

PROCEEDINGS  
*of the*  
Indiana Academy  
of Science

*Founded December 29, 1885*

•  
*Volume 84*  
*1974*

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BENJAMIN MOULTON, *Editor*  
Indiana State University  
Terre Haute, Indiana

•  
Spring Meeting  
May 3-4, 1974  
McCORMICK'S CREEK STATE PARK  
Spencer, Indiana

Fall Meeting  
October 31-November 2, 1974  
DEPAUW UNIVERSITY, Greencastle, Indiana

Published at Indianapolis, Indiana  
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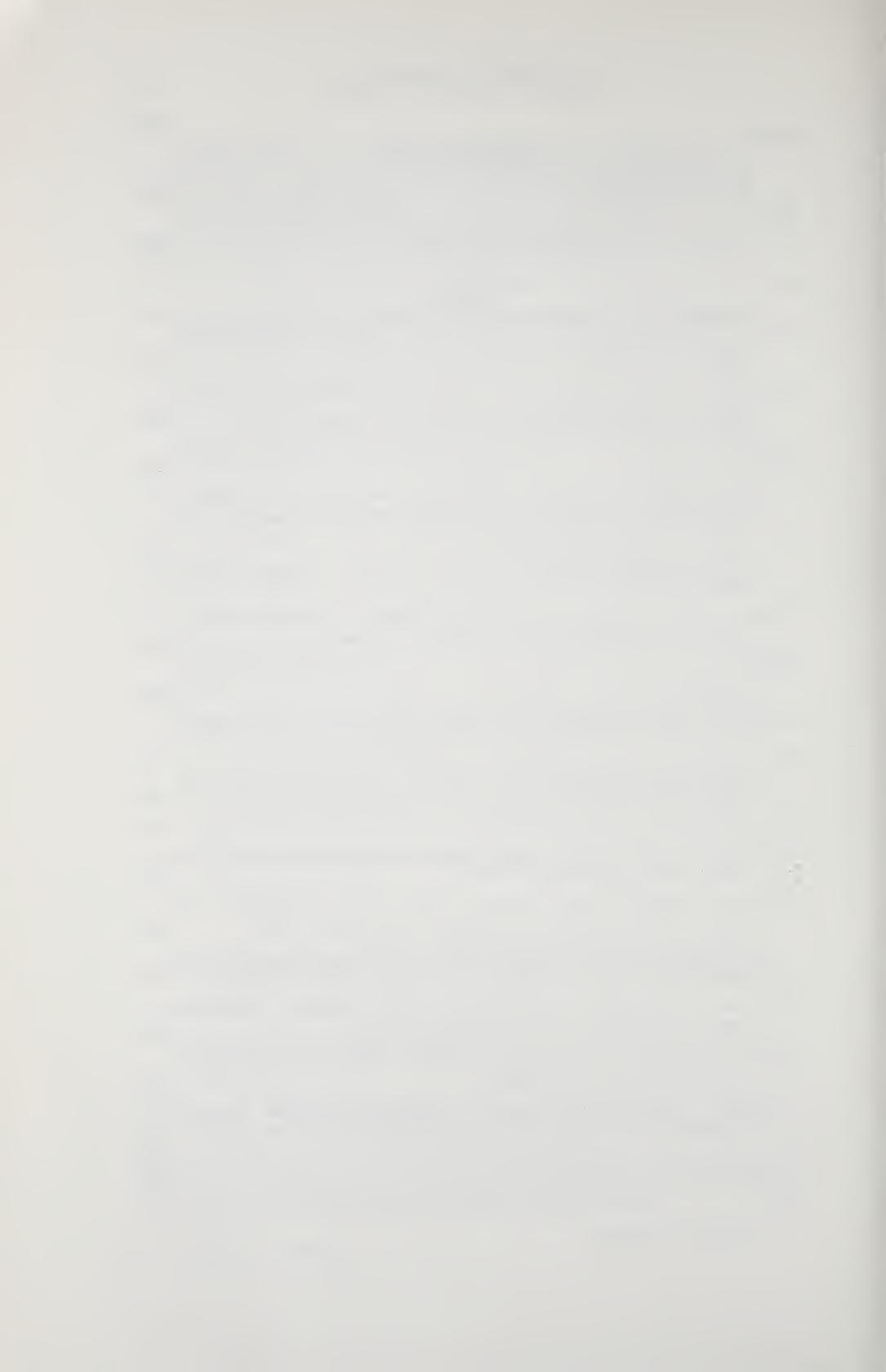
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PART 1

THE WORK  
OF THE  
ACADEMY

1974

DAMIAN SCHMELZ, *President*

1900

THE  
LIBRARY  
OF THE  
MUSEUM OF  
COMPARATIVE ZOOLOGY  
AND ANATOMY  
HARVARD UNIVERSITY

1900

INDIANA ACADEMY OF SCIENCE  
Officers and Committees for 1974

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(1974) St. Meinrad College, St. Meinrad, IN 47577  
Telephone: 812-357-6580
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(1974) Indiana University, Bloomington, IN 47401  
Telephone: 812-337-2862
- Secretary ..... JERRY J. NISBET, Department of Biology  
(1973-74) Ball State University, Muncie, IN 47306  
Telephone: 317-289-6877
- Treasurer ..... CLYDE R. METZ, Department of Chemistry  
(1972-74) Indiana Univ.-Purdue Univ., Indianapolis, IN 46205  
Telephone: 317-635-8661
- Editor ..... MARION T. JACKSON, Department of Life Sciences  
(1970-74) Indiana State University, Terre Haute, IN 47809  
Telephone: 812-232-6311
- Director of  
Public Relations ..... CLARENCE F. DINEEN, Department of Biology  
(1974) Saint Mary's College, Notre Dame, IN 47556  
Telephone: 219-284-4061
- Chairmen Program  
Committee ..... FORST D. FULLER and DONALD J. COOK  
(1974) DePauw University, Greencastle, IN 46135  
Telephone: 317-653-9721

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P.O. Box 283  
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- CHARLES M. KIRKPATRICK (1978) ..... Forestry, Purdue University  
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| DELLEUR, J. W.  | *HOPP, W. B.     | *MICHAUD, H. H. |
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- |                  |                       |                  |
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| *MORGAN, W. P.   | OSGOOD, D. W.         | SHIMER, S S.     |
| MOULTON, B       | PATTON, J B.          | ST. JOHN, P A.   |
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| NISBET, J. J.    | SCHMELZ, D. V.        | *YOUSE, H R.     |

\* Past President of Academy

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- LOIS BURTON, Chairman, Library Committee
- D. J. COOK, Co-Chairman, Program Committee
- F. D. FULLER, Co-Chairman, Program Committee
- L. E. POORMAN, Director, Junior Academy
- D. R. WINSLOW, Chairman, Youth Activities
- H. G. DAY, Chairman, Science and Society Committee

COMMITTEES APPOINTED BY THE PRESIDENT

(The President and President-Elect are ex-officio members of all committees)

Academy Representative to A.A.A.S. Section and Delegate to A.A.S.

- WILLIS H. JOHNSON (1974) ..... Department of Biology,  
Wabash College  
Crawfordsville, IN 47933  
Tel. 317-362-1400

Auditing Committee

- C. A. DHONAU, Chairman ..... Vincennes University  
Vincennes, IN 47951  
Tel. 812-882-3350
- R. E. DOLPHIN ..... 1118 Chestnut St.  
Vincennes, IN 47951

Youth Activities Committee

- DONALD R. WINSLOW, Chairman & Director,  
Science Talent Search ..... Indiana University  
Bloomington, IN 47401  
Tel. 812-337-6352
- KARL KAUFMAN, Coordinator of Science  
Fairs ..... Butler University  
Indianapolis, IN 46207

|  |  |
|--|--|
| LAWRENCE POORMAN, Director, Junior<br>Academy of Science ..... | Department of Physics<br>Indiana State University<br>Terre Haute, IN 47809                       |
| JERRY COLGLAZIER .....   | Office of State Supt. of<br>Public Instruction<br>120 W. Market Street<br>Indianapolis, IN 46204 |
| FLOYD CONARD .....   | Westside High School<br>9th and Gerry Streets<br>Gary, Indiana 46402                             |
| KEITH HUNNINGS .....   | New Haven High School<br>900 Prospect Avenue<br>New Haven, IN 46774                              |
| JANE KAHLE .....   | Department of Biological<br>Sciences<br>Purdue University<br>West Lafayette, IN 46207            |
| JAMES SCHWENGEL .....  | Harrison High School<br>211 Fielding Road<br>Evansville, IN 47715                                |
| F. KEITH AULT .....  | Department of Chemistry<br>Ball State University<br>Muncie, IN 47306                             |
| ELLIOT KOYANAGI .....  | Bloomington High School<br>North<br>3901 Kinser Pike<br>Bloomington, IN 47401                    |
| JOHN MOODY .....   | Division of Education<br>Indiana University Southeast<br>New Albany, IN 47150                    |
| MARY J. PETERSEN .....   | Oliver P. Morton Senior H.S.<br>6915 Grand Avenue<br>Hammond, IN 46323                           |

#### 1974 Indiana Regional Science Fairs

| Fair and Director   | Dates            |
|---|------------------|
| <b>Calumet Regional Science Fair</b><br>MR. P. VINCENT FLANNERY<br>3130 Highway Avenue<br>Highland, IN 46322<br>Tel. 219-838-0499   | April 5, 6, 7    |
| <b>Central Indiana Regional Science Fair</b><br>DR. NICHOLAS PURICCHIA<br>DR. LEWIS SHARP<br>Marian College<br>3200 Cold Spring Road<br>Indianapolis, IN 46222<br>Tel. 317-924-3291 | March 21, 22, 23 |

- East Central Indiana Regional Science Fair**  
 DR. GEORGE W. WELKER March 23  
 Professor of Biology  
 Ball State University  
 Muncie, IN 47306  
 Tel. 317-288-7542
- Lafayette Regional Science Fair**  
 PROFESSOR VICTOR GOLDSCHMIDT March 23, 24  
 School of Mechanical Engineering  
 Purdue University  
 West Lafayette, IN 47907  
 Tel. 317-494-8171
- Northern Indiana Regional Science Fair**  
 DR. KENNETH ESAU April 18, 19, 20  
 Professor of Biology, Bethel College  
 Mishawaka, IN 46544
- Northeastern Indiana Regional Science Fair**  
 DR. ARTHUR W. FRIEDEL April 13  
 Purdue University at Fort Wayne  
 2101 Coliseum Blvd. East  
 Fort Wayne, IN 46805  
 Tel. 219-483-8121
- Northeastern Indiana Tri-State Regional Science Fair**  
 DR. CHESTER A. PINKHAM March 15, 16, 17  
 Tri-State College, Angola, IN 46703  
 Tel. 219-665-3141
- Northwestern Indiana Regional Science Fair**  
 PROFESSOR A. C. KOESTER March 31  
 Valparaiso University  
 Valparaiso, IN 46383  
 Tel. 219-462-5111
- South Central Indiana Regional Science Fair**  
 DR. KENNETH D. LASER March 24  
 Visiting Assistant Professor  
 Division of Biological Sciences  
 Indiana University  
 Bloomington, IN 47401  
 Tel. 812-337-1070
- Southeastern Indiana Regional Science Fair**  
 ANTHONY J. SCHAFFER April 7  
 P.O. Box 679  
 New Albany, IN 47150  
 Tel. 812-945-2731 Ext. 384
- Tri-State Regional Science Fair**  
 DR. EDWARD C. SUSAT April 5, 6  
 University of Evansville, P.O. Box 329  
 Evansville, IN 47701  
 Tel. 812-479-2663

