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PART 1

THE WORK  
OF THE  
ACADEMY

1972

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**Auditing Committee:** C. A. DHONAU, Chairman; R. E. DOLPHIN.

**Youth Activities Committee:** D. R. WINSLOW, Chairman; R. M. BROOKER; NEAL CARMICHAEL; JERRY COLGLAZIER; FLOYD CONRAD; JOHN V. DAVIS; KEITH HUNNINGS; JANE KAHLE; KARL L. KAUFMAN; W. F. MCBURNEY; LAWRENCE POORMAN; JAMES D. SCHWENGEL.

**Indiana Science Talent Search:** W. F. MCBURNEY, Chairman; MARK BAMBENEK; ROBERT L. HENRY; ALFRED R. SCHMIDT; HOWARD R. YOUSE; HAROLD L. ZIMMACK.

**Indiana Science Fairs, State Coordinator:** KARL L. KAUFMAN.

**Indiana Science Fairs, Regional Fair Directors:** P. V. FLANNERY, Calumet; A. C. KOESTER, Northwestern; KENNETH ESAU, Northern; A. W. FRIEDEL, Northeastern; C. A. PINKHAM, N.E. Tri-State; T. R. WEST, Lafayette; G. N. BUTTER, West Central; G. G. WELKER, East Central; HOWARD SWARTZ and ROBERT HESSONG, Central; W. F. MCBURNEY, South Central; RICHARD L. CONKLIN, Southeastern; WARREN HANKINS, Tri-State.

**Indiana Junior Academy of Science Council:** LAWRENCE POORMAN, 1974, Chairman; SR. MARY ALEXANDER, 1972; MARY J. PETERSEN, 1973; D. R. WINSLOW, 1975; STEPHEN J. THOMPSON, 1976.



**Library Committee:** LOIS BURTON, Chairman; NELLIE COATS; W. R. EBERLY; J. W. KLOTZ; ELI LILLY.

**Program Committee:** C. F. DINEEN, Chairman.

**Publications Committee:** M. T. JACKSON, Chairman; M. F. BAUMGARTNER; LOIS BURTON; H. G. DAY; W. R. EBERLY; W. N. MELHORN; J. F. PELTON; B. K. SWARTZ, JR.

**Newsletter:** DAMIAN SCHMELZ.

**Relation of the Academy to the State of Indiana:** WILLIS H. JOHNSON, 1973, Chairman; P. E. KLINGE, 1972; R. D. MILES, 1972; ROBERT MENKE, 1972; A. W. FERGUSON, 1972; D. J. COOK, 1973; JOHN PATTON, 1973; D. JAMES MORRÉ, 1973; H. G. DAY, 1974; R. L. MANN, 1974; H. R. YOUSE, 1974; R. E. HENDERSON, 1974; HERMAN B. WELLS, Honorary; HELMUT KOHNKE, Executive Secretary.

**Membership Committee:** WILLIAM B. HOPP, Chairman.

**Fellows Committee:** BEN MOULTON, 1973, Chairman; SEARS CROWELL, 1972; R. E. GORDON, 1972; B. E. MONTGOMERY, 1972; JOHN PELTON, 1972; J. L. AHLRICH, 1973; C. E. BRAMBEL, 1973; W. W. DAVIS, 1973; P. D. EDWARDS, 1974; PAUL H. GEBHARD, 1974; W. H. HEADLEE, 1974; G. F. HENNION, 1974.

**Resolutions Committee:** ARTHUR T. GUARD, Chairman; H. R. YOUSE; R. O. PETTY.

**Invitations Committee:** P. R. QUINNEY, Chairman; W. K. STEPHENSON; JAMES C. LIST; A. A. LINDSEY.

**Necrologist:** FAY K. DAILY.

**Parliamentarian:** PAUL WEATHERWAX.

#### SPECIAL COMMITTEES APPOINTED BY THE PRESIDENT

**Biological Survey Committee:** LELAND CHANDLER, Chairman.

**Emeritus Member Selection Committee:** WINONA H. WELCH, Chairman; ROBERT H. COOPER; P. D. EDWARDS; EDWARD L. HAENISCH; HOWARD MICHAUD.

**Preservation of Scientific Areas Committee:** R. O. PETTY, Chairman; RAY GUTSCHICK; CARL KREKELER; CARROLLE MARKLE; BEN MOULTON; DAMIAN SCHMELZ; ROBERT WEBER; WINONA H. WELCH.

**"Speaker of the Year" Selection Committee:** WILLIS H. JOHNSON, 1972, Chairman; A. J. ULLSTRUP, 1973; H. G. DAY, 1974.

**Executive Secretary Committee:** JERRY J. NISBET, Chairman; W. H. JOHNSON; W. K. STEPHENSON.

**Science and Society Committee:** W. H. JOHNSON, 1973, Chairman; P. E. KLINGE, 1972; R. D. MILES, 1972; ROBERT MENKE, 1972; A. W. FERGUSON, 1972; D. J. COOK, 1973; JOHN PATTON, 1973; D. JAMES MORRÉ, 1973; HARRY G. DAY, 1974; R. L. MANN, 1974; H. R. YOUSE, 1974; R. E. HENDERSON, 1974; HERMAN B. WELLS, Honorary; HELMUT KOHNKE (Executive Secretary).

**Member, Indiana Natural Resources Commission:** O. K. BEHRENS.

## SPRING MEETING

SAINT MARY'S COLLEGE, Notre Dame Indiana

### MINUTES OF THE EXECUTIVE COMMITTEE MEETING

April 28, 1972

The meeting was called to order in Carroll Lecture Hall, St. Mary's College, Notre Dame, Indiana, by President Otto Behrens at 4:35 PM. Twenty members were present. Minutes of the general session meeting of October 29, 1971, and of the executive committee meeting of October 28, 1971, had been duplicated and distributed. The secretary moved that they be approved; it was seconded and carried.

**Treasurer:** Clyde Metz presented his report for the period January 1 to April 26, 1972. It was accepted on motion by William Daily, seconded and carried.

(All of the following committee reports were accepted by general consent, unless a motion is recorded.)

**Trustees of the Academy Foundation:** A brief oral report was given by William Daily.

**Research Grants Committee:** James Newman, Chairman, reported that five grants had been awarded in 1972 and three others were under consideration. The committee is trying to initiate a system of giving the annual A.A.A.S. grant to a high school teacher and one of his students, as recommended by the donor.

