlement of \$40 in payment of \$387 owed the Academy by the now-bankrupt Purdue-Calumet Bookstore.

The Directory will be mailed soon. 200 copies will be printed.

Professional Geologists want to make an annual cash award of \$50 for the best paper presented to the Junior Academy. Mark Whitman will be notified.

A report on the assets of the Foundation from Frank Guthrie shows all is well.

Several aspects of the Michigan and Ohio Academies might be worth our consideration. A trip to Columbus to visit the Ohio academy office could be profitable.

The status of Fellows who are no longer active members has long been a question. It was decided that this year's Directory will list only those Fellows who are active or emeritus members.

Schmidt announced that the *Newsletter* will be issued soon, for the first time since October. There will be four issues this year.

One of the most difficult duties of an incoming President is the appointment of committees. In a wide-ranging discussion of how this task might be expedited, suggestions included formation of a Committee on Committees, getting information from section chairs, using the Executive Committee to advise the President and eventually assigning some of the responsibility to the Liaison Officer. Until such mechanisms can be set up, duties of committees will be described in the *Newsletter*, and a call for volunteers made. A questionnaire may be sent out with the dues notices, with a return card. A goal would be to have committee chairs selected by the time of the Fall meeting, and for them to suggest members to the President so the committees could be appointed shortly after January 1. To facilitate work of the committees, the Program Chair should consider specifying a time at each meeting for the committees to meet.

As they are now being done, there is too much overlap between the meetings of the Executive Committee and the Council, and too little opportunity for the members of the Council to consider legislation before they are asked to vote on it. This year the Executive Committee will meet several weeks before the Spring

and Fall meetings, and letters will be sent to Council members informing them of issues to be discussed. The general membership will also be informed through the *Newsletter*.

Turning to the question of the Executive Secretary or Liaison Officer, Burden reported on the January 25 meeting of the Directors of Science Education Foundation of Indiana, Inc. (SEFI), at which Ray C. Paschke was appointed Executive Director. After a discussion of what this appointment might mean to relations between IAS and SEFI, it was decided to invite Mr. Paschke to attend the next Executive Committee meeting to discuss his plans and how he believes the two organizations might relate. The next step the Academy needs to take is to begin a search for candidates for our position. This could be done through the *Newsletter*, the Corporate Relations Committee, direct appeals to universities, etc.

Jones moved that Science Club dues and their registration fee at the Annual Meeting be merged so that each club pays one \$10 fee. The motion carried.

Jones moved that the Science Education Advisory Committee be requested to determine what interest there would be in scheduling a meeting in the Spring, sponsored by the Academy, for the purpose of presentation of papers by undergraduate students from colleges and universities. The motion carried.

Jones circulated copies of bids from two jewelers for pins using the new logo. They will be discussed at the next meeting.

The next meeting will be held somewhere in Indianapolis at 1:00 p.m. Thursday, March 31.

The meeting was adjourned at 2:30 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

**EXECUTIVE COMMITTEE
MINUTES OF MEETING AT THE
INDIANA STATE LIBRARY**

April 16, 1988

The meeting was called to order at 10:00 a.m. All members were present except for the Secretary; these minutes are compiled from notes made by the President.

Minutes of the Executive Committee meeting of February 6, 1988, as distributed by the Secretary, were approved.

The President distributed copies of a letter written to Karl Kaufman. This letter expressed the hope and need for improved communication and cooperation between SEFI and the Academy; noted the new Executive Secretary of SEFI, Ray Paschke, would be extended an invitation to present his views and plans to the Executive Committee at the first favorable opportunity; and extended Paschke an invitation to join the IAS.

Considerable discussion ensued about the SEFI-IAS relationship. Stan Burden reported on the SEFI Council meeting of the previous day, April 15, which he attended as proxy for the IAS president. During the following discussion, it was noted that four of the five most active and productive Science Fair directors will not be continuing in this role next year, and that the IAS Constitution contains a section regarding responsibility of the IAS in appointment of such directors.

The remainder of the session was devoted to refining and improving the statement outlining the "duties" of the to-be-appointed "Executive Liaison Officer" for the IAS, as moved and approved by the Council at the Fall meeting on November 5, 1987. The consensus of the Executive Committee was that an initial appointment probably should be in the form of an individual contract of stated duration, rather than advertising at this time for a permanent appointment, thus avoiding a wide variety of complex issues and problems involving state and federal hiring procedures, fringe benefits, etc. The approved aims and objections statement ("job description") will be presented for action to the Council at St. Mary's on April 21.

President Melhorn reported briefly on recent contacts with the respective Executive Directors of the Michigan Academy and Ohio Academy. Preliminary interchange clearly indicates that state academies tend to share common problems and suggests that more abundant and frequent contacts should be maintained in order to mutually address the most pressing issues. An overnight trip is planned in early June to Columbus, for the purpose of having more in-depth discussions with Mr. Lynn Effner, Executive Director of the OAS.

**INDIANA ACADEMY OF SCIENCE
SPRING MEETING OF THE COUNCIL**

April 22, 1988

MINUTES

The meeting was called to order by President Wilton Melhorn at 2:00 p.m. in the Cushwa-Leighton Library of St. Mary's College, Notre Dame, Indiana.

Minutes of the Fall Meeting were approved.

TREASURER'S REPORT

Duvall Jones presented the financial report, January 1 to April 22.

	Academy Accounts	Administered Accounts	Total
Balance: January 1, 1988	\$14,612.73	\$28,673.88	\$43,286.61
1988 Income	5,994.46	50,302.06	56,296.52
1988 Expenditures	<u>6,389.54</u>	<u>44,740.28</u>	<u>51,129.82</u>
Balance: April 21, 1988	\$14,217.65	\$34,235.66	\$48,453.31

Summary of Trust Funds

Anticipated income and expendable funds

Academy Fund	\$ 3,000.00
John S. Wright Fund	52,000.00
Invested Income Account	<u>120,000.00</u>
Approved expenditures	\$ 90,600.00

Membership Report

708 members for 1988 as of April 22

652 on file from 1987 but not paid for 1988

40 new and reinstated members in 1988

180 members and clubs dropped for nonpayment of 1987 dues

The report was approved.

REPORTS OF ELECTED COMMITTEES

Academy Foundation

Ernest Campaigne reported the status of the accounts as of March 31, 1988.

	Approximate Market Value	Estimated Annual Income	% Yield
John S. Wright Fund	\$1,319,265.41	\$54,949	4.17
Invested Income Acct.	120,085.07	7,635	6.36
Academy	<u>51,926.79</u>	<u>3,161</u>	<u>6.09</u>
	\$1,491,277.27	\$65,745	4.41

Research Grants

Melhorn reported a call from Research Grants Chair Wilson Lutz to the effect that nineteen proposals had been received and \$10,000-\$12,000 would be awarded. [The list of grants was received by the Secretary after the meeting and is appended to these minutes.]

The members of the committee have been polled to determine if they would approve using some Grant funds in support of the Executive Liaison Officer. Three said yes; two were undecided.

REPORTS OF STANDING COMMITTEES*Program:*

Co-chair Richard Jensen urged that a *Newsletter* be published for distribution of Abstract forms well before the Fall meeting.

Fellows:

Chair William Gommel reported that committee members have been contacted. Melhorn suggested that the committee should consider carefully the question of criteria for the rank of Fellow. The *Newsletter* should include a note inviting nominations. It was suggested that Jones provide committee members with a list of members of the Academy by years of membership, and that the list of twenty-year or more members be published in the *Newsletter*.

Emeritus Members:

Chair Robert Cooper reported by letter that only one application had been received and that the applicant is not yet eligible.

Invitations:

Manchester College has presented a formal invitation to act as host for the 1990 meetings. Benjamin Moulton moved that the Council support the Committee on Invitations when it approves that site. The motion carried.