**West Central Indiana Regional Science Fair**

DR. MARSHALL PARKS

March 30

Division of Science Training

Indiana State University

Terre Haute, IN 47809

Tel. 812-232-6311 Ext. 5848

**Library Committee**

|                             |  |
|-----------------------------|--|
| LOIS BURTON, Chairman ..... | Indiana State Library<br>Indianapolis, IN 46204<br>Tel. 317-633-6425 |
| NELLIE COATS .....          | Indiana State Library<br>Indianapolis, IN 46204                      |
| W. R. EBERLY .....          | Zoology, Manchester College<br>North Manchester, IN 46962            |
| ELI LILLY .....             | Eli Lilly and Company<br>Indianapolis, IN 46206                      |

**Programs Committee**

Co-chairmen

DONALD J. COOK &amp; FORST D. FULLER

DePauw University

Greencastle, IN 46135

Tel. 317-653-9721

**Publications Committee**

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| M. F. BAUMGARDNER .....       | Agronomy, Purdue Univ.<br>Lafayette, IN 47907  |
| W. N. MELHORN .....           | Geosciences, Purdue Univ.<br>Lafayette, IN 47907   |
| J. F. PELTON .....            | Botany, Butler University<br>Indianapolis, IN 46208                                      |
| B. K. SCHWARTZ, JR. ....      | Anthropology,<br>Ball State University<br>Muncie, IN 47306                               |
| C. F. DINEEN .....            | Biology, St. Mary's College<br>Notre Dame, IN 46556                                      |
| W. B. BUNGER .....            | Chemistry,<br>Indiana State University<br>Terre Haute, IN 47809                          |

### Newsletter

CLARENCE F. DINEEN ..... Biology Dept.  
 St. Mary's College  
 Notre Dame, IN 46556  
 Tel. 219-284-4061

### Membership Committee

JOHN B. PATTON, Chairman ..... Geology, Indiana University  
 Bloomington, IN 47401  
 812-337-2862

#### Corporation Membership:

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 Indianapolis, IN 46206  
 KARL L. KAUFMAN ..... Butler University  
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#### Institutional Membership:

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 FRANK A. GUTHRIE ..... Rose-Hulman Institute  
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#### Emeritus Membership:

WINONA H. WELCH, Director ..... DePauw University  
 Greencastle, IN 46135

#### Club Membership:

DONALD R. WINSLOW, Director ..... Indiana University  
 Bloomington, IN 47401

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 Terre Haute, IN 47809  
 Tel. 812-232-6311  
 PAUL H. GEBHARD (1974) ..... Anthropology,  
 Indiana University  
 Bloomington, IN 47401  
 JOHN PELTON (1975) ..... Botany, Butler University  
 Indianapolis, IN 46208  
 R. E. GORDEN (1975) ..... Cell Biology,  
 Notre Dame University  
 Notre Dame, IN 46556  
 G. F. HENNION (1974) ..... Chemistry, Notre Dame Univ.  
 Notre Dame, IN 46556  
 JAMES B. COPE (1974) ..... Ecology, Earlham College  
 Richmond, IN 47374  
 ROBERT MILES (1975) ..... Engineering, Purdue Univ.  
 West Lafayette, IN 47907  
 B. ELWOOD MONTGOMERY (1975) ..... Entomology, Purdue Univ.  
 West Lafayette, IN 47907

|                           |  |
|---------------------------|--|
| CHARLES E. WEIR (1976)    | History of Science,<br>Indiana University<br>Bloomington, IN 47401       |
| W. H. HEADLEE (1974)      | Microbiology, I.U.P.U.I.<br>Indianapolis, IN 46205                       |
| R. L. CONKLIN (1974)      | Physics, Hanover College<br>Hanover, IN 47243                            |
| THOMAS R. MERTENS (1976)  | Plant Taxonomy,<br>Ball State University<br>Muncie, IN 47306             |
| JOHN A. RICKETTS (1976)   | Science Education,<br>DePauw University<br>Greencastle, IN 46135         |
| RUSSELL K. STIVERS (1976) | Soils & Atmos. Science,<br>Purdue University<br>West Lafayette, IN 47907 |
| WILLIAM R. EBERLY (1975)  | Zoology, Manchester College<br>North Manchester, IN 46962                |

#### Resolutions Committee

|                       |   |
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| JAMES E. NEWMAN       | Agronomy, Purdue Univ.<br>Lafayette, IN 47907                           |

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| PAUL R. QUINNEY              | Chemistry, Butler University<br>Indianapolis, IN 46208                    |

#### Necrologist

|               |   |
|---------------|---|
| FAYE K. DAILY | 5884 Compton Street<br>Indianapolis, IN 46220<br>Tel.: 317-251-4719 |
|---------------|---|

#### Parliamentarian

|                 |  |
|-----------------|--|
| PAUL WEATHERWAX | Botany, Indiana University<br>Bloomington, IN 47401<br>Tel. 812-337-1748 |
|-----------------|--|

#### Science and Society Committee

|                                   |  |
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General Motors Corporation  
P.O. Box 894  
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Purdue University  
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- DR. OATTIS PARKS (1975) . . . . . 105 S. Meridian Street  
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Greencastle, IN 46135
- DR. AUSTIN W. FERGUSON (1976) . . . . . Merry Lea Environ. Center  
P.O. Box 263  
Wolf Lake, IN 46796
- DR. WILLIS JOHNSON (1976) . . . . . Biology, Wabash College  
Crawfordsville, IN 47933
- DR. GERALDINE HUITINK (1976) . . . . . Chemistry, I.U.—South Bend  
South Bend, IN 46615

SPECIAL COMMITTEES APPOINTED BY THE PRESIDENT

**Biological Survey Committee**

- JACK R. MUNSEE, Chairman . . . . . Life Sciences,  
Indiana State University  
Terre Haute, IN 47809  
Tel. 812-232-6311

(Other members to be appointed)

**Emeritus Member Selection Committee**

- WINONA H. WELCH, Chairman . . . . . DePauw University  
Greencastle, IN 46135  
Tel. 317-653-9721
- ROBERT H. COOPER . . . . . R.R. 9, Box 242,  
Muncie, IN 47302
- EDWARD L. HAENISCH . . . . . Chemistry, Wabash College  
Crawfordsville, IN 47933

HOWARD MICHAUD ..... Forestry, Purdue University  
Lafayette, IN 47907

**Preservation of Scientific Areas Committee**

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616 State Office Building  
Indianapolis, IN 46204  
Tel. 317-633-4164

R. O. PETTY ..... Wabash College  
Crawfordsville, IN 47933

RAY GUTSCHICK ..... Notre Dame University  
Notre Dame, IN 46556

CARL KREKELEK ..... 360 McIntyre Court,  
Valparaiso, IN 46383

DAMIAN SCHMELZ ..... St. Meinrad College  
St. Meinrad, IN 47577

ROBERT WEBER ..... 3649 Algonquin Pass  
Fort Wayne, IN 46807

WINONA H. WELCH ..... DePauw University  
Greencastle, IN 46135

MARION T. JACKSON ..... Life Sciences,  
Indiana State University  
Terre Haute, IN 47809

J. DAN WEBSTER ..... Zoology, Hanover College  
Hanover, IN 47243

CARROLLE MARKLE (Honorary) ..... Earlham College,  
Richmond, IN 47374

**"Speaker of the Year" Selection Committee**

H. G. DAY, Chairman (1974) ..... Chemistry, Indiana Univ.  
Bloomington, IN 47401  
Tel. 812-337-1568

A. A. LINDSEY (1975) ..... Biological Sciences,  
Purdue University  
Lafayette, IN 47907

FRANK A. GUTHRIE (1976) ..... Chemistry,  
Rose-Hulman Institute  
Terre Haute, IN 47803

**Academy Representative on Indiana Natural Resources Commission**

D. W. OSGOOD ..... Zoology, Butler University  
Indianapolis, IN 46208  
Tel. 317-283-9411

# SPRING MEETING

McCORMICK'S CREEK STATE PARK, Spencer, Indiana

## MINUTES OF THE EXECUTIVE COMMITTEE MEETING

May 3, 1974

The meeting was called to order by President Damian Schmelz at 4:15 p.m. in the Conference Room of Canyon Inn, McCormick's Creek State Park, Spencer, Indiana. The minutes of the Executive Committee and of the General Session of the Fall, 1973 meeting of the Academy were approved. The following reports were accepted by general consent unless a specific motion is recorded.

**Treasurer:** Clyde Metz made a financial report for the period January 1 through April 30, 1974. The summary from this report follows:

|                          | Academy<br>Accounts | Administered<br>Accounts | Total       |
|--------------------------|---------------------|--------------------------|-------------|
| Balance: January 1, 1974 | \$8,727.21          | \$20,103.72              | \$28,830.93 |
| 1974 Income              | 3,334.42            | 2,853.00                 | 6,187.42    |
| 1974 Expenditures        | 6,531.48            | 4,066.94                 | 10,598.42   |
| Balance: April 30, 1974  | 5,530.15            | 18,889.78                | 24,419.93   |

The Treasurer also reported that AAAS will make available grants totaling \$768 (\$384 for 1973 and \$384 for 1974) to the Indiana Academy of Science for the support of high school or college student research projects. This grant is calculated on the basis of \$1.00 for each person who is a member of AAAS and who is also a member of IAS.

**Representative to Association of Academies of Science (AAS):** Willis Johnson reported on past and present relationships between AAAS and state academies of science. Mr. Johnson's recommendations to realign our relationships with AAAS were formulated in the following motion:

That the Indiana Academy of Science enroll in Section X as an affiliate of AAAS and that our representative be appointed for a 3-year, renewable term, and

that the Indiana Academy of Science change its constitution to provide for the appointment of one of our representatives to AAS to serve also as our representative to Section X for a 3-year, renewable term, and

that the Executive Committee authorize transportation costs and a per diem allowance (\$25.00 per day) for the Academy representative to attend the annual AAAS meeting.

Seconded and passed.

**Science and Society Committee:** Harry Day summarized activities relative to the Indiana Academy of Science' sponsorship of legislative action which would establish a Science and Technology Advisory Council

in Indiana. The committee will continue its efforts to seek passage of this legislation.

**Membership Committee:** John Patton reported that the committee is developing a more extensive list of college and university scientists who are potential members. Karl Kaufman, Otto Behrens, and John Patton have been appointed to a committee to study ways and means of encouraging corporations to join the Academy.