**Academy Representative on the A.A.A.S. Council:** Willis Johnson, Delegate, reported on the December meeting. That organization is in the process of changing its constitution to eliminate representatives from each State Academy. However, the change is not yet final.

**Auditing Committee:** C. A. Dhonau submitted a written as well as a telephoned report. The treasurer's books for 1971 were accurate and in order. The committee recommended: 1) A certified public accountant be hired for future audits; 2) The treasurer's bond be increased to \$100,000; 3) The constitution be clarified as to the handling of academy funds. The recommendations were discussed; no action was taken, but the matter of a C.P.A. audit was referred to the treasurer.

**Youth Activities Committee:** Donald Winslow, Chairman, wrote in a long, careful report, including one by Wendell McBurney on the 1972 Indiana Science Talent Search. A great deal of educational work has been done by this committee among the high school students of Indiana, in 1972 as in preceding years. There are two problems: 1) Raising adequate finances; 2) Increasing the identity of the Academy with its youth activities.

**Library Committee:** Lois Burton, Chairwoman, reported that 1104 copies of Volume 80 had been mailed to members, plus many copies on exchange. Work continues on expansion of the exchange list and re-cataloging the collection.

**Program Committee:** Clarence Dineen, Chairman, reported that all was in order (except the weather) for the spring and for the fall programs for 1972.

**Publications Committee:** Marion Jackson, Chairman, reported that William Eberly had resigned (because of illness) as caretaker and salesman of *Monographs*. This work will be taken over by Mrs. Lois Burton.

**Newsletter:** Damian Schmelz sent in a written report. Cost of the April newsletter was \$96; cost of each additional number this year will be \$50; the budget allotted \$150 for the year. There was general discussion of the newsletter. The April number was approved; most members present felt that of the other two 1972 numbers planned (September and December) that the December number was more important.

**Relation of the Academy to the State:** Willis Johnson, Chairman, reported that he had appeared before the Legislative Council in March and will appear before the State Budget Committee.

**Membership Committee:** William Hopp, Chairman, reported that a new membership brochure had been printed and was ready for distribution.

**Invitations Committee:** Paul Quinney, Chairman, had reported by telephone to the president. We are tentatively invited to meet at Butler University in 1975. It was moved by Willis Johnson, seconded, and carried that we accept the invitation from Butler University.

**Parliamentarian:** Paul Weatherwax moved an amendment to Section 8 of Article V of the constitution of the Indiana Academy of Sciences. The present Section 8 of Article V is abolished. The following is substituted therefor:

(8) **Science and Society:** The Committee on Science and Society shall consist of 9 to 12 members of the Academy, including representatives of industry, serving staggered three-year terms. This Committee may maintain a permanent office with a Director and supporting personnel, and it is authorized to solicit financial support for its work from foundations or other sources.

The duties of this Committee shall be:

(1) To bring to the attention of the Governor and General Assembly of Indiana the nature and activities of The Academy, indicating that its State Charter and its continued support from the State place upon it the obligation to serve the State in every way possible;

(2) To develop procedures for disseminating scientific information and offering scientific information and scientific advice to citizens of the State through the establishment of a Speaker's Bureau and the use of the various news media; and

(3) To mobilize the membership of the Academy in support of these efforts.

**Emeritus Member Selection Committee:** Winona Welch, Chairwoman, recommended the election of the following as emeritus members:

DR. G. B. BACHMAN

DR. T. L. ENGLE

DR. GEORGE E. GOULD

DR. JOHN W. KROEGER

DR. J. M. MCGUIRE

DR. ELMER CURRY PAYNE

DR. HENRY S. ROTHROCK

It was moved by Paul Weatherwax, seconded, and carried that all seven be so elected.

**Natural Areas Committee:** A written report was received from Robert Petty, Chairman. The conservation organization ACRES had requested the Academy to appoint a member to their board of directors, and the request had been referred to this committee. The committee made no recommendation, but the chairman recommended that we not accede, but offer ACRES all possible assistance in the way of scientific advice or knowledge, yet without formal commitment to their directorship. It was moved by Willis Johnson, seconded, and carried that we deny the request of ACRES, and approve the committee report.

**Speaker of the Year Committee:** Willis Johnson, Chairman, reported that the recent series of lectures at various colleges by A. A. Lindsey had been quite successful. The second "speaker of the year," for 1972-73, will be chosen shortly.

**Science and Society Committee:** Willis Johnson, Chairman, reported that they were working with the State Legislative Council for the establishment of an Indiana Science and Technology Advisory Council. An application for funds for the operation of seminars on environmental problems is pending. Dr. Helmut Kohnke has resigned as executive director as of May 6.

**Executive Secretary Committee:** Jerry Nisbet, Chairman, reported a thorough study of the need and cost of an executive secretary, and of his work in those other states where state academies have such an officer. The committee recommended the establishment of such an office, but only after the necessary financial resources were in sight, specific responsibilities were delineated, and housing (office space) was available. After general discussion, the president did not discharge the committee, but charged it to investigate the possible sources of supportive funds and to report again at the fall meeting.

The president reported an investigation of possible actions regarding the National Science Talent Search ban on live vertebrate experimentation. There was no time left for discussion or action. Therefore, Clarence Dineen moved that the matter be tabled to the fall meeting. Seconded and carried.

The meeting adjourned at 6:17 PM.

Approved November 2, 1972

Respectfully submitted,  
J. DAN WEBSTER, Secretary

## MINUTES OF THE GENERAL SESSION

April 28, 1972

The meeting was called to order in Carroll Lecture Hall, St. Mary's College, Notre Dame, Indiana, by President Otto Behrens at 7:52 PM. Twenty-five (25) members were present. The secretary moved approval of the following amendment to the constitution which had been approved by the executive committee last October and read to the general session in October.

Article V, Section 1. The following named committees shall be appointed by the President, to serve for one year, *except as noted otherwise below and except as rotation is provided.* [and] Except as otherwise provided they shall be announced . . .

(1) The academy representative on the council of the American Association for the Advancement of Science. *This person shall serve for a three-year term beginning 1 January 1972 and every 3 years thereafter.*

(2) Auditing . . .

(Added words italicized; words in brackets deleted.)  
Seconded and carried.

The program chairman, Clarence Dineen, then took the chair. He announced meals and field trips for the next day, and introduced the speaker. Thomas F. Poulson of Notre Dame University gave an interesting lecture on cave fauna and its evolution.

Approved November 2, 1972.