Library:

Chair Holly Oster reported that Western Newspaper Publishing has delivered 1000 copies of Monograph 5: *Endangered and Threatened Vertebrate Animals of Indiana*, by John O. Whitaker, Jr. and James R. Gammon. Approximately 500 copies will be mailed to exchange partners and Indiana libraries together with Volume 96 of the *Proceedings and Butterflies of Indiana*.

Publications:

Chair Benjamin Moulton reported that Monograph 5 is available for purchase.

Of 2000 copies of *Butterflies of Indiana*, 1111 have been sold by Indiana University Press, 500 are being distributed by the Library, and 400 are to be sold by the Academy. Brief mention was made of the possibility of increasing the price of the book.

The committee hopes to send a brochure to high school libraries and others who might be interested, describing Academy publications and how they may be purchased.

There was some discussion of the timing of meetings of the committee, the hope being that they might be sufficiently in advance of Council meetings that results of the deliberations could be reported to the Council.

Speaking for the committee, Moulton moved that each chair of a Section be responsible for recommending to the Editor which presentations are to be pub-

lished in the *Proceedings* as abstracts and noted by title only. Upon motion by Campaigne, this motion was referred to the Publications Committee for further study.

William Eberly moved that for the Annual Meeting in 1988 the Academy will publish abstracts in the *Proceedings* accordance with past practice. The motion carried.

The committee reported approval of a policy permitting any University-Press or author seeking support for a publication to submit a request for such support, provided that the press is in Indiana and the authors are Academy members. Guidelines for committee deliberations on such requests have been established. No Council action was requested.

The committee recommends that it and the Editor be consulted as to all official publications of the Academy, with a view toward increasing the indentifiability and the uniform quality of such publications.

Science and Society:

Chair Edwin Squiers reported that the committee has agreed to act as a cosponsor with the Indiana Committee for the Humanities to support the modification of the exhibit *Charles Darwin, a Portrait Biography* to enable it to tour throughout Indiana. The premiere showing will occur at the Fall meeting of the Academy.

The 1988 Fall Symposia will focus on the state of science education in Indiana. One might revolve around an assessment of the ISTEP tests. A second symposium will deal with the integration of high-technology systems into the educational process.

Youth Activities:

In a printed report, Chair Virginia Rhodes called attention to the Science Talent Search, held March 4-5, and the Science Olympiad, held March 12. The third Hoosier Science and Engineering Fair was held at Children's Museum in Indianapolis on April 14-16 with 72 students participating. The Academy provided financial support in the amount of \$3,000 to the twelve regional science fairs. The report also included names of winners of several awards presented by the Junior Academy of Science.

Jan Woerner, Director of the Indiana Science Olympiad, described that program and showed a videotape of some Olympiad events. She urged the Academy to help by encouraging members to volunteer to help set up and judge events, and to provide funds to help teachers go to training events. By such support the Academy can show that it appreciates the importance of pre-college science education.

Corporate Relations:

Chair E. Campaigne reported two objectives the committee has established: 1) to increase corporate membership in the Academy; and (2) to increase individual memberships among industrial scientists.

Membership:

Chair Charlotte Boener reported several steps that have been taken to attempt to expand membership. They include enlisting the help of emeritus members and section chairs, and sending letters to people who have recently failed to renew their membership.

Speaker of the Year:

Chair John B. Patton sent a list of the appearances of Dr. Samuel A. Rhine, speaking on "The New Genetics: Applications and Implications for Our Future." He has spoken nine times. The Secretary was instructed to write a letter of appreciation to Dr. Rhine.

Editor:

Editor Donald Winslow sent a breakdown of the contents of Volume 97 of the *Proceedings*. It reflects a total of 208 section presentations, 56 of which were published in full.

Committee on Awards (ad hoc):

Chair Marvin Carmack presented the final report of this committee, It suggests several possibilities:

- (1) Continue the single designation of Fellow, with emphasis on research productivity and service to the Academy.
- (2) Use the category of Honorary Member to honor an individual who has made significant contributions to Indiana science and has not necessarily been a member of the IAS.
- (3) Create new awards, for example, a Hoosier Research Prize for an outstanding research achievement.
- (4) Make special efforts to have outstanding members of the Academy nominated for recognition by other scholarly organizations at the state and national level.

Each of the above reports was approved after presentation.

OLD BUSINESS

President Melhorn presented a description of the position of Executive Liaison officer, as prepared by the Executive Committee.

Title of Proposed Position

Executive Liaison Officer

Objectives

Although a broad variety of aims and goals might be listed and defined, ultimately the success of the office must depend largely on the interests and capabilities of the appointee. The final success of the appointment can be measured by:

1. An increase in IAS membership.
2. A more positive public image.
3. An increase in external monetary contributions which will improve and expand Academy programs.

The appointee shall implement the directives of the Executive Committee. The Executive Committee will annually review and evaluate the performance of the appointee, and the appropriateness and scope of the duties assigned.

Duties

1. Promote the aims, interests, and goals of the Academy as outlined in the Academy Constitution.
2. Identify worthy activities proposed or conducted by other state and regional organizations, and facilitate participation of the IAS in these activities as deemed appropriate.

3. Aid in writing proposals and make contacts seeking funds to support Academy activities and interests.
4. Identify and facilitate the role of the Academy in support of museums, science education, youth activities, and conservation efforts, as well as communicate the programs of the Academy through the appropriate public media.
5. Provide continuity and efficiency in the execution of Academy business.
 - a. Be responsible for facilitating the timely and cost-effective publication and mailing of the *Programs and Abstracts* for the Fall meeting, and programs for the Spring meeting, in conjunction with the Program Chair(s).
 - b. Assist the incoming President in the selection of committee chairs.
 - c. Develop and keep updated a "Manual of Operations" for Academy officers and section chairs, and assist in administration of operational policy.
 - d. Other responsibilities as agreed upon in consultation with the Executive Committee.

After approval of the job description (as amended, if necessary) the position will be announced and candidates sought.

William Eberly moved approval of the above statement of objectives and duties of the Executive Liaison Officer. The motion carried.

NEW BUSINESS

Jones spoke to the establishment of an Undergraduate Research Symposium to give seniors an opportunity to describe their research before being graduated from college or university. John Ricketts of DePauw has offered to organize such a symposium, with costs to be borne by the host institution. Squiers moved that the Academy endorse the concept of such a symposium in the Spring of 1989 and pursue the possibility of co-sponsorship. The motion carried.

ADJOURNMENT

The meeting was adjourned at 6:00 p.m.

Respectfully submitted
Richard L. Conklin
Secretary

**ADDENDUM
INDIANA ACADEMY OF SCIENCE
RESEARCH GRANTS COMMITTEE**

Fall 1988, Grant Applications Funded

Principal Investigator	Title	Award
Antolovic, Zorka IU Bloomington Zoology	Deposition Setting and Diagenetic History of the Haney Limestone: Sulphur, Indiana	\$362
Dini, Michael L. Notre Dame Biology	Effects in Varying Resource Availability and Visible Predation Pressure . . . Among <i>Daphnia</i>	738
Etchberger, Cory R. IU Bloomington Biology	Study of Sexual Dimorphism and Geographic Variation of Temperature Sex Determination in Turtles	538
Hicks, David J. Manchester Biology	Factors Affecting the Composition and Dynamics of Forest Remnants in Wabash County, Indiana	848
Jarial, Mohinder S. Manchester Biology	Factors Affecting the Composition and Dynamics of Forest Remnants in Wabash County, Indiana	563
Ma, Pang Fai Ball State Medical Ed.	Developmental Changes of Adenosine Deaminase in Frog Tadpoles	732
Magej, Robert F. IU Bloomington Biology	Territoriality and Agonistic Behavior of Plathodontid Salamanders: Field Studies of Behavior . . .	422
Marr, Jackson L. Southern Indiana Science & Math.	Resource Partitioning by Freshwater Turtles	603
Mays, Charles E. DePauw Biology	Effects of Passive Smoke on Murine Reproduction and Development	528
McGrath, Dennis J. Nature Conservancy Field Office	Recovery Analysis of a High Bluestem-Little Bluestem-Indiangrass Prairie in White County, Indiana	425