**Emeritus Membership Committee:** Winona Welch reported on requests and eligibility for emeritus membership and then made the following motion:

That the following individuals be elected to Emeritus Membership:

Alton A. Lindsey  
 Marion A. Rector  
 Walter I. Brumbaugh  
 Nathan E. Pearson  
 Gerald L. Alexander

Seconded and passed.

A discussion was held concerning a proposed substitution for "Article II Membership" of the constitution of the Academy. The following actions were taken:

**Motion:** That the concept of not considering Emeritus Members for Academy offices be rejected.

Seconded and passed.

**Motion:** That the title *Fellow* be awarded strictly as an honor, that the dues structure be independent of the title, and that the membership category "Fellows" be eliminated.

Seconded and passed.

The Fellows Committee was charged with the task of redefining the concept of "Fellow" in light of the Executive Committees' action, and with bringing a report of the Executive Committee at the Fall, 1974 meeting.

**Motion:** That the membership categories *Annual Membership* and *Senior Membership* be retained.

Seconded and passed.

**Motion:** That the membership class "Annual Member" be changed to "Member".

Seconded and passed.

**Motion:** That the following proposed and amended version of Article II Membership be substituted for Article II Membership of the Constitution of the Academy.

## Article II. Membership

Sec. 1. The membership of the Academy shall consist of: Members, Student Members, Senior Members, Sustaining Members, Life Members, Club Members, Institutional Members, Corporate Members,

Emeritus Members, and Honorary Members. Nomination for membership in any one of these classes shall be submitted to the Executive Committee, and those approved by this committee shall be referred to the membership present at any annual or spring meeting, where those nominees receiving a majority vote shall be declared elected to membership. The privileges and obligations of members of each class shall be determined by the Executive Committee.

Sec. 2. *Members.* Any person interested in any aspect of science and in accord with the objectives of the Academy may be elected to Annual Membership.

Sec. 3. *Student Members.* Any graduate or undergraduate college or university student may be elected to Student Membership. The tenure of this class of membership shall be limited to five years.

Sec. 4. *Senior Members.* Any person interested in science may, on making payment of dues established by the Executive Committee, elect Senior Membership.

Sec. 5. *Sustaining Members.* Any person interested in science may, on making payment of dues established by the Executive Committee, elect Sustaining Membership.

Sec. 6. *Life Members.* Any member of the Academy in good standing may, by making the single payment of dues established by the Executive Committee, elect Life Membership.

Sec. 7. *Club Members.* Any junior or senior high school science club in Indiana may, on recommendation of the Director of the Junior Academy of Science, be elected to Club Membership.

Sec. 8. *Institutional Members.* Any college, university or other non-profit organization in Indiana may be elected to Institutional Membership.

Sec. 9. *Corporate Members.* Any corporation organized and operated for profit in Indiana may be elected to Corporate Membership.

Sec. 10. *Emeritus Members.* Any member who, at the time of professional retirement and after being a member for 25 years, petitions the Emeritus Membership Selection Committee may, on approval of that committee, be elected to Emeritus Membership.

Sec. 11. *Fellows.* Any member of the Academy may, on recommendation of the Committee on Fellows, be elected a Fellow of the Academy. The title is awarded as an honor and is independent of the class of membership.

Sec. 12. *Honorary Members.* For exceptional recognition, any member may be elected to Honorary Membership.

**Publications Committee:** Marion Jackson reported that reprints for Vol. 82 of the Proceedings have been circulated. A hardcover binding will not be available for Vol. 83 because of the reduction in State support for publication. The Committee has recognized the Indiana State Museum as an outlet for Academy monographs. The following motion was made concerning financial arrangements with the Museum:

That a 20% discount be allowed to the Indiana State Museum in recognition of savings in handling costs when lots of ten (10) or more copies of the same monograph are placed.

Seconded and passed.

**Special Reports Related to Publications:** Clyde Metz reported that the Academy has obtained an attorney's ruling that the Academy will not endanger its tax-free status by entering into sales of its monographs or by raising charges for its publications.

William Eberly has made inquiries about reprinting *Natural Features of Indiana*. Two options are currently being considered: a commercial press will produce the book for the Academy at a cost of \$3.00 per copy if 2,000 copies are ordered; and the Indiana University Press has expressed interest in reprinting and handling sales of the book in which case a royalty would be paid to the Academy.

Otto Behrens reported that we have not yet been successful in obtaining a satisfactory response in our effort to encourage the State to provide additional funding to defray publication costs for the Proceedings.

**Comments by the President:** Damian Schmelz reported that discussions have been held concerning the possible establishment of a new Computer Sciences Section of the Academy. Inquiries concerning the reactivation of the Mathematics Section have not been fruitful as yet.

The President reminded the Executive Committee that several amendments to the Constitution have not been acted on by the Academy membership.

**Preservation of Scientific Areas Committee:** William Barnes reported that 150 natural areas (17,497 acres) were recommended for preservation in the volume on Natural Areas in Indiana. Since the volume was printed, 25 more areas (3,000 acres) have been added to the list. To date, 28 Nature Preserves (5,517 acres) have been dedicated in the State. This year the State Legislature appropriated \$300,000 for acquisition of new areas.

**Adjournment:** The meeting was adjourned at 6:15 p.m.

Respectfully submitted,  
JERRY J. NISBET, Secretary

## MINUTES OF THE GENERAL SESSION

May 3, 1974

The meeting was called to order by President Damian Schmelz at 9:15 p.m. in the Canyon Inn, McCormick's Creek State Park, Spencer, Indiana.

**Announcements:** (1) Damian Schmelz announced the proposed changes in classes of membership which will be submitted to the membership at the Fall, 1974 meeting.

(2) The Academy is making plans to become involved in the Bi-Centennial Celebration. Ben Swartz will coordinate anthropological collections for Indiana Museums.

(3) Reprinting of *Natural Features of Indiana* is being considered.

(4) This year the State appropriation for supporting publication of the Proceedings was \$1,200. A committee consisting of Otto Behrens, John Patton and Lois Burton has been appointed to work on the issue of how the State's traditional allocation of \$4,000 for support of the publication may be reinstated.

(5) Vol. 83 of the Proceedings is to be issued in soft cover.

Following discussion of announcements the membership took the following actions:

**Motion:** That the Publications Committee pursue the options of reprinting *Natural Features of Indiana* and report recommendations to the President and to the Executive Council prior to taking action if a decision in the best interest of the Academy is needed prior to the Fall, 1974 meeting of the Academy.

Seconded and passed.

**Motion:** That the Academy reconsider its action to have the Proceedings published in softcover and that Vol. 83 and future issues be published in hardcover.

**Substitute Motion:** That the Publications Committee investigate the charges for hardcovers and report to the Executive Council. The Executive Council is authorized to make a decision about the type of cover to be used.

The substitute motion was seconded and passed.

**Adjournment:** The meeting adjourned at 10 p.m.

Respectfully submitted,  
JERRY J. NISBET, Secretary

# FALL MEETING

## MINUTES OF THE EXECUTIVE COMMITTEE MEETING

DEPAUW UNIVERSITY, Greencastle, Indiana

October 31, 1974

The meeting was called to order by President Damian Schmelz at 7:30 p.m. in Room 120 of the Science and Mathematics Center, DePauw University, Greencastle, Indiana. The minutes of the Executive Committee Meeting and of the General Session of the Spring 1974 meeting of the Academy were approved. The following reports were accepted by general consent unless a specific motion is recorded.

**Treasurer:** Clyde Metz made a financial report for the period January 1, 1974 through October 23, 1974. The summary from this report follows:

|                              | Academy<br>Accounts | Administered<br>Accounts | Total       |
|------------------------------|---------------------|--------------------------|-------------|
| Balance: Jan. 1, 1974 -----  | \$8,727.21          | \$20,103.72              | \$28,830.93 |
| 1974 Income -----            | 8,514.77            | 19,467.30                | 27,982.07   |
| 1974 Expenditures -----      | 8,067.52            | 21,582.13                | 29,649.65   |
| Balance: Oct. 23, 1974 ----- | 9,174.46            | 17,988.89                | 27,163.35   |

**Motion:** That the Treasurer's Report be accepted. Seconded and passed.

**Trustees of the Academy Research Endowment Fund:** William Daily reported that the market value of the original Foundation Fund is \$14,589.00. The total income from the John S. Wright Fund is \$34,135.87 and disbursements from the John S. Wright Fund amounted to \$21,135.87. The market value of all securities dropped from \$778,000.00 in 1973 to \$499,233.00 which reflects deterioration in the current market.

**Bonding Committee:** No report

**Motion:** That the Executive Committee approve renewing the bond for the Treasurer for another three years. Seconded and passed.

**Auditing Committee:** No report

**Research Grants Committee:** Kenneth Nichols reported that research grants totaling \$7,521.00 had been awarded to 15 individuals. Three science club activity grants totaling \$600.00 were also awarded during the year.

**Representative to AAS:** No report

**Youth Activities Committee:** Donald Winslow presented a status report on the activities of the three youth activity programs sponsored by the Academy: the Science Talent Search, the Indiana Junior Academy of Science, and the Science Fair program. Efforts to evaluate and

to better coordinate Youth Activities programs is underway. Gene Poorman reported on progress being made in establishing a regional organizational structure for the Junior Academy.

**Recommendation:** that the Academy recognize and/or present awards to scientists who have made unusual contributions in the area of youth activities during the last 25-30 years.

Raymond F. Lichtenhan, Chairman of the Junior Academy Constitution Committee reported on a proposed new constitution for the Junior Academy.

Changes in the status of the Junior Academy may require amendment of the constitution of the Senior Academy. Recommendations for any relevant modifications of constitution of the Indiana Academy of Science should be presented to the Executive Committee at a Spring meeting so that ratification by the membership can be considered at a subsequent Fall meeting.

**Library Committee:** Lois Burton described the collection in the John Shepherd Wright Memorial Library and summarized the categories of users. During the year, 50 new titles were received and arrangements for new exchanges of publications were made with foreign and United States institutions. Volume 82 of the Proceedings was received from the printer in January, 1974, and was mailed to 1,070 members and to science clubs, universities, public libraries in the state, and to exchange agencies.

**Publications Committee:** Marion Jackson reviewed ways of reprinting "Natural Features of Indiana." President Schmelz asked that the Publications Committee identify one person to handle matters related to reprinting of the volume. President Schmelz also instructed the Treasurer to obtain an attorney's ruling on royalty income and IRS status relative to reprinting the volume. Preliminary materials are under study for a monograph on Odenata.

**State Appropriations Ad Hoc Committee:** Otto Behrens reported on procedures followed by the committee in attempting to reinstate a higher level of state support for printing the Proceedings.

**Membership Committee:** John Patton reported that 200 brochure-application forms have been mailed to prospective members. A list of approximately 2,000 additional scientists has been compiled and brochures will be mailed to these individuals.

**Emeritus Membership Committee:** Winona Welch reported that since the 1974 Spring Meeting three individuals had requested and had been certified as eligible for Emeritus Membership.