Respectfully submitted,  
J. DAN WEBSTER, Secretary

## FALL MEETING

SAINT MARY'S COLLEGE, Notre Dame, Indiana

### MINUTES OF THE EXECUTIVE COMMITTEE MEETING

November 2, 1972

The meeting was called to order by President Otto K. Behrens at 7:35 PM in Carroll Hall, St. Mary's College, Notre Dame, Indiana. The minutes of the general session and of the executive committee meeting of April 28 had been duplicated and distributed. The secretary moved that they be approved as duplicated, with minor corrections; it was seconded and carried.

**Treasurer:** Clyde Metz reported financial details for the period January 1 to October 25, 1972. In summary it was:

	Academy Accounts	Administered Accounts	Total
Balance January 1, 1972	\$7,206.11	\$30,136.52	\$37,342.63
1972 Income	\$6,799.39	\$18,339.49	\$25,138.88
1972 Expenditures	\$6,489.17	\$29,313.60	\$35,802.13
Balance October 25, 1972	\$7,516.33	\$19,162.41	\$26,678.74

Damian Schmelz moved that we recommend to the trustees of the Academy Foundation and to the Research Committee that the fee for the tax lawyers (\$4,666.00 to Ice, Miller, Donadio and Ryan) be paid from the trust funds. It was seconded and carried. It was moved by Howard Youse, seconded and carried that the Treasurer's report be received.

(All of the following committee reports were accepted by general consent, unless a motion is recorded.)

**Trustees of the Academy Foundation:** William Daily listed the various securities held; their total current market value is \$752,033.00. Total disbursements for the year were \$8,865.00.

**Bonding Committee:** Robert Brooker stated that there was no report.

**Research Committee:** James Newman, Chairman, reported that \$6,600.00 had been granted to 12 members to support individual research projects this year. A revised "Statement of policy on research grants" had been published. A new program, support of high school science club activity, was announced; proposals were invited. Prof. Newman moved acceptance of his report; it was seconded and carried.

**Academy Representative on the A.A.A.S. Council:** Willis Johnson reported no action except the change in the A.A.A.S. constitution which will disenfranchise us (abolish our representative).

**Auditing:** C. A. Dhonau requested the Treasurer's Report (As directed at the spring meeting—see minutes) on the matter of a

C.P.A. audit. Clyde Metz reported that the cost of a C.P.A. audit would be \$1,200 to \$1,500 the first year and about \$1,000 a year thereafter. About \$500 a year would pay for C.P.A. preparation of tax forms only. The matter was referred to the budget committee for decision.

**Youth Activities Committee:** Donald Winslow, Chairman, reported participation by three high school students in Hammond in the national Junior Academy of Science meeting. The proposed science club activity grants were welcomed. (See Research Committee Report, above) The committee unanimously endorsed a draft of guidelines concerning the use of live animals in the classroom which had been prepared by President Behrens and distributed. Mr. Winslow moved that this statement be adopted:

The Indiana Academy of Science continues to encourage student investigations in the sciences. Any investigations involving the use of living organisms should follow reasonable guidelines such as those prepared by the National Association of Biology Teachers, the National Society of Medical Research, and the National Science Teachers Association.

Seconded and carried.

**Indiana Science Talent Search:** Wendell McBurney, Director, reported an excellent continuing program. Seventeen high school students entered in 1972; eleven received state awards and four national awards. Kappa Kappa Kappa sorority continues its generous financial support.

**Indiana Junior Academy of Science:** Lawrence Poorman, Director, wrote in, reporting an effective program in 1971 and 1972.

**Library Committee:** Lois Burton, Chairwoman, reported that work continues (under support from the Lilly Endowment, Inc.) on expanding the list of exchanges and on re-cataloging the library collection. Use of the library's materials has increased greatly. Additional shelving was provided by the State Library.

**Publications Committee:** Marion Jackson, Chairman, reported that delay of publication of Volume 81 of the *Proceedings* (which are not out yet) was partly caused by the inclusion of the 10-year index, but mainly caused by the printer's lack of experience with technical and scientific printing. The question of possible publication in the *Proceedings* of papers in years subsequent to their original reading was discussed, but then referred to the publications committee for decision.

**Newsletter:** Damian Schmelz, Editor, reported that one issue had been mailed in January and that a second one would be mailed in late November. He recommended that the same editor continue for several years, or at least an editor from the same town, in order to benefit from a single bulk mailing permit.

**Director of Public Relations:** Paul Klinge wrote that he should be relieved of this position at the end of the current year. Publicity for recent fall meetings has been good.

**Program Committee:** Clarence Dineen, Chairman, reported no problems.

**Relation of the Academy to the State and Science and Society Committees:** Willis Johnson, Chairman, has requested from the state budget an increase in our state support from \$4,000.00 to \$8,000.00. He reported working for the passage of a bill at the forthcoming legislature establishing an Indiana science and technology advisory council. A grant was received from the federal department of Health, Education, and Welfare for the operation of four seminars on the environment for public education. Some of these seminars are in operation; the others soon will be.

**Membership Committee:** William Hopp, Chairman, reported a modest increase—to 1,111 current members. Hopefully, the increase will increase.

**Fellows Committee:** Benjamin Moulton, Chairman, moved the election of George B. Craig, Jr. (Entomology) and James E. Newman (Soil Science) to the class of fellows. Seconded and carried.

**Emeritus Members Committee:** Winona Welch, Chairwoman, moved the election of Stanley E. Hartsell and Eiffel G. Plasterer to the class of emeritus members. Seconded and carried.

**Speaker of the Year Committee:** Willis Johnson, Chairman, reported that Dr. Frank Edmonson had been chosen speaker of the year for 1972-73. His address is, "The P's and Q's of Modern Astronomy."

**Executive Secretary Committee:** Jerry Nisbet, Chairman, reported as follows:

The Executive Secretary Committee was appointed in the Summer of 1971 and charged with the responsibility of exploring the need for, and making recommendations concerning the establishment of, the office of Executive Secretary for the Academy. The Committee made its first report in October 1971, suggesting possible courses of action.

The Committee continued its work by investigating the ways in which the office of Executive Secretary operates and is funded in other State Academies. A report of these findings was presented to the Executive Committee in April 1972.

Based upon its findings and deliberations, the Committee is convinced that the Indiana Academy of Science must establish the office of Executive Secretary if the Academy is to meet its ever more pressing responsibilities to the State of Indiana and to scientists. The Committee is also convinced that the Academy will ultimately recognize the necessity of this action. The sooner the office is established, the sooner the Academy can assume a more viable role in serving its constituency.