**INDIANA ACADEMY OF SCIENCE
RESEARCH GRANTS COMMITTEE**

Summer, 1988, Grant Applications Funded

Principal Investigator	Title	Award
Richeson, Mary Lee IU PU Fort Wayne Biology	Effect of Dietary Fats on Differentiation in Strain A/ST Mice	\$1300
Samuelson, Alan C. Ball State Geology	Radon and Other Trace Elements in Indiana Groundwater	530
Sipe, Betty Burns Ball State Biology	Investigation of Relationships Between Teaching Strategies of High School Biology Teachers . . .	338
Squiers, Edwin R. Taylor Bio. and Environ.	Computerization of the Long-term Data Base from the Devon Project . . .	648
Tuncay, Atitla IU Gary Chemistry	Hypervalent Iodine in Organic Synthesis	710
Urbano, Charissa M. Ball State Biology	Dose-response Analysis of the Teratogenic Interaction of Caffeine and Acetazolamide in C57BL/6J Mice	930
Vispo, Conrad Indiana State Life Sciences	Effects of Thermoregulation on the Behavior of Wild Thirteen-lined Ground Squirrels . . .	511
Xu, Lei Notre Dame Biology	Hormonal Control of Thermal Hysteresis Antifreeze Proteins in Freeze Susceptible Insects	992
Yoon, Stacia L. IU Bloomington Biology	Proximate Mechanisms of Female Choice in the Gray Tree Frog, <i>Hyla chrysocelis</i>	313

Total Amount Awarded: \$12,031.00

INDIANA ACADEMY OF SCIENCE MEETING OF THE EXECUTIVE COMMITTEE

September 10, 1988

The meeting was called to order by President Wilton Melhorn at 9:15 a.m. in the Indiana State Library. Voting members present were Charlotte Boener, Stanley Burden, Richard Conklin, Duvall Jones, Wilton Melhorn, and Donald Winslow. Holly Oster was also present during much of the meeting.

During the morning the persons who had volunteered to serve as Editor of the *Newsletter* were interviewed and discussed. William McKnight of the Indiana State Museum and Granville C. Kyker of Rose-Hulman Institute each spent about an hour with the committee. Gene Kritsky of the College of Mt. St. Joseph was unable to attend, but sent a letter reiterating his willingness to serve and answering some questions. After considering other business, it was agreed that a decision should be made if possible. After all members had given their impressions of the men, a vote was taken. The result showed that four favored one candidate. The President abstained, and Burden was no longer present. Before the decision is final, Kritsky will be invited to talk to the committee. The new Editor is to begin with a January, 1989, issue.

Melhorn briefed the group on matters arising since the Spring meeting:

A letter printed in *The Indianapolis Star* raised the possibility that the Indiana State Museum might move to a new building in White River Park, and that the new facility might provide space for the Academy. Melhorn and Boener have attended a meeting about this and agree that the Academy should have a plan available as soon as possible in case an invitation to submit one comes during discussion at some level of government.

Frank Guthrie will represent the Academy at a Research Corporation seminar in Los Angeles.

Boener has requested committee chairs to submit reports for the Fall meeting by October 1. Some have; the others will be reminded.

Science Talent Search has been moved to Bloomington because the IU Union Building in Indianapolis has been closed. Alfred Schmidt will co-chair the Talent Search.

After some hesitation, Robert Cooper has agreed to continue to serve as Chair of the Committee on Emeritus Members until the end of 1988.

The Youth Activities and Publications Committees and the *ad hoc* committee on publications review met during the summer. Winslow recommends that there be co-chairs for the Y.A.C. and some of its subcommittees.

Winslow and Oster have prepared the budget request to the State. Tri Kappa has given \$3,500 and Public Service Indiana \$1,000 to the Science Talent Search. AAAS has given the Junior Academy \$1,200.

Pins and T-shirts bearing the IAS logo are being ordered for sale at the Fall meeting.

Jones presented the tentative program for the December 3 Symposium dealing with Science Education. At this point Carole Goshorn of Columbus, President-Elect of Hoosier Association of Science Teachers, Inc., joined the meeting because HASTI will be a co-sponsor of the Symposium. Jones explained the program, described briefly the presentations to be made by several speakers of national reputation, and introduced the proposed budget. Melhorn opened a discussion of who might be expected to attend the program and how it would be publicized.

The proposed budget showed anticipated expenses of \$4,500 and identified income of \$3,500, \$1,000 of which was to come from \$10 registration and lunch fee. It was agreed that the \$10 should be increased to \$15. There was considerable uneasiness about underwriting a project with such a large anticipated deficit, but some argued that the Academy is committed to sponsoring the event. Boener moved that the Executive Committee support the Science and Society Committee in its sponsorship of the Symposium, encouraging them to solicit co-sponsors who might be willing to make financial contributions, but recognizing that the Academy might need to allocate money to cover a shortfall. The motion carried, with two abstentions.

Noting that the Publications Committee has adopted the CBE Style Manual and that this might be unavailable to many members, it was recommended that the important things for authors to know be abstracted and printed in the *Newsletter* each year. Winslow agreed to provide such an abstract for the October *Newsletter*.

Melhorn introduced a letter he and Boener received from John Gallman of the Indiana University Press asking if the Academy would divide the cost and royalties from a new book on wildflowers of Indiana. Melhorn will inform him that the Academy has no uncommitted funds.

At the Fall meeting the Academy voted to support in principle a Symposium on Undergraduate Research to be held at DePauw University, with costs to be underwritten by the host institute. Plans have changed so the Symposium will be held at Butler University. A letter from Wendell Berry outlines a budget of \$2,000 and asks the Academy to underwrite half. The Symposium would involve 1989 funds. Its sponsors will be invited to submit a proposal to the Budget Committee and to appear at the meeting of that committee to make a very short presentation if they so desire.

Duvall Jones asked permission to send to candidates for public office, on behalf of the Academy, questions on matters related to science and science education. The questions and responses would be published in the October *Newsletter*. Boener moved that the Executive Committee support Jones in asking the questions and publishing the responses. The motion carried.

The meeting of the Budget Committee was set for December 10.

The time of the Executive Committee meeting at the Fall meeting will be 9:00 a.m. to 2:00 p.m.

This committee will meet again Saturday, September 17, at 9:00 a.m. at the State Library. The major agenda item will be the Executive Liaison Officer.

The meeting adjourned at 4:00 p.m.

Richard L. Conklin
Secretary

INDIANA ACADEMY OF SCIENCE MEETING OF THE EXECUTIVE COMMITTEE

September 17, 1988

The meeting was called to order by President Wilton Melhorn at 9:00 a.m. in the Indiana State Library. Members present were Charlotte Boener, Stanley Burden, Richard Conklin, Duvall Jones, Wilton Melhorn, and Donald Winslow (Winslow was excused after the first item of business was completed).

Gene Kritsky of the College of Mount St. Joseph, who was unable to attend the September 10 meeting, was interviewed as a volunteer to edit the *Newsletter*. After his departure and some discussion, Conklin moved that Kritsky be appointed Editor of the *Newsletter*. The motion carried unanimously. Melhorn will inform him of his selection and ask that he begin after publication of the October *Newsletter*.

During the interviews of William McKnight and G. C. Kyker, areas came to light in which their abilities could be used even better by the Academy than in the *Newsletter* position. When Melhorn inform them of the choice of Editor, he will thank them for volunteering and will offer them other opportunities to serve the Academy.

Minutes of the meeting of September 10 were discussed and approved with some modifications.

The Budget Committee meeting on December 10 will be held in the Auditorium of the State Library.