**Motion:** That the following individuals be elected to Emeritus Membership in the Academy:

IRVING W. BURR  
ARTHUR T. GUARD  
ELWOOD B. MONTGOMERY

Seconded and passed.

**Fellows Committee:** Benjamin Moulton reported that credentials for Fellow nominees had been received.

**Motion:** That the following individuals be elected Fellows of the Academy:

MARION F. BAUMGARDNER

PHILIP A. ORPURT

RICHARD L. POWELL

CLAUDE F. WADE

Seconded and passed.

**Director of Public Relations:** Clarence Dineen reported that the November Newsletter would contain membership information and an application form. Members of the Executive Committee were encouraged to submit items for Newsletters.

**Necrologist:** No report

**Resolutions:** No report

**Science and Society Committee:** Harry Day reported that the committee met seven times during the year. The principal concerns of the committee were on (1) furthering the concept of establishing a council on science and technology for the state, (2) reorganizing and strengthening the Speakers Bureau, and (3) increasing the use of mass media to increase public understanding of science.

**Speaker-of-the-Year Committee:** Harry Day reported that Ralph A. Llewellyn, Chairman of the Department of Physics, Indiana State University, had been selected Speaker-of-the-Year.

**Invitations Committee:** A report from Philip St. John was read by Damian Schmelz. Invitations to host Academy meetings have been accepted from Butler University for 1975, from Valparaiso University for 1976, from IUPUI for 1977, and from Anderson College for 1978.

**Scientific Areas Committee:** Marion Jackson reported for the committee. Since the 1974 Spring meeting, three more nature preserves have been dedicated by action of the Natural Resources Commission. These are Hornbeam Nature Preserve, Swamp Rose Nature Preserve, and Bitternut Woods Nature Preserve.

**Academy Representative on Natural Resources Commission:** A report from David Osgood was reviewed by Damian Schmelz. During the year the commission implemented (1) flood plain management guidelines, and (2) the Scenic & Recreational Streams Act. A 55-mile stretch of the Blue River was designated as Indiana's first scenic stream.

**Biological Survey Committee:** Jack Munsee pointed to the advantage of making survey data available for environmental impact statements. A comprehensive plan for accumulating and storing biological survey information is needed.

**Bicentennial Ad Hoc Committee:** A report from John Favinger was received. Each division may be asked to prepare a history of its activi-

ties for inclusion in the program for the 1975 Annual Meeting of the Academy. The papers may be collected and published during 1976.

**President's Remarks:** Damian Schmelz reported the establishment of the President's Council. The present president and the last three presidents of the Academy constitute the membership of this resource group.

In checking past actions of the Academy, no record can be found of Membership action to confirm two amendments passed by the Executive Committee in 1967. These actions deal with the establishment of the Preservation of Natural Areas Committee and of the Emeritus Membership Selection Committee. In 1968, the Executive Committee passed an amendment to Article One, Section One, of the By-Laws. No record can be found that the Membership approved this amendment which deals with procedures for advanced payment of dues, billings, January 31st cut-off date, Proceedings recipients, and reinstatement procedures. A discussion was held concerning whether or not action should be taken on these items at the 1975 Business Meeting.

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

Respectfully submitted,  
JERRY J. NISBET, Secretary

## MINUTES OF THE GENERAL SESSION

November 1, 1974

The Business Session of the 90th Annual Meeting of the Academy was called to order by President Damian Schmelz at 2:55 p.m. in the Auditorium of the Science and Mathematics Center, DePauw University, Greencastle, Indiana.

John R. Anderson, Assistant to the Dean, DePauw University, welcomed the Academy on behalf of DePauw University.

The Secretary, Jerry Nisbet, presented a summary of committee reports and informed the membership of official actions taken by the Executive Committee on May 3, 1974 and on October 31, 1974.

**Motion:** That 108 new applicants for membership be approved.

Seconded and passed.

The names of individuals who were elected 1975 Chairmen and 1975 Chairmen-elect includes:

### **Anthropology**

Chairman: ROBERT E. HAHN  
Chairman-elect: THOMAS P. MYERS

### **Botany**

Chairman: DR. ROBERT S. BENDA  
Chairman-elect: DR. ROGER F. BONEHAM

### **Cell Biology**

Chairman: DR. PAUL MAHLBERG  
Chairman-elect: DR. LEE F. ELLIS

### **Chemistry**

Chairman: EUGENE P. SCHWARTZ  
Chairman-elect: JOHN H. MEISER

### **Ecology**

Chairman: DR. WILLIAM B. CRANKSHAW  
Chairman-elect: DR. J. O. WHITAKER, JR.

### **Engineering**

Chairman: DR. JOHN A. SPOONER  
Chairman-elect: DR. ALDO GIORGINI

### **Entomology**

Chairman: ROBERT W. MEYER  
Chairman-elect: VIRGIL R. KNAPP

### **Geology and Geography**

Chairman: DR. WILLIAM D. BROOKS  
Chairman-elect: DR. NEIL V. WEBER

### **History of Science**

Chairman: J. BENNETT OLSON  
Chairman-elect: WILLIAM R. EBERLY

**Microbiology and Molecular Biology**

Chairman: DR. DAVID C. MADSEN  
 Chairman-elect: DR. RALPH L. NICHOLSON

**Physics**

Chairman: RICHARD L. CONKLIN  
 Chairman-elect: ROBERT HALE

**Plant Taxonomy**

Chairman: JOE HENNEN  
 Chairman-elect: ORLAND J. BLANCHARD

**Science Education**

Chairman: LEON BERNHARDT  
 Chairman-elect: DR. HAROLD H. JAUS

**Soil and Atmospheric Sciences**

Chairman: FRANK W. SANDERS  
 Chairman-elect: HARRY M. GALLOWAY

**Zoology**

Chairman: DR. JOHN M. FERRIS  
 Chairman-elect: DR. THOMAS JOSEPH

The Necrologist, *Fay Daily*, reported the deaths of two members, Frank L. Kern and Matthew F. Taggart.

The Chairman of the Membership Committee, John Patton, reported on activities underway to contact potential new members. A constitutional amendment concerning new membership categories was discussed. This amendment was approved by the Executive Committee at the 1974 Spring Meeting.

**Motion:** That the Academy adopt the following substitute for "Article II. MEMBERSHIP" in the Constitution and By-Laws.

**Article II. Membership**

Sec. 1. The membership of The Academy shall consist of: Members, Student Members, Fellows, Club Members, Emeritus Members, Life Members, Senior Members, Honorary Members, Sustaining Members, Corporate Members, and Institutional Members. Nomination for membership in any one of these classes shall be submitted to the Executive Committee, and those approved by this committee shall be referred to the membership present at any annual or spring meeting, where those nominees receiving a majority vote shall be declared elected to membership. The privileges and obligations of members of each class shall be determined by the Executive Committee.

Sec. 2. *Members.* Any person interested in any aspect of science and in accord with the objectives of The Academy may be elected to Membership.

Sec. 3. *Student Members.* Any graduate or undergraduate college or university student may be elected to Student Membership, but the tenure of this class of membership shall be limited to five years.

Sec. 4. *Senior Members.* Any person interested in science may be elected to Senior Membership.

Sec. 5. *Sustaining Members.* Any person interested in science may, on payment of substantially higher dues, be elected to Sustaining Membership.

Sec. 6. *Club Members.* Any junior or senior high school science club in Indiana may, on recommendation of the Director of the Junior Academy of Science, be elected to Club Membership.

Sec. 7. *Life Members.* Any member of the Academy in good standing may, by making a substantial single payment of dues, be elected to Life Membership.

Sec. 8. *Fellows.* Any member of The Academy may, on recommendation of the Committee on Fellows, be elected a Fellow of The Academy. The title is awarded as an honor and is independent of the class of membership.

Sec. 9. *Emeritus Members.* Any member who, after 25 consecutive years of membership, is 65 years of age or retired, petitions the Emeritus Membership Selection Committee may, on approval of that committee, be elected to Emeritus Membership.

Sec. 10. *Honorary Members.* In exceptional cases any person may be elected to Honorary Membership.

Sec. 11. *Corporate Members.* Any corporation organized and operated for profit in Indiana may be elected to Corporate Membership.

Sec. 12. *Institutional Members.* Any college, university or non-profit organization in Indiana may be elected to Institutional Membership.

Seconded and passed.

The Secretary read the report of the nominating committee and placed the following slate of officers for 1975 in nomination:

|                              |   |
|------------------------------|---|
| President:                   | JOHN B. PATTON—1975                           |
| President-elect:             | DONALD J. COOK—1975                           |
| Secretary:                   | ROBERTA E. VAN ATTA—<br>1975, 76, 77          |
| Treasurer:                   | CLYDE R. METZ—1975, 76, 77                    |
| Editor:                      | BENJAMIN MOULTON—<br>1975, 76, 77             |
| Trustee of Academy Accounts: | WILLIAM B. DAILY—1975, 76                     |
| Bonding Committee:           | ROBERT M. BROOKER—<br>1975, 76                |
| Bonding Committee:           | EARL HOLMES—1975, 76                          |
| Research Committee:          | DONALD R. BRANNON—<br>1975, 76, 77, 78 and 79 |

The nominations were closed and a unanimous ballot was cast for the slate of officers.

The Chairman of the Resolutions Committee, Howard Youse, presented the following two resolutions which were adopted by the assemblage:

I. Whereas: State government needs unbiased scientific and technological counsel in dealing with many of the problems facing government and society today; and

Whereas: Many competent scientists and engineers in this state have expressed an interest in assisting the Governor and General Assembly in matters that involve their particular competence, be it therefore

Resolved: That the Indiana Academy of Science urges the Governor and General Assembly to establish a council with responsibilities and means for thorough and in depth study of problems in which scientific and engineering knowledge have relevance.

II. That the Academy members here assembled express their appreciation to Dr. William E. Kerstetter, President of DePauw University, for all the courtesies which have been extended the membership of the Academy during this meeting. We are particularly grateful to Professors Donald J. Cook and Forst D. Fuller who were Co-chairmen of the Program Committee for their fine work in the preparation of the program. The arranged facilities for all programs at this annual meeting were excellent. Further the Academy members are appreciative of the address of Dr. Ralph A. Llewellyn, Indiana Academy of Science Lecturer-of-the-Year.

Seconded and passed.

The President made the following announcements:

- (1) Robert Henderson, Chairman of the Indiana Academy of Science Speakers Bureau can provide interested groups with a list of individuals who are registered with the Speakers Bureau.
- (2) Personnel responsible for the Hoosier National Forest request assistance from scientists who can provide knowledge about endangered species in the Forest. This information is needed for the development of management and protection programs.

Harry Day introduced the Speaker-of-the-Year, Ralph A. Llewellyn who presented a lecture on, "Indiana's Energy Future: What are the Options?"

John Patton introduced the following individuals, Captain R. L. McArthy, Harry G. Day, Robert Henderson, and Senator Patrick Carroll, who participated in a panel discussion on "Search for Better Ways to Utilize Scientific and Technological Advisory Resources in Indiana."