The Committee recommends that the Executive Committee endorse this report and convey the recommendation to employ an Executive Secretary to the Academy at the earliest possible time. The Committee



further recommends that the Academy seek to establish the position of Executive Secretary as a half-time position initially, with the objective of making the position full-time as soon as funding can be obtained.

Dr. Nisbet moved the approval of the report; it was seconded. A move to table was defeated. Clyde Metz moved that the motion be amended to read "accept" rather than "approve" and that "the president would appoint committees to investigate possible duties, budget, and housing of the executive secretariat, and, especially, possible funding of the program." The motion to amend was seconded and carried. The motion as amended was seconded and carried.

It was suggested by several persons that chairmen-elect of divisions be specifically invited to attend future meetings of the executive committee.

The meeting was declared adjourned at 9:50 PM.

Approved May 11, 1973.

Respectfully submitted,  
J. DAN WEBSTER, Secretary

## MINUTES OF THE GENERAL SESSION

November 3, 1972

The meeting was called to order in the Little Theatre, St. Mary's College, Notre Dame, Indiana, at 2:09 PM by President Otto Behrens.

President Edward L. Henry of St. Mary's College briefly welcomed us to the campus, especially welcoming the female members of the academy.

The secretary read a brief summary of the actions taken at the November 2 meeting of the Executive Committee. The secretary had duplicated and distributed copies of the following amendment to the constitution. He now read the amendment and moved that it be adopted:

The present Section 8 of Article V of the constitution is substituted therefor—

(8) **Science and Society:** The Committee on Science and Society shall consist of 9 to 12 members of The Academy including representatives of industry, serving staggered three-year terms. This Committee may maintain a permanent office with a Director and supporting personnel, and it is authorized to solicit financial support for its work from foundations or other sources.

The duties of this Committee shall be:

(1) To bring to the attention of the Governor and General Assembly of Indiana the nature and activities of The Academy, indicating that its State Charter and its continued support from the State place upon it the obligation to serve the State in every possible way;

(2) To develop procedures for disseminating scientific information and offering scientific advice to citizens of the State through the establishment of a Speaker's Bureau and the use of the various news media; and

(3) To mobilize the membership of The Academy in support of these efforts.

Seconded and carried.

Fay Daily, Necrologist, reported the deaths of these members of the Academy: Floyd E. Bethel, Harry E. Crull, L. B. Howell, Zygmunt Karpinski, Percy L. Knight, Jr., G. David Koch, John J. Moore. A moment of silence was observed in their honor.

Willis Johnson introduced the speaker of the year, Frank K. Edmondson, who gave a stimulating address on "The P's and Q's of Modern Astronomy."

Afterward, the meeting was temporarily adjourned; but it reconvened at 7:43 PM, with President-elect William Hopp presiding in

the Dining Hall of St. Mary's College. The secretary read the list of newly-elected sectional chairmen, as follows:

Section	1973 Chairman	1974 Chairman-elect
Anthropology	John M. Hartman	
Botany	Charles L. Gehring	Leland L. Hardman
Cell Biology	Carl Godzeski	
Chemistry	William A. Nevill	Stanley L. Burden
Ecology	Marion T. Jackson	
Engineering	Thomas J. Herrick	Jacques H. Delleur
Entomology	Walter J. Weber	Darrell Sanders
Geography	Arthur Mirsky	Robert D. Miles
Micro-Molecular Biology	Morris Pollard	
Physics	Malcolm E. Hultz	
Plant Taxonomy	Theodore J. Crovello	Thomas R. Mertens
Science Education	William R. Gommel	Darrell W. Nelson
Soil Science	Gerald H. Krockover	
Zoology	Paul S. Ray	

Howard Youse, Acting Chairman of the Resolutions Committee, moved this resolution:

The Academy members here assembled wish to express their appreciation to Saint Mary's College for all the courtesies which have been extended to the membership during this meeting. We are indebted especially to Dr. Clarence F. Dineen, Chairman of the Program Committee, and his committee members for their efficient handling of all meeting arrangements; and to Dr. Frank A. Edmondson for his stimulating address at the general meeting. Seconded and carried.

Carrolle Markle, for the nominating committee, read the following slate of nominees for office for 1973:

President—William B. Hopp

President-elect—Damian Schmelz

Secretary (1973-75)—Jerry J. Nisbet

Director of Public Relations—Clarence F. Dineen

Trustee of Academy Foundation (1973-74)—William A. Daily

Member of Bonding Committee—Robert M. Brooker

Member of Research Committee (1973-77)—Ansel M. Gooding

Mrs. Markle moved acceptance of the slate and unanimous election of the candidates. Seconded and carried.

Otto Behrens gave a thoughtful address: "Pharmaceutical Research: its Contributions to Science and Medicine." The meeting was declared adjourned at 8:50 PM.

Approved May 11, 1973.

Respectfully submitted,  
J. DAN WEBSTER, Secretary

**FINANCIAL REPORT OF THE  
INDIANA ACADEMY OF SCIENCE  
JANUARY 1-DECEMBER 31, 1972**

**I. ACADEMY ACCOUNTS**

	Income	Expenditure	Budgeted
Dues .....	\$ 5,575.00		(\$5,800.00)
Reprints: Vol. 80 .....	1,182.40		(125.00)
Interest .....	1,411.72		(1,200.00)
Miscellaneous .....	1.66		
Secretary .....		696.87	500.00
Clerical .....	650.50		
Postage .....	46.37		
Treasurer .....		171.34	225.00
Clerical .....	0.00		
Postage .....	171.34		
Office .....		206.05	175.00
Travel, A.A.A.S. Dues, etc. ....		177.84	180.00
Membership Committee .....		40.00	150.00
Transfer to Administered Accounts ..		3,025.00	3,025.00
Junior Academy .....	200.00		
Science and Society .....	600.00		
Natural Areas .....	575.00		
Library Binding .....	1,000.00		
Proceedings: Publications .....	500.00		
Proceedings: Mailing .....	150.00		
President's Fund .....		0.00	100.00
Newsletter .....		150.29	150.00
Speaker of the Year			
Honorarium .....		500.00	500.00
Administrative Expenses .....		0.00	50.00
Program Committee .....		599.90	600.00
Chairman .....	25.00		
Printing .....	423.23		
Mailing .....	151.64		
Publications Editor .....		500.00	500.00
Youth Activities .....		5.20	50.00
Public Relations .....		59.50	50.00
C.P.A. Fees .....		400.00	500.00
Miscellaneous .....		706.38	
Attorney Fees .....		706.38	
	\$ 8,170.78	\$ 7,238.37	\$ 6,755.00