Melhorn and Boener reported conversations with George Gard, whose firm prints the *Proceedings*, addressing problems of delays in publication time and quality of printing. Such problems are not yet fully resolved for Volume 96. Burden offered the following motion: The Executive Committee recognizes that final decisions on publication matters rest with the Editor. However, the committee recommends that the Editor consider accepting Volume 96 despite some imperfections, and negotiate with the printer a reduction in cost if this seems appropriate. This recommendation is made to reduce further delay in distribution of the volume. The motion carried.

The remainder of the meeting was spent in discussing criteria for selecting the Executive Liaison Officer (ELO). A point which needs to be clarified is whether the ELO is to be an employee of the Academy or if the arrangement under which the ELO serves will be a contractual one. The matter is important because the paperwork and payment would be quite different under the different arrangements. Jones will consult an attorney to determine legal implications. Melhorn will draft an announcement describing the qualifications sought and inviting members to indicate their interest in becoming ELO. After the draft has been circulated and approved by the Executive Committee, it will be reproduced and mailed by Conklin to all members of the Academy.

The meeting was adjourned at 12:35 p.m.

Richard L. Conklin
Secretary

NOTE: A discussion of the office of Director of Public Relations was part of the interview and subsequent consideration of the Committee. It was agreed that this would not become part of the public record until the President had clarified the status of Alfred Schmidt, who has not resigned from the position but has not been fulfilling the duties thereof.

INDIANA ACADEMY OF SCIENCE MEETING OF THE EXECUTIVE COMMITTEE

November 10-11, 1988

The meeting was called to order by President Wilton Melhorn at 9:00 a.m. at the Ramada Inn, South Bend, Indiana. Members present were Charlotte Boener, Stanley Burden, Richard Conklin, Duvall Jones, Melhorn, and Donald Winslow.

Minutes of the meetings of September 10 and 17 were approved as corrected.

The office of Director of Public Relations was discussed. It will be dealt with further at the meeting of the Council.

The *ad hoc* Publications Review Committee met with the President and the Editor on August 26 to discuss their charge. Chair William McKnight sent a memorandum on September 14 suggesting another meeting. It is hoped that the committee will have a report for the Academy at the Spring meeting.

John Gallman, Director of the Indiana University Press, met with the Executive Committee to discuss ways in which the IU Press and the Academy might cooperate in the publication of several books of particular interest to the people of Indiana and with possibly wider readership. Joint publication by the two entities could call for a considerable commitment of funds by the Academy and reconsideration of the Academy's philosophy of publication. The next step would appear to be a meeting at the end of February, 1989, of Mr. Gallman with the Executive and Publications Committees of the Academy. Such a meeting might lead to a proposal to be discussed by the Council at its Spring meeting. In 1989 the Budget Committee may need to consider long-range planning suggestions of the Publications Committee.

The Corporate Relations Committee has suggested a public relations campaign. Scott Litherland of Bristol-Myers Corporation, a member of that committee, introduced Anne Z. Rogers to present public relations and other program recommendations she had prepared for the Academy. Before she began, Litherland explained the need for professional expertise in making the public aware of a product or organization and described Rogers' credentials. She then described her proposals in detail and responded to questions about the items and the probable cost to the Academy.

The meeting was recessed at 1:15 p.m. and reconvened at 7:45.

The President has received a letter from Section Y of the AAAS asking for an application for membership and appointment of a delegate. The President will respond and ask for clarification of the status of the transfer from Section X to Section Y.

There followed a long discussion of the ramifications of employing an Executive Liaison Officer (ELO) and a professional public relations person in addition to a revitalized office of Director of Public Relations. During this discussion, Winslow was excused from the meeting. When a list was made detailing the services the Academy could use and their allocation, it seemed clear that this was a fruitful direction. Conklin moved that the Executive Committee proceed to implement the employment of an Executive Liaison Officer and a public relations

firm and the coordination of their work with the Director of Public Relations, with the duties divided as detailed on the aforementioned list. The motion carried unanimously. Of the \$15,000 allocated to the office of ELO, it seemed that a reasonable division would be \$5,000 for ELO and \$10,000 for Public Relations.

Members of the Committee reviewed the dossiers of seven applicants for the position of Executive Liaison Officer. After discussion, there was unanimous consent that the position be offered to Dr. Donald Winslow.

Burden agreed to talk to Winslow and Rogers on Friday morning to determine if they were still interested under the new terms. If so, the Committee will meet with them before dinner.

The meeting recessed at 10:30 p.m. November 10.

The meeting reconvened at 5:15 p.m. November 11 in the Dining Hall at St. Mary's College. The full Executive Committee was present, including Gene Kritsky, the new Director of Public Relations. Scott Litherland and Anne Rogers were also present. Incoming President Charlotte Boener presided.

Burden reported that Donald Winslow had agreed to serve as Executive Liaison Officer. Anne Rogers is interested in serving the Academy, but needs to think through which services she should be asked to perform to make the most effective use of the money available for the position. When the Budget Committee meets December 10 she should be able to present a new cost analysis.

There was some discussion of possible problems in dividing responsibilities between Kritsky and Rogers and between Winslow and Rogers. It was agreed that although the line of authority and responsibility will be drawn carefully, all three people will need to be flexible as the new structure takes shape.

The next meeting of the Executive Committee will be after the Budget Committee meeting on December 10 at the State Library, probably after noon.

The meeting adjourned at 6:10 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE FALL MEETING OF THE COUNCIL

November 10, 1988

The meeting was called to order by President Wilton Melhorn at 2:40 p.m. in the Rotary Room of the Dining Hall at St. Mary's College, Notre Dame, Indiana. Approximately thirty-five members of the council were present.

Minutes of the Spring meeting of the Council were corrected and approved as corrected.

President Melhorn announced that the position of Director of Public Relations was vacant, and that Gene Kritsky had been appointed to that post.

TREASURER'S REPORT

Treasurer Duvall Jones gave the financial reports.

Summary of finances:

	Academy Accounts	Administered Accounts	Total
Balance: January 1, 1988	\$14,612.73	\$28,673.88	\$ 43,286.61
1988 Income	14,369.67	96,421.71	110,791.38
1988 Expenditures	9,807.00	87,622.59	97,429.59
Balance: November 8, 1988	\$19,175.40	\$37,473.00	\$ 56,648.40

Membership as of November 8, 1988: 1121, including 44 clubs

COMMITTEE REPORTS

Several committee reports have been submitted by mail. Richard Jensen moved approval of all such reports, except for obvious corrections. The motion carried. Summaries of these reports will be given where appropriate.

REPORTS OF ELECTED COMMITTEES

Academy Foundation (E. E. Campaigne for Chair Frank Guthrie)

	Value as of Nov. 7	1988 Income
Academy Found. Acct.	\$ 55,457	\$ 3,410
John S. Wright Fund	\$1,368,335	\$55,971
Invested Inc. Account	131,827	9,454
	\$1,555,619	\$68,835

Research Grants (Jones for Chair Austin Brooks)

Grants in the amount of \$33,000 have been awarded in the Fall round. A list of grants is appended to these minutes.

REPORTS OF STANDING COMMITTEES

Biological Survey and Natural Areas (John Bacone)

The committee is concerned about loss from Indiana of valuable biological collections, and has suggested that the President write a letter urging the retention of such collections.

The President has received a letter from member John Schrock containing resolutions regarding reduction of the number of faculty members in field-oriented specialties. The letter has been sent on to the Committee on Resolutions.

Editorial Board (Donald Winslow)

In 1983, the Executive Committee made provisions for two \$150 awards to encourage better research. The following manuscript was selected by the Editorial Board for an IAS Research Award to be presented at the Fall meeting: Jocelyn E. Dunphy and Kenneth L. Busch, Department of Chemistry, IU, Bloomington, *Chromatography/SIMS: Applications to Peptides and Bile Acids*. The paper will be published in volume 97 of the *Proceedings*. A ballot for nominating other papers was included in the October *Newsletter*.

The long-overdue Volume 96 of the *Proceedings* was delivered by the printer on October 1. It contained errors which made it unacceptable to the Academy. It was returned for corrections.