The meeting was recessed at 5:00 p.m. and was reconvened at 6:30 p.m. with John Patton presiding at the annual banquet held in the DePauw Student Union Building Ballroom.

The Presidential Address titled, "Roots in the Soil and Water and Sky" was presented by Damian Schmelz. The multi-media program was highly inspirational and enjoyable.

Respectfully submitted,  
JERRY J. NISBET, Secretary

# FINANCIAL REPORT

JANUARY 1-DECEMBER 31, 1974

## I. ACADEMY ACCOUNTS

|   | Income      |       | Expenditure | Budgeted                  |
|---|-------------|-------|-------------|---------------------------|
| Dues -----                              | \$ 6,137.00 | \$    | \$          | (\$ 6,000.00)             |
| Reprints: Vol. 82 -----                 | 2,616.26    | ----- | 2,580.78    | (150.00)                  |
| Vol. 81 -----                           | 101.95      | ----- | -----       | difference)               |
| Interest -----                          | 1,112.96    | ----- | -----       | ( 1,050.00)               |
| Miscellaneous -----                     | 0.00        | ----- | -----       | -----                     |
| Secretary -----                         | -----       | ----- | 384.00      | 650.00                    |
| Clerical -----                          | -----       | ----- | 384.00      | -----                     |
| Office -----                            | -----       | ----- | 0.00        | -----                     |
| Treasurer -----                         | -----       | ----- | 160.73      | 275.00                    |
| Clerical -----                          | -----       | ----- | 35.00       | -----                     |
| Office -----                            | -----       | ----- | 125.73      | -----                     |
| General Office -----                    | -----       | ----- | 241.72      | 250.00                    |
| Travel, AAS Dues, etc. -----            | -----       | ----- | 211.80      | 225.00                    |
| Membership Committee -----              | -----       | ----- | 11.84       | 100.00                    |
| Transfer to Administered Accounts ----- | -----       | ----- | 2,650.00    | 2,650.00                  |
| Junior Academy -----                    | 100.00      | ----- | -----       | -----                     |
| Science and Society -----               | 300.00      | ----- | -----       | -----                     |
| Natural Areas -----                     | 0.00        | ----- | -----       | -----                     |
| Library Binding -----                   | 1,000.00    | ----- | -----       | -----                     |
| Proceedings: Publication -----          | 1,000.00    | ----- | -----       | -----                     |
| Proceedings: Mailing -----              | 250.00      | ----- | -----       | -----                     |
| President's Fund -----                  | -----       | ----- | 28.18       | 100.00                    |
| Newsletter -----                        | -----       | ----- | 415.28      | 575.00                    |
| Speaker of the Year -----               | -----       | ----- | 500.00      | 550.00                    |
| Honorarium -----                        | 500.00      | ----- | -----       | -----                     |
| Administrative Expenses -----           | 0.00        | ----- | -----       | -----                     |
| Program Committee -----                 | -----       | ----- | 894.78      | 750.00                    |
| Chairman's Local Expenses -----         | 195.60      | ----- | -----       | -----                     |
| Printing -----                          | 422.83      | ----- | -----       | -----                     |
| Mailing -----                           | 276.35      | ----- | -----       | -----                     |
| Publications Editor's Expenses -----    | -----       | ----- | 500.00      | 500.00                    |
| Youth Activities -----                  | -----       | ----- | 36.72       | 50.00                     |
| Public Relations -----                  | -----       | ----- | 13.30       | 50.00                     |
| Section Chairman Expenses -----         | -----       | ----- | 0.00        | 150.00                    |
| CPA Fees, etc. -----                    | -----       | ----- | 713.00      | 600.00                    |
| CPA -----                               | 525.00      | ----- | -----       | -----                     |
| Tax Fees -----                          | 10.00       | ----- | -----       | -----                     |
| Attorney Fees -----                     | 178.00      | ----- | -----       | -----                     |
| -----                                   | \$ 9,968.17 | ----- | \$ 9,342.13 | \$ 7,475.00<br>(7,200.00) |

## II. ADMINISTERED ACCOUNTS

|                              | January 1<br>Balance | 1974<br>Income | 1974<br>Expenditures | December 31<br>Balance |
|------------------------------|----------------------|----------------|----------------------|------------------------|
| Junior Academy -----         | \$ 448.61            | \$ 500.00      | \$ 501.33            | \$ 447.28              |
| Science Talent Search -----  | 1,918.33             | 2,032.00       | 1,608.08             | 2,342.25               |
| Science Fairs -----          | 2,444.90             | 0.00           | 2,444.90             | 0.00                   |
| Science and Society -----    | 1,873.70             | 313.30         | 771.38               | 1,415.62               |
| Research -----               | 399.07               | 8,100.00       | 8,121.00             | 378.07                 |
| Natural Areas -----          | 1,026.50             | 0.00           | 0.00                 | 1,026.50               |
| J. S. Wright Library -----   | 134.28               | 0.00           | 0.00                 | 134.28                 |
| Lilly III Library -----      | 2,632.76             | 0.00           | 0.00                 | 2,632.76               |
| Lilly V Library -----        | 7,520.70             | 0.00           | 2,647.50             | 4,873.20               |
| Library Binding -----        | 45.55                | 1,000.00       | 1,023.35             | 22.20                  |
| Publications:                |                      |                |                      |                        |
| Proceedings -----            | 891.98               | 7,680.00       | 7,425.56             | 1,146.42               |
| Mailing of Proceedings ----- | 339.32               | 250.00         | 0.00                 | 589.32                 |
| Monographs -----             | 428.02               | 565.00         | 0.00                 | 993.02                 |
| Natural Features -----       | 0.00                 | 0.00           | 0.00                 | 0.00                   |
|                              | \$20,103.72          | \$20,440.30    | \$24,543.10          | \$16,000.92            |

## III. SUMMARY

|                                  | Academy<br>Accounts | Administered<br>Accounts | Total       |
|----------------------------------|---------------------|--------------------------|-------------|
| Balance: January 1, 1974 -----   | \$8,727.21          | \$20,103.72              | \$28,830.93 |
| 1974 Income -----                | 9,968.17            | 20,440.30                | 30,408.47   |
| 1974 Expenditures -----          | 9,342.13            | 24,543.10                | 33,885.23   |
| Balance: December 31, 1974 ----- | 9,353.25            | 16,000.92                | 25,354.17   |

## IV. BANK BALANCES

|   |                    |
|---|--------------------|
| First Bank and Trust Company, Indianapolis, Indiana -----     | \$ 6,792.43        |
| Great Western Savings and Loan, Los Angeles, California ----- | 13,327.53          |
| First Western Savings and Loan, Las Vegas, Nevada -----       | 5,234.21           |
|   | <u>\$25,354.17</u> |

## V. SUMMARY OF TRUST FUNDS

|  |                    |                  |                      |
|--|--------------------|------------------|----------------------|
| A. Foundation Account (00430-00-0)         |                    |                  |                      |
| Income cash balance (1/1/74) -----         |                    | \$ 353.04        |                      |
| Total dividends and interest for 1974 ---- |                    | 1,057.88         |                      |
| Disbursements for 1974                     |                    |                  |                      |
| Research grants -----                      | \$ 300.00          |                  |                      |
| Transfers to principal cash -----          | 1,000.00           |                  |                      |
|  | <u>\$ 1,300.00</u> |                  |                      |
|  |                    | <u>—1,300.00</u> |                      |
| Income cash balance (12/31/74) -----       |                    | \$ 110.92        | \$ 110.92            |
| Principal cash balance (1/1/74) -----      |                    | \$ 362.57        |                      |
| Total receipts for 1974 -----              |                    | 5,000.00         |                      |
| Total disbursements for 1974 -----         |                    | <u>—4,667.43</u> |                      |
| Principal cash balance (12/31/74) -----    |                    | \$ 695.14        | \$ 695.14            |
| Market value of investments (12/31/74)     |                    |                  | <u>\$ 16,045.25*</u> |
| Total value of account (12/31/74) -----    |                    |                  | <u>\$ 16,851.31</u>  |

\*Carrying value is \$19,225.91

|   |             |                    |                     |
|---|-------------|--------------------|---------------------|
| <b>B. John S. Wright Fund (00430-01-9)</b>                    |             |                    |                     |
| Income cash balance (1/1/74) -----                            |             | \$ 2,889.07        |                     |
| Total dividends and interest for 1974 ----                    |             | 14,681.29          |                     |
| Disbursements for 1974  |             |                    |                     |
| INB fee -----   | \$ 2,525.91 |                    |                     |
| Transfer to 00430-02-8 -----                                  | 15,000.00   |                    |                     |
|   |             | <u>\$17,525.91</u> | <u>—17,525.91</u>   |
| Income cash balance (12/31/74) -----                          |             | \$ 44.45           | \$ 44.45            |
| Principal cash balance (1/1/75) -----                         |             | 212.47             |                     |
| Total receipts for 1974 -----                                 |             | 60,490.00          |                     |
| Total disbursements for 1974 -----                            |             | <u>—60,269.88</u>  |                     |
| Principal cash balance (12/31/74) -----                       |             | \$ 432.59          | \$ 432.59           |
| Market value of investments (12/31/74) _                      |             |                    | 591,061.30*         |
| Total value of account (12/31/74) -----                       |             |                    | <u>\$591,538.34</u> |
| *Carrying value is \$330,771.56                               |             |                    |                     |
| <b>C. John S. Wright Invested Income Account (00430-02-8)</b> |             |                    |                     |
| Income cash balance (1/1/74) -----                            |             | \$ 493.33          |                     |
| Total interest for 1974 -----                                 |             | 1,293.44           |                     |
| Disbursements for 1974  |             |                    |                     |
| Research grants -----   | \$ 400.00   |                    |                     |
| Transfers to principal -----                                  | 1,000.00    |                    |                     |
|   |             | <u>\$1,400.00</u>  | <u>—1,400.00</u>    |
| Income cash balance (12/31/74) -----                          |             | \$ 386.77          | \$ 386.77           |
| Principal cash balance (1/1/74) -----                         |             | \$ 25.15           |                     |
| Total receipts for 1974 -----                                 |             | 40,000.00          |                     |
| Disbursements for 1974  |             |                    |                     |
| Purchase of investments -----                                 | \$26,000.00 |                    |                     |
| Research grants -----   | 7,200.00    |                    |                     |
| Proceedings, vol. 82 -----                                    | 6,650.00    |                    |                     |
|   |             | <u>\$39,850.00</u> | <u>—39,850.00</u>   |
| Principal cash balance (12/31/74) -----                       |             | \$ 175.15          | \$ 175.15           |
| Market value of investments -----                             |             |                    | 17,000.00           |
| Total value of account -----                                  |             |                    | <u>\$ 17,561.92</u> |
| Funds committed: Proceedings, vol. 83 --                      |             |                    | <u>—9,000.00</u>    |
| Actual value -----  |             |                    | <u>\$ 8,561.92</u>  |

## VI. NOTES

**Membership Dues:**

According to the Treasurer's records, the current status may be summarized as follows:

- 1036 paid, emeritus, life, honorary and paid club members
- 144 on file from 1973, but not yet paid for 1974
- 113 new members for 1974 (included in above totals)
- 25 previous members reinstated during 1974 (included in above totals)
- 102 members and clubs dropped for nonpayment of 1973 dues

**Dues Structure for 1974:**

- \$6.00 for regular and club memberships
- 3.00 for student memberships
- 8.00 for family memberships
- 1.00 initiation and reinstatement fee for regular, club or student memberships
- 2.00 initiation and reinstatement fee for family memberships

**Savings:**

The treasurer, from the total assets of both Academy and Administered accounts, has maintained sufficient funds in the checking account to pay current bills throughout the year; the remaining funds have been invested in savings certificates.