**II. ADMINISTERED ACCOUNTS**

	January 1 Balance	1972 Income	1972 Expenditures	Balance December 31
Junior Academy .....	\$ 0.00	\$ 200.00	\$ 0.00	\$ 200.00
Science Talent .....	1,846.64	1,759.95	1,778.30	1,828.29
Science Fairs .....	2,730.29	12,640.00	11,036.23	4,334.06
Science and Society .....	1,411.82	600.00	136.25	1,875.57
Research .....	3,037.77	4,011.43	6,646.73	402.47
Natural Areas .....	251.50	575.00	0.00	826.50
J. S. Wright .....	134.28	0.00	0.00	134.28
Lilly III Library .....	2,740.73	0.00	107.97	2,632.76
Lilly IV Library .....	11,033.25	0.00	8,339.30	2,693.95
Library Binding .....	0.40	1,000.00	999.50	0.90
Publications .....	1,497.01	1,011.33	10.68	2,497.66
NSF Grant .....	5,452.83	0.00	5,452.83	0.00
HEW Grant .....	0.00	5,350.00	1,863.11	3,486.89
	\$30,136.52	\$27,147.71	\$36,370.90	\$20,913.33

III. SUMMARY

	Academy Accounts	Administered Accounts	Total
Balance: January 1, 1972 .....	\$7,206.11	\$30,136.52	\$37,342.63
1972 Income .....	8,170.78	27,147.71	35,318.49
1972 Expenditures .....	7,238.37	30,370.90	43,609.27
Balance: December 31, 1972 .....	8,138.52	20,913.33	29,051.85

IV. BANK BALANCES

Terre Haute First National Bank, Terre Haute, Indiana .....	\$ 0.00
First Bank and Trust Company, Indianapolis, Indiana .....	11,531.06
Great Western Savings and Loan, Los Angeles, California .....	12,307.16
First Western Savings and Loan, Las Vegas, Nevada .....	5,213.63
	\$29,051.85

CLYDE METZ, Treasurer  
December 31, 1972

February 10, 1973

We, the undersigned, have audited the Treasurer's records for the Indiana Academy of Science for the year 1972 and have found them to be accurate and in order.

CURTIS A. DHONAN  
ROBERT E. DOLPHIN  
February 10, 1973

V. TRUST FUND STATUS AS OF DECEMBER 31, 1972

	Income			Principal		
	Disburse- ments	Receipts	Total	Disburse- ments	Receipts	Total
Account 11043000 (market value = \$21,580.59) (00430-00-0)						
Indiana Academy			\$ 517.04			\$879.05
January	\$ 0.00	\$ 68.15	585.19	\$ 0.00	\$ 0.00	879.05
February	0.88	45.43	629.74	10,300.84	10,000.00	596.21
March	0.00	82.84	712.58	0.00	0.00	596.21
April	0.00	12.02	724.60	0.00	0.00	596.21
May	0.00	38.87	763.47	0.00	0.00	596.21
June	0.00	93.12	856.59	0.00	0.00	596.21
July	0.00	12.63	869.22	0.00	0.00	596.21
August	0.00	30.27	899.49	0.00	0.00	596.21
September	0.00	95.03	994.52	0.00	0.00	596.21
Oct., Nov., Dec.	300.00	139.86	834.38	0.00	0.00	596.21
Account 11043001 (market value = \$800,633.10) (00430-01-9)						
J. S. Wright			518.18			—6.83
January	1,000.00	1,490.07	1,008.25	17,158.00	17,979.57	814.65
February	1,000.88	169.22	176.59	10,300.84	10,000.00	513.81
March	2,067.26	1,264.33	—626.34	0.00	0.00	513.81
April	0.00	917.51	291.17	0.00	0.00	513.81
May	0.00	149.15	440.32	0.00	0.00	513.81
June	1,000.00	1,204.51	644.83	0.00	0.00	513.81
July	2,000.00	1,686.19	331.02	0.00	0.00	513.81
August	66.55	146.99	411.46	23,000.00	22,848.54	362.35
September	2,159.15	1,402.32	—345.37	0.00	10.78	373.13
Oct., Nov., Dec.	0.00	2,611.84	2,266.47	0.00	0.00	373.13
Account 11043002 (market value = \$24,570.82) (00430-02-8)						
IAS Investment			983.12			230.15
January	1,001.40	74.91	56.63	2,000.00	2,000.00	230.15
February	0.88	54.76	110.51	1,000.00	1,000.00	230.15
March	0.25	95.54	205.80	1,000.00	1,000.00	230.15
April	0.00	34.54	240.34	0.00	0.00	230.15
May	0.00	111.77	352.11	0.00	0.00	230.15
June	1.15	128.56	479.52	2,000.00	2,000.00	230.15
July	5.68	36.30	510.14	2,000.00	2,000.00	230.15
August	0.00	94.61	604.75	0.00	0.00	230.15
September	0.88	146.67	750.54	1,000.00	1,000.00	230.15
Oct., Nov., Dec.	800.00	290.13	240.67	2,700.00	2,800.00	330.15

## VI. NOTES

**Membership Dues:**

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

- 990 paid, emeritus, life, honorary, and club members
- 149 on file from 1971, but not yet paid for 1972
- 122 new members for 1972 (included in above totals)
- 12 previous members reinstated during 1972 (included above)
- 80 members and clubs dropped for nonpayment of 1971 dues

**Dues Structure for 1972:**

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

**Savings:**

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

**Certificates redeemed during 1972**

1. \$10,000.00 invested at 6.00% April 1970;  
April 1972 redemption value \$11,275.14
2. \$5,000.00 invested at 5.75% April 1971;  
April 1972 redemption value \$5,295.30
3. \$5,000.00 invested at 5.75% October 1971;  
October 1972 redemption value \$5,297.80

**Certificates current**

1. \$4,465.07 invested at 5.75% April 1970;  
current value \$5,230.33; maturity at March 1973
2. \$6,000.00 invested at 6.00% April 1970;  
current value \$7,076.83; maturity at March 1973
3. \$5,000.00 invested at 6.00% April 1972;  
current value \$5,213.63; maturity at April 1974

**Reprints:**

Reprint charges to authors for Vol. 80 have been completely collected. A total of \$1,730.70 was collected in 1971 and \$1,182.40 was collected in 1972 giving a net profit to the Academy of \$122.40 over the \$2,790.70 paid in 1971 to the printer.