The Publications Committee has adopted the current edition of the *CBE Style Manual*, published by the Council of Biology Editors, Inc., as the official guide for authors of the Academy's publications. Manuscripts not prepared according to its guidelines will not be accepted for review by the Editorial Board.

Emeritus Members (Melhorn for Chair Robert Cooper)

Four members were nominated for Emeritus Membership. They were approved by the Council for presentation at the General Meeting.

Program (Richard Jensen)

The By-Laws of the Academy should be more specific as to the days and structure of the Fall meeting. Where there are ambiguities, the Program Chair can be placed in a difficult position. Parliamentarian William Eberly responded that the Program Chair is responsible for the schedule of the meeting. Details should be set forth in a manual of operations, but there is no need to change the By-Laws.

Fellows (William Gommel)

Seven members were nominated for the rank of Fellow. They were approved by the Council and will be presented to the members at the General Meeting.

New lapel pins are available for all Fellows.

Thanks should be extended formally to Dr. Ralph Seifert of Hanover College for his years of service in lettering the certificates presented to Fellows.

High School Teacher Research

Frank Guthrie sent a report of a conference on "Enriching Science Teaching Through Research," sponsored by the Research Corporation. The emphasis of the conference was on the importance of teaching science at the secondary school and junior college levels, especially to non-science majors. The Research Corporation is sponsoring 5,000 grants to teachers in the Southwest. Guthrie suggested that the Academy give support for a more ambitious program than we currently have.

Invitations

The 1989 meetings hosted by Indiana University Southeast will be April 14-15 at Clifty Falls State Park and November 9-11 on the New Albany campus.

In 1990, Manchester College will serve as host to a symposium on April 20. The Fall meeting will be there in late October or early November.

Invitations are needed for 1991.

Indiana Science Talent Search (Winslow)

Plans are under way for the 1989 search. Public Service Indiana and Tri Kappa have agreed to continue their financial support. The Honors luncheon will be held at the IU Union Building in Bloomington on March 3-4. An Associate Director will be appointed to share the responsibilities of administration, and additional corporate sponsorship may be needed.

Junior Academy of Science (Mark Whitman)

The general state meeting is at St. Mary's College today. Students are presenting papers based on their research, are participating in problem-solving competition, and are presenting five-minute talks on the topic "What must the U.S. do to remain technologically competitive in the twenty-first century?"

On December 10 the Junior Academy will meet at the University of Indianapolis to select the Outstanding Student Paper Presenter and the Outstanding Student Delegate from finalists selected on November 11. A student selected as the Outstanding Junior Scientist and the student's sponsor will be sent to the AAAS meeting in San Francisco.

Library (Holly Oster)

Volume 96 of the *Proceedings* was received from the printer and mailed to members in October. Sixty-eight hard cover volumes were sent to Indiana academic and public libraries.

During fiscal 1988, 137 volumes were added to the library's collection, bringing the total to 11,612 volumes. Interlibrary loan requests totaled 407, a 32 percent increase over 1987.

"Advice of Allotment" of \$8,900 was received from the State Budget Agency in July. This will be applied to the cost of printing Volume 97 of the *Proceedings*.

Membership (Charlotte Boener)

Letters have been sent to emeritus members, section chairs, and Membership Committee members urging them to encourage others to join the Academy. Letters were also sent to a selected group of people who did not renew their memberships. The University of Southern Indiana reported that their Mathematics and Science departments have achieved 100 percent membership for all full-time staff.

Nominations (Benjamin Moulton)

A slate of officers was presented. Campaigne moved that the slate be presented to the membership at the General Meeting. The motion carried.

Publications (Moulton)

Endangered Species of Indiana by Whitaker and Gammon was published in early Spring. 1,000 copies were printed; approximately 500 remain.

Of the 5,000 copies of *Butterflies of Indiana*, approximately 2,200 have been sold.

Flora of Indiana, by Crankshaw, should be in press in December. Two new projects on wildflowers and on shrubs of Indiana have been proposed.

The committee approved a proposal to reduce the inventory of monographs, etc., by offering them for sale at reduced prices.

A procedural manual of operations was approved by the Committee and distributed to the Council.

Resolutions (William Davies)

Two resolutions have been developed by the Science Education Advisory Committee, reviewed by the Resolutions Committee, and published in the October *Newsletter*. Their full texts are recorded in the minutes of the General Meeting. Resolution #1 concerns the need for changes in educational proficiency statements and Indiana Statewide Testing for Educational Progress (ISTEP). Resolution #2 deals with the need for improved working conditions for secondary science teachers. At issue in the Council meeting is not the content of the resolutions, but whether they should be presented to the membership for discussion and vote at the General Meeting.

Jones moved that Resolution #1 be approved for presentation. The motion carried by voice vote.

Jones moved the Resolution #2 be approved. The vote was 9 in favor, 5 opposed, 15 abstentions. The parliamentarian ruled that the motion had won.

Science and Society (Edwin Squires)

A written report mentioned the committee's assistance in obtaining support for the exhibit "Charles Darwin and the Evolving Humanities." Full credit for the exhibit belongs to Gene Kritsky.

The Fall Symposium, "Science Education at the Crossroads," will be a joint activity of this committee and the Science Education Advisory Committee. Duval Jones urged members to attend.

Preliminary discussions are under way for a spring workshop in the use of computer technology to extend science literary in school systems.

Science Education (Duvall Jones)

The major activities of the committee have been the preparation of the Resolutions and the Symposium, which have been reported above.

Speaker of the Year (Stanley Burden)

Burden and Campaigne both commented on the fact that the By-Laws require the selection of the Speaker of the Year by June 1, but recently the selection has been later than that. June 1 should be honored; later selection causes scheduling problems.

Youth Activities (Virginia Rhodes)

The written report discusses the Junior Academy and the Science Talent Search, which have been covered above. The Indiana Science Olympiad, directed by Jan Woerner, will be held on March 11, at a site to be determined.

The fourth annual Hoosier Science and Engineering Fair will be held April 13-15, 1989, at the Children's Museum in Indianapolis. Ray Paschke, Executive Director of the Science Education Foundation of Indiana, will coordinate the event.

A grant of \$1,200 was received from AAAS for the support of high school science research projects. The Research Committee awarded grants in September.

Campaigne focused attention on the comment of the Junior Academy Director that he is operating autonomously, although the Constitution calls for an Advisory Committee appointed by the President of the Academy. There was discussion of the advisability of changing the Constitution to fit the style of the Director. The Youth Activities Committee was asked to study the matter and report its findings to the Council.

Corporate Relations (E. Campaigne)

At a committee meeting held on October 1, there was general agreement that Academy public relations are at a very low ebb. Scott Litherland, a member of the committee, outlined the requirements for a successful public relations program, and recommended that a professional public relations person be asked to develop a proposal with general program objectives and a reasonable budget. He volunteered to contact such a person and arrange for a presentation to the Executive Committee and/or Council at the Annual Meeting on November 10. The committee approved this action, and the Executive Committee has been contacted.

OLD BUSINESS

Melhorn reported on the status of the Undergraduate Research Symposium, which was endorsed in principle at the Spring meeting of the Council. There will be such a symposium at Butler University on April 21. Butler will underwrite the full cost, but they wish formal endorsement by the Academy, and permission to use the name of the Academy "in association with" Butler University. The Secretary was directed to write a letter to that effect. Kritsky suggested that the Academy might award prizes for the best papers; this would be a matter for Budget Committee action.

The search for Executive Liaison Officer is in progress. A general call has been sent out, and there have been several responses.

NEW BUSINESS

Eberly has reviewed the Constitution and could suggest some improvements. It was agreed that such a review should be carried out by the Committee on Amendments, whose charge is to review the wording of amendments submitted by members. Desired amendments should be sent to that committee. If they are to be voted on at the Fall 1989 meeting, they need to be in the hands of members 30 days before that meeting.

The meeting was adjourned at 5:05 p.m.