**Certificates redeemed in 1974**

1. (FWSL) \$5,000.00 invested at 6.00% April 1972; April 1974 redemption value \$5,638.73.

**Certificates current**

1. (GWSL) \$5,000.00 invested at 6.00% April 1973; 31 December value \$5,552.58; maturity at April 1975.
2. (GWSL) \$7,000.00 invested at 6.00% April 1973; 31 December value \$7,774.95; maturity at April 1975.
3. (FWSL) \$2,000.00 invested at 6.50% April 1974; 31 December value \$2,091.98; maturity at April 1975.
4. (FWSL) \$3,000.00 invested at 6.75% April 1974; 31 December value \$3,142.23; maturity at October 1976.

**Reprints:**

Reprint charges to authors for Vol. 81 have been collected giving a net profit to the Academy of \$251.21 in excess of printing costs. Reprint charges to authors for Vol. 82 are being collected with one billing outstanding for a total of \$65.35 giving a net profit to the Academy of \$100.83 in excess of printing costs.

**Attorney Fees:**

Ice, Miller, Donadio & Ryan of Indianapolis have been representing the Academy in clarification of our tax-exemption status. The Academy was informed in 1972 by the Internal Revenue Service and by the State of Indiana of favorable classifications, but a listing of exempt organizations published by the IRS in January, 1973 did not include the Academy. The Academy has been included in supplemental printings. The Academy is seeking information on reprinting and roles of various publications. The executive committee voted at the Fall Meeting of 1973 to delay the reimbursement of \$4,226.87 for attorney fees to the Academy operating funds from the J. W. Wright fund until these funds are needed for operating expenses.

**Publications:**

Sales include \$30.00 for Proceedings and \$565.00 for Monographs. The actual cost for publishing Vol. 82 of the Proceedings was \$11,425.56 of which the State of Indiana paid \$4,000.00 leaving a balance of \$7,425.56 to be paid from the trust funds.

**Newsletter:**

By mail ballot, members of the budget committee approved an increase from \$225.00 to \$575.00 for this item in the 1974 budget.

**Research Grants:**

Funds totalling \$7,521.00 have been awarded to E. D. Albrecht (Biology), J. W. Berry (Zoology), R. F. Blakely (Geology), J. M. Davis (Anthropology), D. Frey (Zoology), L. R. Ganion (Physiology and Health Science), C. H. Haufler (Plant Science), W. B. Lutz (Chemistry), P. A. Mahlberg (Plant Sciences), D. W. Osgood (Zoology), P. A. St. John (Zoology), D. V. Schmelz (Biology), R. H. Shaver (Geology), B. N. Storhoff (Chemistry), and C. E. Wier (Geology). Grants totalling \$600.00 have been awarded to Terre Haute North Vigo High School, Terre Haute South Vigo High School and Paoli Community Jr.-Sr. High School. Of the total amount granted, \$8,200.00 came from the trust funds and \$200.00 from an AAAS grant.

## VII. BUDGET FOR 1975

The following budget was approved by the Budget Committee at their meeting at the Indiana State Library, Indianapolis, on December 14, 1974:

## Academy Accounts

## Anticipated Income

|   |             |
|---|-------------|
| Dues, Initiation and Reinstatement Fees<br>(110@\\$2, 550@\\$5, 440@\\$10, 50@\\$0) ----- | \$ 7,370.00 |
| Interest on Savings -----   | 1,100.00    |
| Reprint Charges to Authors -----  | 3,000.00    |
|   | <hr/>       |
|   | \$11,470.00 |

## Budgeted Expenditures

|   |             |
|---|-------------|
| Secretary -----                           | \$ 600.00   |
| Treasurer -----                           | 250.00      |
| General Office -----                      | 250.00      |
| Officer Travel, AAA Dues -----            | 225.00      |
| Membership Committee -----                | 150.00      |
| President's Contingency Fund -----        | 100.00      |
| Newsletter -----                          | 550.00      |
| Speaker of the Year Honorarium -----      | 500.00      |
| Program Committee -----                   | 1,000.00    |
| Publication Editor's Expenses -----       | 500.00      |
| Youth Activities -----                    | 50.00       |
| Biological Surveys Committee -----        | 50.00       |
| Representative to AAAS Meeting -----      | 250.00      |
| Reprint Charges to Academy -----          | 2,750.00    |
| Public Relations -----                    | 100.00      |
| Section Chairmen Expenses -----           | 150.00      |
| CPA Fees for Tax Return Preparation ----- | 550.00      |
| Lawyer's Fees -----                       | 200.00      |
| Miscellaneous -----                       | 100.00      |
| Transfers to Administered Accounts -----  | 3,800.00    |
| Junior Academy -----                      | 400.00      |
| Science and Society Committee -----       | 200.00      |
| Natural Areas Committee -----             | 0.00        |
| Library Binding -----                     | 1,000.00    |
| Proceedings: Publication -----            | 1,500.00    |
| Proceedings: Mailing -----                | 200.00      |
| Publications: Clerical -----              | 500.00      |
|   | <hr/>       |
|   | \$12,125.00 |

## Endowment Funds

## Anticipated Income

|                                   |             |
|-----------------------------------|-------------|
| IAS Foundation -----              | \$ 300.00   |
| JS Wright Investment Income ----- | 14,700.00   |
|                                   | <hr/>       |
|                                   | \$15,000.00 |

## Budgeted Expenditures

|   |             |
|---|-------------|
| Bank Fee -----  | \$ 2,500.00 |
| Research Grants (\$5,000—\$350 AAAS) -----  | 4,650.00    |
| Publications  |             |
| Proceedings, Vol. 84 (\$12,000—<br>\$1,200 Ind—\$1,500 transfer) -----                    | 9,300.00    |
| Monograph #4 (\$12,000—\$6,000 Wright<br>balance from 1974—\$1,000 sales = \$5,000) ----- | 0.00*       |
|   | <hr/>       |
|   | \$16,450.00 |

\* Suggest waiting until late 1976 for more Wright balance, sales, and income from

## Natural Features.

## Restricted Accounts

## Anticipated Income

|   |           |
|---|-----------|
| Research Grants Committee (AAAS) -----  | \$ 350.00 |
| Science Talent Search (Tri Kappa) ----- | 2,000.00  |

## INDIANA ACADEMY OF SCIENCE

|                                 |        |             |
|---------------------------------|--------|-------------|
| Publications -----              |        | 300.00      |
| Proceedings -----               | 50.00  |             |
| Monographs and Nat. Feat. ----- | 250.00 |             |
|                                 |        | <hr/>       |
|                                 |        | \$ 2,650.00 |
| Budgeted Expenditures           |        |             |
| Research Grants Committee ----- |        | \$ 350.00   |
| Science Talent Search -----     |        | 2,000.00    |
| Publications -----              |        | 300.00      |
| Proceedings -----               | 50.00  |             |
| Monographs -----                | 250.00 |             |
|                                 |        | <hr/>       |
|                                 |        | \$ 2,650.00 |

Respectfully submitted,  
Clyde Metz, Treasurer

We, the undersigned, have audited the Treasurer's records for the Indiana Academy of Science for the year 1974 and have found them to be accurate and in order.  
January 21, 1975

Curtis A. Dhonau  
Robert E. Dolphin

## INDIANA JUNIOR ACADEMY OF SCIENCE ANNUAL REPORT

The regionalization of the Junior Academy of Science is progressing at a rate which is about what the council had predicted. Following is a report of the year's activities between annual meetings of 1973 and 1974.

November 15, 1973—Evansville Region VII Joint Meeting with the Evansville-Vanderburgh County Science Teachers Association. 47 teachers met for an orientation regarding the Youth Activities Program.

December 14, 1973—Region VIII—Dr. John Moody—IU-SE at New Albany. 18 teachers met on a very snowy day to plan activities.

May 11, 1974—Hammond Morton High School Northeast Region I. 17 teachers and 39 students met with Dr. Petterson to organize and develop plans for Junior Academy programs.

April, 1974—New Haven High School. 11 teachers and 53 students met with Mr. Keith Hunnings to plan activities for Region II.

March, 1974—Joint meeting with Muncie Science Fair. Over 200 students and teachers met with Dr. Keith Ault and were oriented in Youth Activities Programs. (Region IV).

March, 1974—Organizational meeting in Crawfordsville High School with Mr. Stephen Thompson. 7 teachers and 15 students. Region V.

July, 1974—5 Council members, 7 students, and 5 senior academy members met in Indianapolis to hold executive session and finalize the constitution.

October 18, 1974—Region II, New Haven High School. 15 teachers and 70 students held a regional meeting.

October 25, 1974—Region VIII—Meeting at New Albany. IU-SE: 12 teachers and 75 students. Thirty papers given.

November 1, 1974—Annual Meeting—DePauw University. 83 students and 12 teachers. 9 student papers given—Mr. Jon Huppenthal, Michigan City, IN, Marquette High School was awarded the best paper presenter award—a trip to the American Junior Academy of Science Meeting in New York, January 27 and 28, 1975.

Four students were adjudged Outstanding Junior Scientists and will receive one-year memberships to A.A.A.S. JON HUPPENTHAL and CASSIUS SCOTT, Michigan City, IN, Marquette High School; LAURA FISHER, Gary, IN, Lew Wallace High School; RICKY KING, Paoli, IN, Paoli High School.

MR. BRIAN McELWEE—Marquette High school, was elected President and MR. BRUCE ROBINSON of Crawfordsville was elected Secretary for 1975.

In this one year period, approximately 100 teachers and 400 students have attended Junior Academy of Science Sessions. Over 50 papers have been given by students. This is a dramatic increase in participation over the past several years.

# BIOLOGICAL SURVEY COMMITTEE REPORT—1973-1974

JACK R. MUNSEE, Chairman, Indiana State University

GAYTON C. MARKS  
Valparaiso University

WILLARD F. YATES, JR.  
Butler University

RUSSELL E. MUMFORD  
Purdue University

FRANK N. YOUNG  
Indiana University

WINONA H. WELCH  
DePauw University

(A, B, or C accompanying title refer to: Publication; Thesis on file; or Work in progress, respectively.)