**Attorney Fees:**

Ice, Miller, Donadio & Ryan of Indianapolis have been representing the Academy in clarification of our tax-exemption status. The Academy has been informed by the Internal Revenue Service and by the State of Indiana of favorable classifications.

**Research:** Major expenditures have been \$6,600.00 in grants to 12 members.

**Publications:**

Sales include \$52.08 for *Natural Features*, \$10.50 for *Proceedings*, and \$298.75 for *Monographs*. Charges for 13 *Monographs* are still outstanding.

**HEW Grant (OEG-0-72-5014), Environmental Education Program:**

	<u>Total Budget</u>	<u>Expenditures</u>
Supplies	\$1,500.00	\$ 524.61
Travel	1,400.00	323.50
Honoraria	3,200.00	1,015.00
	<u>\$6,100.00</u>	<u>\$1,863.11</u>
Funds Received	\$5,250.00	
Funds Expended	1,863.11	
Balance	3,486.89	

NSF Grant (9/620-2826), Taking Science to the People:

Direct Costs	Total Budget	1969-71 Expenditures	1972 Expenditures	Total Expenditures
Exec. Dir.	\$20,000.00	\$20,624.88	\$3,542.32	\$24,167.20
Secretary	9,000.00	5,095.80	79.50	5,175.30
Office	5,800.00	4,292.26	852.79	5,145.05
Travel	4,000.00	3,947.53	728.69	4,676.22
Office Rental	1,200.00	600.00	0.00	600.00
	<u>\$40,000.00</u>	<u>\$34,560.47</u>	<u>\$5,203.80</u>	<u>\$39,763.77</u>
Funds Received	\$40,013.30 (\$13.30 remained from earlier grant for use)			
Funds Expended	39,763.77			
Refunded to NSF	249.53			
Balance	0.00			

VII. BUDGET FOR 1973

The following budget was approved by the Budget Committee at their meeting at the Indiana State Library, Indianapolis, on December 2, 1972:

Anticipated Income for 1973	
Dues, Initiation and Reinstatement Fees	\$5,600.00
Interest on Savings	1,000.00
Reprints: Net Profit on Sales to Authors	<u>100.00</u>
	\$6,700.00
Budgeted Expenditures for 1973	
Secretary	\$ 600.00
Treasurer	225.00
Office	250.00
Officer Travel, AAAS Dues, Misc.	200.00
President's Fund	100.00
Membership Committee	75.00
Program Committee	600.00
Proceedings Editor (Travel and Office)	500.00
Youth Activities: Chairman	50.00
Public Relations: Director	50.00
Speaker of the Year	
Honcrarium	500.00
Administrative	50.00
Newsletter	225.00
CPA Firm for Filing of Tax Forms	500.00
Transfer to Administered Accounts	
Publications: Printing of Proceedings	750.00
Publications: Mailing of Proceedings	200.00
Library Binding	1,000.00
Science and Society	300.00
Natural Area	200.00
Junior Academy	<u>100.00</u>
	\$6,475.00

Respectfully submitted:

CLYDE METZ, Treasurer  
December 31, 1972

# THE INDIANA JUNIOR ACADEMY OF SCIENCE

## OFFICERS

President: RAY LICHTENHAN, Hammond  
Vice-President: ERIC VALAINIS, Indianapolis  
Secretary: LAURA FISHER, Gary

## JUNIOR ACADEMY COUNCIL

MARY J. PETERSON, Morton High School, Hammond  
STEPHANIE J. THOMPSON, Crawfordsville High School, Crawfordsville  
DON MAINS, Brebeuf High School, Indianapolis  
KEITH HUNNINGS, New Haven High School, New Haven  
LEE MOSS, Lew Wallace High School, Gary

## STATE DIRECTOR

DR. L. E. POORMAN, Department of Physics, Indiana State University,  
Terre Haute, Indiana 47809

## PROGRAM

Fortieth Annual Meeting  
Saint Mary's College Campus, Notre Dame, Indiana

Saturday, November 4, 1972

Thirty-four Junior Academy of Science members and five sponsoring teachers representing seven schools attended the 40th Annual Meeting of the Indiana Junior Academy of Science.

## PAPERS GIVEN

Papers were given by two students in the morning session:

- 1) Analysis of Aldehydes in Pyrdegnious Acids. MIKE PELLETIER, New Haven High School, New Haven, Indiana.
- 2) Factors Controlling Preservation of Diatoms in Lake Sediments. KAREN WILSON, Morton Senior High School, Gary, Indiana.

Both papers were well received by the audience. Discussion following the papers was most enlightening.

The afternoon session was used to do a self-evaluation of the Junior Academy and future roles and functions it may use to serve the state secondary science students in the next few years.

## AWARDS

The Best Boy Scientist for 1972 was:  
MR. MIKE PELLETIER—New Haven

The Best Girl Scientist for 1972 was:  
MISS LAURA FISHER—Gary Lew Wallace

The officers for the Junior Academy for 1973 elected were:  
President: MISS LAURA FISHER, Gary  
Vice-President: MIKE WESTERFIELD, Crawfordsville  
Secretary: KEN BERG, Hammond

Respectfully submitted,  
L. E. POORMAN, Director



## NECROLOGY

FAY KENOYER DAILY, Butler University

F (LOYD) E (LDON) BEGHTEL

Huntington County, Indiana  
December 22, 1886

Evansville, Indiana  
April 3, 1972

Dr. Floyd E. Beghtel was a retired businessman when he died April 3, 1972, in Evansville, Indiana. However, the major part of his professional life had been spent as a teacher in the natural sciences.

Dr. Beghtel was born December 22, 1886, in Huntington County, Indiana. His education was obtained in that county through his early years and he graduated from the Clear Creek High School in 1906. He obtained an A.B. degree at Indiana Central College in 1912 where his major subjects were history and political science. An M.A. degree was obtained at Indiana University at Bloomington, Indiana, in 1917. He had a great interest in botany, zoology and chemistry. His admiration for Dr. Paul Weatherwax, botanist at Indiana University, was probably responsible for Dr. Beghtel's interest in that field and was the inspiration for future graduate work. Also, teaching was and still is a very popular career in his family. He majored in botany, then, at University of Cincinnati where he received a Ph.D. degree in 1924. He was elected to Phi Beta Kappa, Phi Gamma Mu, and Sigma Xi.