Respectfully submitted,
Richard L. Conklin
Secretary

INDIANA ACADEMY OF SCIENCE GENERAL MEETING

November 11, 1988

The meeting was called to order by President Wilton Melhorn at 1:20 p.m. in O'Laughlin Auditorium at St. Mary's College.

Dr. William Hickey of St. Mary's College welcomed the Academy and gave a "thumbnail sketch" of the college, emphasizing the importance of science in St. Mary's curriculum.

Dr. Dorothy Feigl, Dean of the College, spoke of the value of the Junior Academy as an experience that encourages young people in the study of science, and the Academy as a bringing together of scientists to share thoughts. She also emphasized the commitment of St. Mary's College to science teaching and research.

Benjamin Moulton, Chair of the Committee on Nominations, presented the following slate of officers for 1989:

President: Charlotte Boener
President-elect: Wendell McBurney
Secretary: James Haddock
Academy Foundation: Max Marsh
Bonding Committee: Benjamin Miller
Research Grants Committee: David Chesak

A motion by E. Campaigne, those nominated were elected unanimously.

Necrologist Fay Kenoyer Daily read biographical sketches of the following Academy members whose deaths were recorded in 1988:

A. Lee Caldwell
Felix Michael Haurowitz
Donald P. Hazlett
Robert L. Kent
Alfred Herman Meyer
John B. Patton
Charles P. Warren
Grant T. Wickwire

A moment of silence was observed in their honor.

The Secretary read the names of the following applicants for Emeritus membership:

Joseph S. Ingraham, Indianapolis
James E. Newman, West Lafayette
Russell K. Stivers, West Lafayette
Dan Wiersma, Volga, South Dakota

They were named Emeritus Members.

The Secretary read a brief account of the meeting of the Council.

The Treasurer reported that the finances of the Academy are in good order.

William Gommel, Chair of the Committee on Fellows, nominated the following persons:

Konrad J. Banaszak, U.S. Geological Survey
David D. Chesak, St. Joseph's College
Ernest R. Davidson, Indiana University Bloomington
Vivie Dunn, Indiana State Board of Health
Eldon L. Hood, Purdue University
Gerald Zimmerman, University of Indianapolis

They were elected to the rank of Fellow of the Academy, and certificates were presented to those who were present.

William Davies, Chair of the Committee on Resolutions, presented three resolutions, all of which had been approved for presentation by the Council.

The first resolution thanked St. Mary's College, its administration and faculty, and especially program co-chairs David Sever and Richard Jensen, for extending their hospitality, facilities, and hours of planning to assure the success of the meeting.

The other two resolutions were developed by the Science Education Advisory Committee:

1. NEED FOR CHANGES IN EDUCATIONAL PROFICIENCY STATEMENTS AND ISTEP

WHEREAS subject matter of the sciences, such as factual content and concepts, is based upon skills for observation, experimentation, and thinking, and since both subject matter and skills are necessary to the sciences and science education, and

WHEREAS state education proficiency statements for science now indicate only the skills expected of a student, rather than skills *and knowledge base* as mandated by IC 20-10.1-16-1,

BE IT RESOLVED that the Indiana Academy of Science recommend to appropriate state officials that proficiency statements be established for a knowledge base of science, in addition to the proficiency statements for skills of science, and

WHEREAS ISTEP is to provide information on the *overall* academic progress of students (IC 20-10.1-16-5),

BE IT RESOLVED that the Indiana Academy of Science recommends to these state officials that the Indiana State-

wide Testing for Educational Progress (ISTEP) include components which evaluate knowledge of subject matter in science separately from evaluation of science skills.

2. NEED FOR IMPROVED WORKING CONDITIONS FOR SECONDARY SCIENCE TEACHERS

WHEREAS quality of secondary science instruction is adversely affected when teachers have four or more different preparations per day, heavy student loads, large classes, or poor facilities; since laboratory classes can be hazardous when overcrowded or when there is inadequate supervision; and since it is inconvenient and distracting for all concerned when a teacher has to do lab preparations in a lab which is being used by another teacher and class,

BE IT RESOLVED that the Indiana Academy of Science recommends to appropriate state officials that accreditation standards be adjusted to provide optimal schedules, classrooms, and learning environments for science teachers to include, but not be restricted to the following:

- A. A maximum of three different teaching preparations per day
- B. A maximum of five science classes per day
- C. A maximum of 24 students per class
- D. Access to an adequately equipped laboratory at least two times per week for each class.
- E. A preparation period in a teacher's own classroom without another teacher's class meeting concurrently

All three resolutions were approved.

Duvall Jones urged all present to attend the Symposium "Science Education at the Crossroads" to be held at the Lilly Auditorium on December 3.

The meeting was adjourned at 2:14 p.m.

Dr. Hayden H. Murray of the Department of Geology at Indiana University Bloomington and Speaker of the Year for 1989, spoke on "Industrial Minerals—A Critical Key to Economic Development." He dedicated the speech to the memory of John B. Patton.

Richard L. Conklin
Secretary

**INDIANA ACADEMY OF SCIENCE
MEETING OF THE EXECUTIVE COMMITTEE**

December 10, 1988

The meeting was called to order by President Wilton Melhorn at 1:45 p.m. in the Auditorium of the Indiana State Library. Those present were Charlotte Boener, Standley Burden, Richard Conklin, James Haddock, Duvall Jones, Gene Kritsky, Scott Litherland, Wilton Melhorn, Holly Oster, Anne Rogers, and Donald Winslow.

Minutes of the meeting of November 10-11 were approved.

Saturday, February 25, 1989, was set as the date for a meeting of the Executive and Publications Committees with John Gallman of the Indiana University Press. The location will probably be the State Library.

Anne Z. Rogers presented a detailed estimate of the costs of implementing the activities discussed at the Executive Committee meeting in November. After considerable discussion of principles and details, Burden moved that the Academy accept the proposal for items totaling \$11,837. Her services are to begin as of March 1, 1989. The motion carried unanimously.

Burden distributed a draft of suggestions for the division of responsibilities among the Executive Liaison Officer (Winslow), the Public Relations Chair (Kritsky), and the Development Agent (Rogers). The version approved by the committee is appended to these minutes.

Membership of the Corporate Relations Committee was discussed. The consensus was that representatives of corporate members and of the other types of members should be on the committee. Perhaps this should be a designated responsibility of the Past President.

Winslow reported that a member wishes to have published in the *Proceedings* a paper which was not presented in any form at the Fall meeting. The Executive Committee reaffirmed the traditional position that in order to be published in the *Proceedings* a paper must have been presented at a meeting of the Academy.

The meeting was adjourned at 4:05 p.m.

Respectfully submitted,
Richard L. Conklin
Secretary

**SUGGESTED DIVISION OF RESPONSIBILITIES
BETWEEN EXECUTIVE LIAISON OFFICER,
PUBLICITY DIRECTOR,
AND DEVELOPMENT AGENT**

Established by
Executive Committee of the Indiana Academy of Science
December 10, 1988

- I. Executive Liaison Officer
 - A. Report to Executive Committee.
 - B. Serve as primary contact person to facilitate communication between various Academy officers and consultants in administering the day-to-day operations of the Academy business.
 1. Act as primary Academy contact with Development Agent
 2. Work closely with President in facilitating communication among Executive Committee, Development Agent and various Academy committees
 - C. Develop and Administer a Handbook of Operations for the Academy.
 - D. Coordinate Committee Chairs.
 1. Train new chairs
 2. Send information/reminders to all chairs
 3. Keep records on performance of all chairs and, to the extent possible, the committee members
 4. Develop and keep updated a list of new or additional persons willing and able to serve on committees
 5. Assist President in selection of committee chairs and committee members for following year based on the above records
 - E. Coordinate (work closely with appropriate chairs) in the publishing of the *Proceedings*, Abstract Booklet, Announcements of Fall and Spring meetings and Symposia.
 1. Work closely with the Editors and Program Chairs
 2. Advise, assist and provide backup where necessary to insure timely and accurate publications
 - F. Develop and maintain contacts with state agencies which will lead to increased cooperative efforts.
 1. Indiana State Museum
 2. Children's Museum
 3. Etc.
 - G. Coordinate interactions with other science and education groups.
 1. AAAS, SEFI, etc.
 - H. Coordinate, stimulate and assist in grant writing as directed by the Executive Committee.
 - I. Serve as Ex Officio member of all committees (without vote).
 - J. Chair the *ad hoc* Corporate Relations committee.