- Tracheophyta:
1. ABRELL, D. BRIAN, and MARION T. JACKSON. Indiana State Univ. An analysis of growth rates and changes in species attributes of tree species in Hoot Woods, Owen County: 1965-1975. (C).
  2. CROVELLO, T. J., and C. KELLER. 1973. Uses of computerized floristic data of Indiana for plant geography. Proc. Indiana Acad. Sci. 83:399-406. (A).
  3. HELMS, RONALD, and MARION T. JACKSON. Indiana State Univ. Spatial distribution of tree species in Dobbs Park Natural Area, Terre Haute, Indiana. (C).
  4. HOLLETT, BYRON P. 1974. The role of mycorrhizae in the ecology and distribution of *Fagus grandifolia* Ehrh. M. A. Thesis. Indiana State Univ. (B).
  5. SCHMELZ, D. V., J. D. BARTON, and A. A. LINDSEY. Donaldson's Woods: two decades of change. (Submitted: Proc Indiana Acad. Sci. for Vol. 84. 1975). (C).
- Protozoa:
1. BERGER, JAMES D. 1973. Nuclear differentiation and acid synthesis in well-fed exconjugants of *Paramecium aurelia*. Chromosoma 42:247-268. (A).
  2. ———. 1973. Selective inhibition of DNA synthesis in macronuclear fragments in *Paramecium aurelia* exconjugants and its reversal during macronuclear regeneration. Chromosoma 44:33-48. (A).
  3. ———. 1974. Selective autolysis of nuclei as a source of DNA precursors in *Paramecium aurelia* exconjugants. J. Protozool. 21: 145-152. (A).
  4. BYRNE, BRUCE C. 1973. Mutational analysis of mating type inheritance in syngen 4 of *Paramecium aurelia*. Genetics 74:63-80. (A).
  5. GRIMES, G. W. 1973. Differentiation during encystment and excystment of *Oxytricha fallax*. J. Protozool. 20:92-104. (*O. fallax* Stein, from Bloomington, Monroe County, Ind.). (A).
  6. ———. 1973. Origin and development of kinetosomes in *Oxytricha fallax*. J. Cell Sci. 13:43-53. (A).
  7. HAGGARD, BRUCE. 1974. Interspecies crosses in *Paramecium aurelia* (syngen 4 by syngen 8). J. Protozool. 21:152-159. (A).
  8. SIMON, E. M., and M. V. SCHNELLER. 1973. The preservation of ciliated protozoa at low temperature. Crybiol. 10:421-426. (A).
  9. TAMAR, HENRY. 1974. Further studies on Halteria. Acta protozoologica. 13:177-191. (A).
  10. WHITTLE, J. R. S. 1973. An analysis of the determinative difference between singlets and couplets of *Oxytricha fallax*. Genet. Res. Camb. 21:57-66. (*O. fallax* Stein, from Bloomington, Monroe Co., Ind.). (A).

- Crustacea: SHAN, R. KUO-CHENG. 1974. Reproduction in laboratory *Pleurozox* (Chydoridae, Cladocera) under the influence of photo-period and light intensity. Int. Revue ges. Hydrobiol. S9 (5):643-666. (*P. denticulatus* Birge and *P. procurvus* Birge, Martin Lake, La Grange Co., Ind.). (A).
- Arachnida: 1. FAIN, A., and J. O. WHITAKER, JR. 1974. *Gliricoptes zapus* sp. n. (Acari: Mycooptidae) from Washington and British Columbia. J. Parasitol. 60:1022-1024. (A).
2. ——— and ——— et al. 1974. *Listrophorus synaptomys* a new species from *Synaptomys* and *Lemmus*. Acarologia 16:319-324. (A).
3. WHITAKER, JOHN O. JR., and N. WILSON. 1974. Host and distribution lists of mites (Acari), parasitic and phoretic, in the hair of wild mammals of North America, north of Mexico. Amer. Midland Natur. 91:1-67. (A).
- Insecta: 1. HILSENHOFF, W. L. 1974. The unusual larva and habitat of *Agabus confusus* (Dytiscidae). Ann. Ent. Soc. Amer. 67 (4):703-705. 2 figs. (A).
2. KEITH, J. H. Seasonal fluctuations in a population of *Pseudanophthalmus tenuis* (Coleoptera: Carabidae in Murray Spring Cave: A preliminary report. (Submitted: Internat. J. Speleology. 1975). (In press). (C).
3. KNAPP, VIRGIL R. Host list of Indiana Aphididae. (Submitted: Proc. Indiana Acad. Sci. Vol. 84). (C).
4. LEE, THOMAS M., and R. E. SIVERLY. 1974. Evaluation of ALTOSID SL-10 in controlling mosquito populations in an industrial waste lagoon complex. Proc. Indiana Acad. Sci. 83:215. Abstr. (A).
5. ——— and ———. 1974. A preliminary study of autogeny in stenogamous and non-stenogamous strains of *Culex pipiens pipiens* (Northern house mosquito). Proc. Indiana Acad. Sci. 83:215. Abstr. (A).
6. SABATH, MICHAEL D. 1974. Niche breath and genetic variability in sympatric populations of drosophilid flies. Amer. Midland Natur. 108:(962):533-540. (Diptera: Drosophilidae, Indiana). (A).
7. SIVERLY, R. E., and JOHN JOYNER. 1974. Notes on identification and biology of *Bufo lucilia silvarum* (Meigen) (Diptera, Calliphoridae) in East-Central Indiana. Proc. Indiana Acad. Sci. 83:214. Abstr. (A).
8. ———. 1974. Observations on the biology of *Mansonia perturbans* (Walker) (Diptera, Culicidae) in Indiana. Proc. Indiana Acad. Sci. 83:216. Abstr. (A).
9. ——— and DONALD A. SHROYER. 1974. Illustrated key to the genitalia of male mosquitoes of Indiana. Mosquito Systematics: 6(3): 167-200. (A).
10. SMETANA, A. 1974. Revision of the genus *Cymbiodyta* Bed. (Coleoptera: Hydrophilidae) Mem. Ent. Soc. Canada No. 93:113, illus. (*Cymbiodyta chamberlaini* described in part from Brown, Monroe, Jennings, and Tippecanoe Counties, Ind.). (A).
11. SPANGLER, GREGORY L., and R. E. SIVERLY. 1974. A preliminary report of mosquito population sampling methods in Delaware County, Indiana. Proc. Indiana Acad. Sci. 83:213. Abstr. (A).
- Pisces: 1. DIAL, N. A. Indiana State Univ. Effects of methylmercury on embryos of the Japanese medaka. (C).
2. MARTIN, F. D., and R. C. RICHMOND. 1973. An analysis of five enzyme-gene loci in four theostomid species (Percidae: Pisces) in an area of possible integration. J. Fish. Bol. 5:511-517. 2 pls. (A).

3. SCHLUETER, RAYMOND A. Indiana State Univ. Effects of thermal effluents on reproduction of minnows in the White River, Indiana. (C).
- Amphibia:
1. DIAL, NORMAN A. Indiana State Univ. Effects of methylmercury on *Rana pipiens* embryos. (C).
  2. LABANICK, G. M. Indiana State Univ. The food and feeding behavior of *Acris crepitans* Baird (Anura: Hylidae). (C).
- Aves:
1. MORGAN, FRED. 1968. A field study of avifauna on an old farm in northeastern Indiana. Univ. Microfilms, Inc., Ann Arbor, Mich. One vol. 399 pp. Ph.D. Thesis. (In press). (B).
  2. MUMFORD, R. E., and J. O. WHITAKER, JR. 1974. Black Vulture nesting in Crawford County, Indiana. Indiana Audubon Quart. 52:67-69. (A).
  3. NOLAN, VAL JR. 1974. Notes on parental behavior and development of young in the wood thrush. Wilson Bull. 86:144-155. (Indiana). (A).
- Mammalia:
1. BARREY, R. E., JR. Indiana State Univ. Comparative morphology of gastrointestinal tracts of small mammals as related to food habits. (C).
  2. FORD, STEVEN D. Indiana State Univ. Range distribution and habitat of the western harvest mouse, *Reithrodontomys megalotis*, in Indiana. (C).
  3. JONES, GWILYM S. 1974. Notes on the mammals of a stripmined area in Pike County, Indiana. Indiana Audubon Quart. 52(1):19-32. (A).
  4. REISING, JOHNNY W. Indiana State Univ. Evansville 1974. Mammals of the Huntington Reservoir, Huntington and Wells Counties, Indiana. M. S. Thesis. (B).
  5. SMITH, RONALD J., and C. M. KIRKPATRICK. 1973. Microclimatic measurements and use of artificial shelter by confined cottontails. Proc. Indiana Acad. Sci. 83:146-154. (A).
  6. STORMER, FRED A., *et al.* 1974. Assessment of population levels of white-tailed deer on N.A.D. Crane, Indiana. Purdue Univ. Agr. Exp. Sta. Bull. No. 910. (A).
  7. WEEKS, HARMON P., JR. 1974. Physiological, morphological, and behavioral adaptations of wild herbivorous mammals to a sodium-deficient environment. Ph.D. Thesis. Purdue Univ. (B).
  8. WHITAKER, J. O., JR., and L. L. SCHMELTZ. 1974. Food and external parasites of the Eastern Mole, *Scalopus aquaticus*, from Indiana. Proc. Indiana Acad. Sci. 83:478-481. (A).
  9. ——— and EASTERLA, D. A. Ectoparasites of bats from Big Bend National Park, Texas. (Submitted: Southwest Nat. In press). (C).
- Biota:
1. FREY, D. G. 1974. Paleolimnology. Mitt. Internat. Verein. Limnol. 20:95-123. 18 figs. (Indiana references). (A).
  2. SCHMELZ, DAMIAN V., St. Meinrad College. Sulfates and pH as limiting factors upon biota in three stripmine lakes, Spencer County, Indiana. (C).

## NECROLOGY

FAY KENOYER DAILY, Butler University

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### MURVEL R(ILEY) GARNER

Marion, Indiana  
October 29, 1896

Richmond, Indiana  
November 16, 1974

Dr. Murvel R. Garner, the son of a farmer-school teacher, was born in Grant County, Indiana, near Marion, October 29, 1896. His early education was obtained in that farm community, Fairmount Academy and Marion Normal School. His interest in teaching probably began with the influence of some very fine teachers at the Academy. He taught in one-room country schools of Grant County for five years (1916 to 1921) before going to Earlham College. There, he prepared to teach Latin American History until his senior year when he was asked to return to Earlham the next year to teach Biology. He received an A.B. degree in 1923 and began teaching in the Earlham Biology Department that same year as an instructor. From 1924 to 1933, while working toward a Ph. D. degree at Chicago University, he was an assistant professor. With summer study and a year and one-half leave spent on campus, he received the Ph. D. degree in Zoology from Chicago University in 1933.

Upon receiving his doctorate, Dr. Garner was made Professor of Biology at Earlham, and was also head of the department for many years. He was the first to institute rotation of the department chairmanship. Landrum Bolling, former President of Earlham College, described Dr. Garner as follows: "In the best sense, Murvel Garner was an old-fashioned naturalist, an out-of-doors field study man. In that respect, he was part of a great Earlham tradition that went back to the second president of the college, Joseph Moore." In order to study plants and animals where they grow, Dr. Garner was instrumental in the establishment of the David Worth Dennis Biological Station at Dewart Lake, Indiana, in 1946. This is a center for undergraduate instruction and research in Limnology. He served as director until his retirement in 1962. A visitor had to be impressed (as I was) with the atmosphere of friendship, cooperation, comradery and industriousness generated among the students there by this friendly man.