His teaching career began with teaching in a Huntington County Grade School for 2 years and Clear Creek High School for 4 years. The next year after receiving the Ph.D. degree in 1925, he became a professor at Indiana Central College where he taught until 1931. He then taught at the University of Cincinnati for 6 years, and he was Professor and Head of the Science Department at the University of Evansville for 13 years.

In 1943, Dr. Beghtel became a Process Engineer at Serval, Incorporated. The company handled war contracts during World War II. In 1950, he became a residential building contractor. Since carpentry was a favorite hobby, this influenced his decision to go into the building business. A stroke forced him into retirement about 1960. He made a good recovery and spent his remaining years in gardening, reading and travel.

Dr. Beghtel's hobbies centered about his love of nature and botanical pursuits. He and his wife frequently took botanical forays. He was also active in the Men's Garden Club and raised dahlias as a specialty. He also belonged to the Evansville Municipal Hiking Club of which he was president. He served as guide to members of the club for trees and plants of the areas covered.

Dr. Beghtel joined the Indiana Academy of Science in 1925 and was honored by election to Fellow in 1938. He reported to the society on his studies of the rye grass, *Elymus*, with attention to the economic value. He was also a member of the American Society of Bacteriologists and American Association of University Professors. He is listed in *Indiana Scientists*.

Another stroke finally brought death to Dr. Floyd E. Beghtel after a long and fruitful life of 85 years.

#### HARRY E (DWARD) CRULL

Chicago, Illinois  
February 7, 1909

Albany, New York  
April 25, 1972

Dr. Harry E. Crull died April 25, 1972, in Albany, New York, where he had been Professor of Astronomy and Space Science and Director of the Henry Hudson Planetarium at the State University of New York since 1965. He was a pioneer in planetarium education and in the use of television for education in astronomy. An elementary astronomy course called *Eye on the Universe* was given on the New York educational television network and closed circuit television on the campus. At times, the enrollment reached between 500 and 600 students. The program was carried by several schools.

Born in Chicago, Illinois, February 7, 1909, Dr. Crull was educated in that state. He attended grade and high school in Maywood, Illinois. In 1930 he received an A.B. degree from the University of Illinois, was a University Fellow from 1930 to 1933, received an A.M. degree in 1931 and a Ph.D. degree in mathematics in 1933. He was one of the original lecturers at the Adler Planetarium in Chicago which was the first planetarium to open in this country. He was there during the Century of Progress Exposition in 1933 to 1934. In 1934, he went to Parkville, Missouri, to teach mathematics and astronomy at Park College. From 1935 to 1936, he was Assistant Professor of Astronomy at the University of Southern California and Assistant Director of the Griffith Planetarium at Los Angeles. He then returned to Park College at Parkville, Missouri, in 1936 where he was Professor of Mathematics and Astronomy and Director of the Charles S. Scott Observatory until 1947. He served as dean of men from 1937 to 1938 and dean of the college from 1946 to 1947.

Dr. Crull came to Indiana in 1947 to teach at Butler University and stayed until 1965. There, he was Professor of Astronomy and Mathematics and Head of the department. He also became the first director of a beautiful new observatory and planetarium on the Butler campus, the J.I. Holcomb Observatory, in 1954. He became well-known by many school children and the general public for the popular planetarium talks and tours of the observatory given by him and his aides. He was also Director of the University College at Butler from 1948 to 1954. This is a general educational program for freshmen and

sophomores. He taught the first astronomy courses by television in Indiana.

Dr. Crull joined the Indiana Academy of Science in 1947, the year he came to Butler University. He was elected to Fellow in 1954 and served as secretary in 1957, 1958 and 1959. His research interest included geometric surfaces of the fourth order and double stars. He was also a member of the American Astronomical Society, Mathematical Association of America, Society of Sigma Xi, Phi Beta Kappa, Royal Astronomical Society of Canada, Great Lakes Planetarium Society (of which he was the second Armand Spitz Lecturer at the 1968 Rochester convention), and Middle Atlantic Planetarium Society. He is listed in *American Men of Science* and *Who's Who in the Midwest*.

Dr. Crull was a close friend and associate of Armand Spitz at the Fels Planetarium in Philadelphia and enjoyed recalling incidents which happened there. One of Dr. Crull's daughters became a mathematician and his son, Harry, Jr., is an astronomer at the Naval Observatory in Washington, D.C.

Dr. Crull served the United States of America on a coast and geodetic survey in 1941. He joined the U.S. Navy in 1942 serving during World War II. He was a ship's navigation officer and was a navigation instructor at the Midshipman School at Chicago and later in Washington, D.C., until the end of the war. He wrote a teaching manual for this course which is now in use at the State University of New York. Active in the Naval Reserve in Indianapolis, Indiana, he retired in 1969 with the rank of Captain.

Death at 63 years of age took Harry E. Crull unexpectedly from an innovative, productive life. An astronomy textbook was left unfinished, the manuscript of which was in the hands of Harper and Row publishers. In anticipation of retirement the following May, he had purchased a house trailer for travel with his wife, Edna. They had enjoyed such travel for about 10 years and looked forward to more of it after retirement. Of such were the unfulfilled dreams when death took this active man.

#### L(LOYD) B(RELSFORD) HOWELL

Miami County, Ohio  
August 29, 1887

Indianapolis, Indiana  
October 9, 1970

Dr. L. B. Howell, retired Professor of Chemistry at Wabash College, died October 9, 1970.

Dr. Howell was born in the agricultural area between Piqua and Fletcher in Miami County, Ohio, August 29, 1887. His mother died of typhoid when he was young. After his father remarried, they moved to Cleveland, Ohio, where he attended grade school. He then moved to Crawfordsville, Indiana, where he graduated from high school. Early influences on his career in science came from his grandfather, a civil

engineer, and Dr. Sigmund, a bone specialist in Indianapolis, for whom Dr. Howell worked to help pay for his education at Wabash College. He also worked as a candy maker to supplement funds. He received an A.B. degree in 1909. While at Wabash, he came under the influence of J. B. Garner, Chemistry Professor, and decided upon this field for his profession.