- II. Public Relations Director/*Newsletter* Editor
 - A. Publish and distribute *Newsletter*.
 - B. Coordinate, stimulate and assist in writing and evaluating press releases and media relations.
 - 1. Meet with Development Agent and establish policies and target groups for media relations
 - a. Do this at Fall meeting and work out policy and schedule for entire year
 - b. Submit to the Executive Committee for approval
 - C. Arrange and co-ordinate IAS exhibits and publicity at national science meetings.

- III. Development Agent
 - A. Science Notes.
 - 1. Sent to media
 - 2. Follow-up telephone conversations would generate information regarding where stories would appear and a report of where articles appear will be furnished to the Executive Committee
 - B. Youth Programs Publicity.
 - C. Communiques to Governor, State Superintendent of Schools and Key Legislators.
 - D. Corporate Contacts Regarding Youth Programs.
 - E. Corporate Solicitation.
 - F. New Member Recruitment Drive.
 - G. Peer Recruitment Drive.
 - H. Central Office Telephone and communication facilitation in close contact with Executive Liaison Officer.

INDIANA ACADEMY OF SCIENCE MEETING OF THE BUDGET COMMITTEE

December 10, 1988

The meeting was called to order by President-elect Charlotte Boener at 9:00 a.m. in the Auditorium of the Indiana State Library.

Members present and their office or committee were Charlotte Boener (President-elect.), Austin Brooks (Research Grants), Marshall Cady (Program), Richard Conklin (Secretary), Frank Guthrie (Academy Foundation), James Haddock (Secretary-elect), Duvall Jones (Treasurer), Gene Kritsky (Public Relations), Wilton Melhorn (President), Holly Oster (Library), Mark Whitman (Junior Academy), and Donald Winslow (Editor).

Treasurer Duvall Jones distributed the proposed budget.

There was considerable discussion of the sending of a delegate to the annual meeting of the AAAS. Whitman pointed out that the Junior Academy sends a high school teacher and a student, but they have not been asked to report on the meeting. After considering sending two delegates to the meeting, the committee decided to send one delegate to Section Y, and to budget \$850 for expenses. Gene Kritsky will be that delegate in 1989.

Cady reported that the printing office at Indiana University Southeast has estimated the cost of printing the abstract/program booklet for the Fall meeting to be \$3.10 per copy, a total of \$4,960 for 1600 copies. After some consideration of returning to a program without abstracts, the committee decided to retain the format used in recent years. \$2700 was budgeted for printing the spring and fall programs. Sending the fall program by second-class mail was recommended.

An increase of \$575 in the allocation for the Junior Academy was approved.

A request by the Biological Survey Committee for \$500 to prepare a directory of systematic biologists was denied.

At Kritsky's suggestion the allocation of \$1800 for the *Newsletter* and \$500 for Public Relations were combined under the *Newsletter* line item.

Whitman moved that a total of \$22,000 be allocated to Development and Liaison. The motion carried.

The Indiana Science Talent Search was allocated \$1000 and added to the Program Service group of line items.

Jones moved that the budget be approved as modified. The motion carried. A copy of the budget is attached to these minutes.

Upon motion by Jones the registration fees for the Fall meeting were set at \$5.00 for members and \$7.00 for non-members.

Jones moved that in the 1988 budget \$60 be transferred from the *Newsletter* to telephone expenses and \$200 to Development. The transfers were approved.

The meeting was adjourned at 1:00 p.m.

Respectfully submitted,
Richard L. Conklin
Secretary

INDIANA ACADEMY OF SCIENCE

Financial Report

1 January-31 December 1988

I. Operating Funds

	Receipts	Budgeted	Expenses	Budgeted
A. Income				
Dues	\$16,700.00	\$15,500.00		
Contributions	211.00	300.00		
Interest	3,276.65	2,300.00		
Reserve Funds		5,700.00		
B. Management Expenses				
Academy Development	111.50		\$1,725.82	\$1,850.00
CPA Fees			550.00	550.00
Fees and Insurance			294.80	500.00
Membership Services			50.00	200.00
Office Services			891.23	1,100.00
Office Supplies			470.90	650.00
Postage and Shipping			1,134.34	1,150.00
Telephone			91.00	110.00
Travel			340.00	350.00
Subtotal			<u>\$5,548.09</u>	<u>\$6,460.00</u>
C. Program Services				
AAAS Representative			\$ 500.00	\$ 500.00
Biological Survey			100.00	100.00
Editorial Board Awards			150.00	300.00
<i>Newsletter</i>			360.75	1,540.00
Public Relations			500.00	500.00
Science and Society Committee	2,824.00		3,295.59	1,600.00
Science Education Advis. Com.			142.92	200.00
Science Olympiad			386.81	400.00
Speaker of the Year			3,000.00	3,000.00
Subtotal			<u>\$9,136.07</u>	<u>\$8,840.00</u>
Transferable to Dedicated Accounts				
Junior Academy	(2,000.00)			\$2,000.00
Library Binding	(1,600.00)			1,600.00
Print Programs & Abstracts	(2,000.00)			2,000.00
Publications: Mailing	(700.00)			700.00
Reprints				2,200.00
Totals	<u>\$16,823.15</u>	<u>\$23,800.00</u>	<u>\$14,684.16</u>	<u>\$23,800.00</u>

II. Dedicated Funds

	1 January Balance	1988 Transfers and Income*	1988 Transfers & Expenditures	31 December Balance
Junior Academy of Science	\$ 819.45	\$ 2,000.00(T ₁)	\$ 3,668.60	\$ 150.85
Grant from IBM		1,000.00(I)		
Lilly Library Fund	7,007.64	0.00	69.47	6,938.17
Library Binding	3,369.50	1,600.00(T ₁)	0.00	4,969.50
Meetings and Programs	1,620.34		828.15	
Transfer from Program & Abstracts		2,000.00(T ₁)	3,008.66	
Registration Fees		1,308.32(I)	1,033.78	
Meals		1,264.29(I)	1,322.36	
Publications: Mailing	882.57	700.00(T ₁)	1,281.43	0.00
Publications: Printing	1,952.89	7,841.16(T ₁)	9,794.05	0.00
Grant from State of Indiana		8,900.00(I)		
Direct transfer to printer		(8,900.00)		
Publications: Sales	8,781.46	51,504.71(I)	45,410.75	14,875.42
Reprints: Volume 96	677.69	2,420.25(I)	2,726.98	370.96
Research Fellows	149.25	2,500.00(T ₂)	2,500.00	149.25
Research Grants: High School	300.00	500.00(T ₂)	1,928.00	576.00
Grant from AAAS		1,200.00(I)		
Contribution and Funds returned		10.00(I)	(494.00)	
Research Grants: Senior	658.56	33,460.00(T ₂)	33,610.00	623.97
Funds returned			(115.41)	
Science Talent Search	2,454.53	84.00(I)	2,527.41	2,511.12
Grant from Kappa, Kappa, Kappa		2,500.00(I)		
Totals	\$28,673.88	\$111,892.73	\$108,272.08	\$32,294.53

*I: Income from external sources

T₁: Transfer from Operating Accounts

T₂: Transfer from Academy Trust funds

III. Summary

	Operating Accounts	Dedicated Accounts	Totals
Balance: 1 January 1988	\$14,612.73	\$ 28,673.88	\$ 43,286.61
1988 Income	16,823.15	111,892.73	128,715.88
1988 Expenditures	14,684.16	108,272.08	122,956.24
Balance: 31 December 1988	\$16,751.72	\$32,294.53	\$49,046.25