During several summers, he taught or served in other capacities. He taught at New Mexico Normal University in 1934 and 1938; was a Field Naturalist with the Roosevelt Wild Life Station, New York, in 1935 and 1936; and taught Aquatic Biology at the University of Wyoming Science Summer Camp in 1950.

Dr. Garner was a member of the Society of Friends and a life-long pacifist. Due to this philosophy, he spent a year and one-half directing a Civilian Public Service Camp at Bowie, Maryland, during World War II (June, 1942 to October, 1943). He also served on many Friend's Committees and was a part-time pastor.

In recognition of his "sympathetic understanding and helpfulness", the Earlham Class of 1939 dedicated its yearbook to him. He was awarded a National Science Research Grant in 1957 and during 1961 and 1962 held a Biology Teacher's Summer Institute funded also by the National Science Foundation. Dr. Garner was also the first recipient of the Ira Doan Distinguished Teacher Travel Award established by Earlham. This prestigious award in 1958 provided Dr. Garner with funds for summer travel in Mexico. In 1959 to 1960 on a sabbatical leave, he and Mrs. Garner returned to Mexico with a group of students, some of whom studied at the University of Veracruz and others at the University of the Americas in Mexico City. In 1953, Dr. and Mrs. Garner directed a work camp in Puerto Rico, and supervised Earlham College students in the project. Dr. Garner returned to Mexico in 1969 and served as Director of the Villa Jones International Cultural Center in Mexico City.

After retirement from Earlham in 1962, Dr. Garner taught at these institutions: Blackburn College, Carlinville, Illinois; Nebraska Wesleyan University, Lincoln, Nebraska; and Wells College, Aurora, New York. He also devoted time to writing and research.

In 1925, Dr. Garner joined the Indiana Academy of Science while an assistant professor at Earlham College. That year, he attended the spring Academy meeting at Clifty Falls, Madison, Indiana. Through the years, he presented a number of papers at fall sessions which included: limnological studies, ecology of the millipede, *Pleurolooma butleri* and soil invertebrates; occurrence of the freshwater *Medusa* near Richmond, Indiana; and regeneration of heads on both ends of long, excised planarian segments. At the Indiana Sesquicentennial symposium of invited papers for the History of Science Division in 1966, Dr. Garner gave a history of Zoology in Indiana. He was chairman of the Zoology Division for 1949; served on the Fellows Committee during 1963 and 1964, Membership Committee from 1951 to 1961; and was chairman of the Committee on Undergraduate Research in Biology in 1957. He was honored as a Fellow in 1935. He was also a member of the Ecological Society of America, American Soil Science Society, Whitewater Valley Audubon Society, Richmond Photographic Society, Richmond Arts Council, Eastern Indiana Gem and Mineral Society, Sigma Xi and Agronomy Society. He is listed in *American Men of Science*, *Who's Who in Indiana*, and *Indiana Scientists*.

While walking near the Earlham campus November 16, 1974, Dr. Garner collapsed and died leaving an empty place in the lives of many; for probably, his most memorable characteristic was a genuine interest in people—students, colleagues, neighbors and others with whom he came in contact in his various activities—church, hobby and volunteer.

## FREDERIC C (OWLES) SCHMIDT

New Haven, Connecticut  
February 19, 1904

Bloomington, Indiana  
November 18, 1974

Dr. Frederic C. Schmidt was a distinguished teacher of chemistry at Indiana University where he taught from 1947 until retirement in 1969. He was highly esteemed and a popular teacher introducing more than 17,000 students to college chemistry. Some of his classes had more than 500 students who were impressed by his ability, notwithstanding, to remember many of their names and to retain a continuing interest in their achievements in later years. He was co-author with a colleague, Professor William Nebergall, of a successful chemistry text, *General Chemistry* (1959) which reaches tens of thousands of readers each year and *College Chemistry* (1957).

Dr. Schmidt was born at New Haven, Connecticut, February 19, 1904. He was educated at Brown University, Providence, Rhode Island, receiving a B.S. in 1927, M.S. in 1928 and Ph.D. in physical chemistry in 1931. His professional career began as Research Chemist with Oldbury Electrochemical Company in Niagara Falls, New York, and also the General Electric Company, Schenectady, New York. He returned to Brown University to do research from 1931 to 1932. He began his teaching career as an Instructor of Organic Chemistry at Union College, Schenectady, New York, from 1932 to 1947. He was an assistant professor from 1937 to 1943, associate professor from 1943 to 1947 and professor in the affiliate, Albany College of Pharmacy from 1944 to 1945. In the summer of 1946, he also taught at Yale University.

Dr. Schmidt came to Indiana in 1947 as an associate professor at Indiana University and became professor in 1951. He was honored for his excellence as a teacher in 1961 when he received the Herman F. Lieber Award for Distinguished Teaching from the Indiana University Foundation. He taught at the University of Hawaii as Visiting Professor of Physical Sciences during the summer of 1957.

The next year (1948), after Dr. Schmidt came to Indiana, he joined the Indiana Academy of Science. He was elected Chairman of the Chemistry Division for 1962. He was co-author of several papers presented at fall meetings which usually dealt with the physical chemistry of anhydrous ethylenediamine solutions, and he spoke on *Preparation for College Chemistry*. He also conducted research on heat of solution and heat of reaction involving anhydrous liquid ammonia which was supported by the Atomic Energy Commission. He received Grants-in-Aid from Sigma Xi and the American Academy of Science. Further intensive research was carried out during sabbatical leave at the University of California, Berkeley Campus, and Woods Hole Oceanographic Institute.

In addition to Academy membership, Dr. Schmidt was a member of the American Chemical Society (Chairman of the Southern Indiana Section, 1952), New York Academy of Science, Alpha Chi Sigma,

Hawaiian Academy of Science, Phi Lambda Upsilon, Sigma Xi and was a Fellow of the American Association for the Advancement of Science. He is listed in *American Men of Science*, *Who's Who in Indiana*, *Indiana Scientists*, and *Who's Who in the Midwest*. A biographic article about him was also published in the *Indiana Alumni Magazine* (V. 33, No. 2, p. 24, 1969).

Dr. Schmidt directed annual summer institutes for high school teachers of chemistry supported by the National Science Foundation. He was also sponsor of the Indiana University ham radio club for many years and had been a ham operator since 1926. The license for the campus station *K9IU* was in his name for several years. He was known widely among ham operators as "Jerry", the nickname favored by those who knew him best.

Still energetic and ebullient at 65 years of age, Professor Schmidt retired early in 1969 to be able to spend more time in his research laboratory. He died in Bloomington Hospital November 18, 1974.

## MATTHEW F (RANCIS) TAGGART

South Bend, Indiana  
May 27, 1893

Niles, Michigan  
December 18, 1973

Mr. Matthew F. Taggart was born in South Bend, Indiana, May 27, 1893. Undoubtedly, his family had a great influence on his choice of career and philosophy of life. His grandfather, Dr. McClung (M.D.), provided a scientific interest, his maternal grandmother was a respected counsellor in his boyhood and work in his father's business in early life prepared him for a business career.

He attended South Bend public schools and Central High School. At Purdue University, he obtained a B.S. degree with more than enough subjects to meet requirements. After graduation, he started work for the Aluminum Company of America in East Saint Louis, Illinois. While there, he attended classes in business law at Washington University.

In 1922, he returned to Indiana to work for the O'Brien Varnish Company in South Bend. In 1926, he founded his own company, The Taggart Varnish Company. After five successful years (1932), he was asked to return to the O'Brien Corporation (as it was then known) as Director of Research.

During the 1930's Mr. Taggart became interested in the National Farm Chemurgic Council of New York and through it his interest extended to the increased use of farm products through chemistry. He did research on the improvement of the paint properties of Soya Oil and was finally successful by applying a heat treatment to a combination of Soya and Tung Oil so that the beneficial properties of both oils complemented each other. The process was announced at a Chemurgic Conference in 1938 and he was thus propelled into prominence in this field. He served on the Board of Governors of the Council for many years. He became an international authority on paints, varnishes and enamel developing a non-yellowing white enamel and studied the paint properties of several other oils including safflower and citrus. His articles in this field appeared chiefly in the *Chemurgic Digest* and *Paint and Varnish Magazine*. He had many speaking engagements.

During World War II, Mr. Taggart applied his knowledge of paint properties to camouflage. He developed coatings which were flat to give as little light reflection as possible during blackouts and coatings which could be removed quickly after the blackout need ended.

Mr. Taggart also used his camera to support his science hobbies. He wrote, "— I have enjoyed studying the skies and have repeatedly found solutions to my vocational problems while in the mental calmness of deep reverie." His fascination with the physical properties of paints and light refraction in nature had a common bond. He impressed the world of astronomy with a technical explanation and movies of a low horizon sun phenomenon over water, a mirage-like image of sunrise and sunset above the water line. He also studied the moon phases, sun and stars, publishing some of his research in *Sky Telescope*. Other

studies included fidelity of colors under different photographic conditions, shells of Florida, tropical fish, and he was consultant at the Shedd Aquarium at Chicago. Some of the titles to his movies and slides are poetic-gray silhouettes at dawn, seascape with rhythmic rollers, fog tongues in the cold spring air, etc.

Mr. Taggart joined the Indiana Academy of Science in 1927 while owner of the Taggart Varnish Company at South Bend, Indiana, and was interested in the Chemistry Division. He was an Emeritus Member at death.

He was also a member of the Masonic Lodge; Scottish Rite; Izaak Walton League of America; Y.M.C.A.; Shriner; Rotary Club; Elks (Life member); 50 year member of the American Chemical Society; Emeritus Fellow of the American Institute of Chemists; Society of Chemical Industry, London, England; life member of the Gulf Stream Astronomical Association, Incorporated; American Soybean Association; and Chain O'lakes Gun Club. He was Commodore of the Diamond Lake Yacht Club. Biographic sketches are published in *American Men of Science* and *Chemurgic Digest* (V. 9, No. 4).

A little-known side of Mr. Taggart was his generosity and charity in providing a number of young people with a complete college education.

Mr. Taggart retired from the O'Brien Corporation after 35 years (1967). However, before that, he had been on a part-time basis in order to spend more time with his family. After his first wife died, he remarried and soon had a daughter in whom he took great pride. For many years, they spent their time divided between a winter home in Fort Lauderdale, Florida (which provided the environment for many of his nature studies) and home in Michigan located on Diamond Lake at Cassopolis, 22 miles northeast of South Bend, Indiana. He was on call at the O'Brien Corporation, though, at all times and returned to South Bend as the need arose.

Mr. Matthew F. Taggart died December 18, 1973, in the Pawating Hospital, Niles, Michigan, after an extended illness. He had enjoyed success in both basic and applied scientific research with the pursuit of one aiding in the pursuit of the other.



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