IV. Bank Balances (as of 31 December 1988)

Bank One, Rensselaer, IN: Money Market Checking Acct #21-0497-4	\$ 9,448.03
Money Market Savings Account #70-0325-4	12,337.35
CD #11985	3,542.30
Bank One, Lafayette, IN: CD #94001654185	5,000.00
First of America Bank of Rensselaer, IN, CD #100212712	9,266.64
Indiana Federal S&L, Rensselaer, IN: CD #10620000140111	3,879.75
Lafayette National Bank, Remington, IN: CD #370-02531-8	2,750.08
CD #302641	2,822.10
Total	\$49,046.25

V. Foundation Funds

	Research Account (430-00-0)	J.S. Wright Fund (430-02-8)	Invested Income (430-02-8)	1988 Budgeted Expenses
A. Assets (1 January 1988)				
Cash	\$ 14.14	\$ (4,755.96)	\$ 4,980.88	
Tax Value of Investments	53,054.95	562,612.43	135,759.55	
Tax Value of Account	53,069.09	557,856.47	140,740.43	
B. Income and Transfers				
Dividends	606.00	29,275.50		
Interest	2,639.86	25,277.15	9,305.81	
Transferred from Invested Income		1,865.66		
Sales of Investments (net)		(1,283.12)	213.20	
Transfer from J. S. Wright Fund			52,675.18	
C. Expenditures and Transfers				
Fiduciary Fees	(16.18)	(6,602.51)	(77.93)	(7,000.00)
Distributions to Programs				
Research Grants—High School	(300.00)		(200.00)	(1,400.00)
Research Grants—Senior			(33,460.00)	(35,000.00)
Summer Research Fellow			(2,500.00)	(5,000.00)
Print <i>Proceedings</i> —Volume 96			(7,841.16)	(10,500.00)
Print <i>Butterflies of Indiana</i>			(35,000.00)	(35,000.00)
Print Endangered Species			(3,988.00)	(8,000.00)
Flora of Indiana				(8,000.00)
Program and Abstract Booklet (1988)				(1,500.00)
Climate of Indiana				(15,000.00)
Executive Liaison Officer				(11,000.00)
Transfer from Dedicated Funds				4,000.00
Transfer to Invested Income		(52,675.18)		
Transfer to J. S. Wright Fund			(1,865.66)	
Balance—30 December 1988	55,998.77	553,713.97	118,001.87	
D. Assets—30 December 1988				
Cash	43.82	53.91	6,339.37	
Tax Value of Investments				
Short Term Investments	10,300.00	61,900.00	71,700.00	
Bonds	25,742.19	300,864.96	39,962.50	
Stocks	19,912.76	190,895.10		
Tax Value of Accounts—				
30 December	55,998.77	553,713.97	118,001.87	
Market Value of Principal—				
30 December	55,146.82	1,346,548.16		
E. Summary				
Total Assets of Foundation—				
1 January 1988		751,665.99		
Total Income—1988		66,034.40		
Total Expenditures—1988		89,985.78		
Total Assets of Foundation—				
30 December 1988		727,714.61		

VI. Notes

- A. Membership. There were 1220 memberships for 1988 as of 31 January 1989
- | | |
|---|-----------------------|
| 3 honorary members | 89 sustaining members |
| 5 corporate members
(including 14 persons) | 687 members |
| 4 life members | 152 associate members |
| 105 emeritus members | 113 student members |
| | 62 clubs |
- 9 members deceased in 1988 are not included in the total above
 231 memberships on file from 1987 were not paid for in 1988
 187 new and reinstated members joined the Academy in 1988
 152 members and clubs were dropped for nonpayment of 1986 dues
 180 members and clubs were dropped for nonpayment of 1987 dues
- B. Dues structure for 1988:
- | | |
|---------|-----------------------------------|
| \$ 5 | for clubs and student memberships |
| 10 | for associate memberships |
| 15 | for members |
| 25 | for sustaining members |
| 300 | for life memberships |
| 150-500 | for corporate memberships |
| 50-100 | for institutional memberships |
- C. Reprints. All authors of papers in Volume 96 of the *Proceedings* have paid for reprints which they ordered. Cost of the reprints to the Academy was \$2,726.98. Authors paid the Academy \$3,046.75 for reprints.
- D. Publications. Sales of reprints, monographs, *Proceedings*, and other publications netted \$5,787.23 in 1988. Sales of the *Butterflies* of Indiana are shown below.
 1987 Regular sales: 759 copies with royalty of \$6,445.10
 1987 Special sales: 1,121 copies with royalties of \$750.00
 1988 Regular sales: 528 copies with royalties of \$4,569.52
 1988 Special sales: 11 copies with royalties of \$443.72
- E. Research Grants. Funds totaling \$37,428.59 have been awarded to members and students.
- F. Grants Received. The State of Indiana contributed \$8,900.00 toward publication of the Academy *Proceedings*. The Science Talent Search received \$2,500 from Kappa, Kappa, Kappa Sorority, and the American Association for the Advancement of Science granted \$1,200 for high school students to use in their research.
- G. Meeting Income and Costs.
 Income in addition to dues: \$2,723.41. (Registration fees, \$1,308.32; meals, \$1,264.29)
 Expenses—Spring Meeting: \$179.97. (Print program, \$121.90; meal expenses, \$58.07)
 Fall Meeting: \$3,885.29. (Print forms and abstract booklet; \$975.51, mailings (2), \$1876; refreshments and Av equipment, \$1,033.78)
- H. Science Education Symposium. 180 persons.
 Registration fees and contributions: \$2,824.00
 Expenses: \$3,156.81

VII. INDIANA ACADEMY OF SCIENCE BUDGET 1989

1.	Operating Accounts—Receipts		
	Dues		\$ 17,500
	Contributions		300
	Interest		3,000
	Transfer from Foundation Fund		20,213
	Reserve funds (budgetary deficit)		8,725
	Total		\$ 49,738
2.	Operating Accounts—Disbursements		
	Management Expenses		
	Executive Liaison Officer		9,000
	Academy Development		2,000
	CPA fees		550
	Equipment repair		500
	Fees and insurance		400
	Office services		1,150
	Office supplies		850
	Postage and shipping		1,400
	Telephone		150
	Travel		600
		Subtotal	\$ 16,600
	Program services		
	AAAS representative		850
	Biological Survey		1,050
	Editorial Board Awards		300
	Public Relations Consultant		11,213
	<i>Newsletter</i>		2,300
	Science and Society Committee		1,600
	Science Education Advisory Comm.		500
	Science Olympiad		500
	Speaker of the Year		700
	Youth Activities Committee		3,150
		Subtotal	\$ 22,163
	Transferable to Dedicated Accounts		
	Abstract booklet and programs		2,700
	Junior Academy		2,575
	Library binding		1,600
	Publications: Mailing		800
	Reprints		2,200
	Lilly Library Fund		100
	Science Talent Search		1,000
		Subtotal	\$ 10,975
		Total	\$ 49,738
3.	Trust Funds		
	Anticipated Income and Expendable Funds (30 September 1988)		
	Research Fund	(00430-00-0)	\$ 3,400
	John S. Wright Fund	(00430-01-9)	55,000
	Invested Income Account	(00430-02-8)	131,000
	Approved Expenditures		
	Fiduciary fees		\$ 7,000
	Research grants for Senior Academy members		37,000
	Research fellowships for high school teachers		5,000
	Research grants for high school students		1,400
	Expenses of Research Grants Committee		200
	Executive Liaison Officer		9,000
	Publications		
	Program and Abstract booklet		1,500
	<i>Proceedings</i> (Volume 97)		11,000
	Climate of Indiana		15,000
	Flora of Indiana		8,000
	Symposium booklet		2,500
	Public Relations Consultant		11,213
		Total	\$108,813