His career began as a principal of the public school at Remington, Indiana, from 1909 to 1910. From 1910 to 1912, he was a teacher at Wauseon, Ohio, in physics, chemistry, German and he coached baseball. His proficiency in German was attained by learning it from his mother who was German. While in Ohio, studies were begun at Ohio State University toward an advanced degree in chemistry. In 1912 to 1913, he was an instructor of chemistry at Wabash College. He taught in a high school at Urbana, Illinois, from 1913 to 1916 and built his own home there. He began work at the University of Illinois toward an M.S. degree. He won an assistantship in organic chemistry from 1916 to 1918 when he received the M.S. degree. He was a fellow at the same university from 1918 to 1919 and received a Ph.D. degree in organic chemistry in 1919. While there, he started the first chemistry class for women at that university.

Dr. Howell's profession continued at Rice Institute from 1919 to 1924. In 1924, he became Chemistry Professor and Head of the Department at Wabash College. He became Peck Professor of Chemistry in 1949. He was very popular with the students and very sympathetic with their needs; quietly assisting them in his modest way whenever he could. He was given an Honorary Doctor of Science degree at Wabash College in 1970 and received a standing ovation from the students when it was presented. Other honors included election to Phi Beta Kappa and Sigma Xi. His research covered a number of subjects: halogens, acetylenes, sweet taste and structure of organic compounds, inhibition of pi-bond properties, a cure for athlete's foot, use of potassium permanganate to sterilize jars for canning and 14 projects related to the atomic bomb. He also worked for the United States government on dyes which we were unable to get from Germany during the first and second world wars. He was the author of a number of publications.

Dr. Howell joined the Indiana Academy of Science in 1924 upon coming to Wabash College and Indiana. He was honored by election to Fellow in 1935. He was interested, primarily, in the Bacteriology and Chemistry Sections. He also belonged to the American Association for the Advancement of Science, American Chemical Society and was active in the Masonic Lodge. He is listed in *American Men of Science*.

Dr. Howell enjoyed fishing and went to Michigan for this sport every summer for about 17 years. He also experimented with the cultivation of unusual vegetables and flowers for a hobby. By using various chemical fertilizers, he was able to obtain remarkably good results.

At age 72, Dr. L. B. Howell retired from Wabash College as Professor Emeritus after teaching 50 years. After an extended illness, he passed away in Saint Vincent's Hospital in Indianapolis at 83 years of age.

## ZYGUMUNT KARPINSKI

Warsaw, Poland  
October 31, 1914

South Bend, Indiana  
September 25, 1971

Professor Zygmunt Karpinski apparently died of a heart attack September 25, 1971, at his home in South Bend, Indiana. He was a Professor of Chemistry and Physics at Saint Mary's College.

Professor Karpinski was born in Warsaw, Poland, October 31, 1914. He completed secondary education in 1926. The next year, he enrolled at the University of Grenoble, France, obtaining a diploma for a two year course in 1929. In that year, he returned to Warsaw to work on a Bachelor of Science Degree which he obtained from the University of Warsaw in 1934. His professional career began by teaching chemistry in a School of Mechanics and Electricity in Poland from 1934 to 1935. He continued his education and received a Master of Science Degree from the University of London King's College in 1950 and registered for a Ph.D. at London University. His academic specialization was in chemistry and chemical engineering with graduate emphasis on physical chemistry, mechanics and aeronautics. His thesis subject was on photochemical oxidation of formaldehyde. His publications included a book on the problem of engine deposits published by the *Journal of the Institution of Petroleum* in London, England, and articles on vulcanization, deterioration and strength of rubber (in Polish). Besides these languages, he could read and speak French, Spanish and Russian and could read German. Other research achievements in eliminating engine deposits were accomplished at the Royal Aircraft Establishment at Farnborough, England. He also did research on exploration of the stratosphere and constructed a stratosphaeric balloon for ascension to 90,000 feet in altitude.

From 1949 to 1951, he taught chemistry and physics at a secondary school in England. From 1952 to 1953, he taught quantitative analysis at the University of Illinois at Chicago. During this period, research in biochemistry was carried on at the University of Chicago and University of Loyola. He went to Saint Mary's College, Notre Dame, Indiana, in 1954 as an instructor. He became assistant professor in 1957 and associate professor in 1959. He also obtained American citizenship in 1957.

His education continued with summer course work, particularly with the National Science Foundation Summer Institute. In 1962, the director wrote an enthusiastic letter about Prof. Karpinski's energetic participation in the program and the pleasure of having his attendance. Prof. Karpinski went to Louisiana State University at Baton Rouge in the summer of 1966 to study quantum mechanics (time independent, time dependent) and scattering. In the summer of 1967, he attended a series of lectures, seminars and laboratory sessions on electromagnetic theory at a summer institute at Trinity University, San Antonio, Texas. Again in 1969, he visited Trinity University for a month-long

conference on modern physics and special relativity. He also did research on mathematics related to molecular symmetry at Notre Dame University.

Prof. Karpinski joined the Indiana Academy of Science in 1961 and was interested in the Chemistry, Mathematics and Physics Sections. He was also a member of the American Chemical Society and Association of University Professors. He was a Roman Catholic and member of St. Patrick's Church.

Prof. Karpinski's death at 57 years of age was the close of a short life span but one rich in experience.

PERCY L(EONARD) KNIGHT, JR.

South Portland, Maine  
June 10, 1921

Granger, Indiana  
July 16, 1972

Dr. Percy L. Knight, Jr., was a Professor of Biology at Saint Mary's College, Notre Dame, Indiana, for 18 years before his death July 16, 1972, after a brief illness.

Born in South Portland, Maine, June 10, 1921, Dr. Knight developed an early interest in marine life and spent many hours along the ocean shore. This interest led him into a study of biology. His early education was obtained in the public schools of South Portland, Maine. A Bachelor of Science degree was obtained from Bates College, Lewiston, Maine, in 1942. He then took a position as Chemist with E. I. du Pont de Nemours and Company from 1942 to 1944, where he developed a further interest in physiology. From 1944 to 1946, Dr. Knight served in the United States Naval Reserve in which he obtained the rank of Lieutenant j.g. From 1946 to 1949, he was Senior Technician with the Lobund Institute at the University of Notre Dame, Notre Dame, Indiana. He returned, too, for graduate study at the University of Notre Dame obtaining an M.S. degree in 1951 and a Ph.D. degree in 1954. While at Notre Dame, he had a teaching fellowship from 1949 to 1954. He was also an instructor at the Holy Cross Central School of Nursing in South Bend from 1951 to 1954, and he was an instructor at the Indiana University Extension at South Bend from 1953 to 1954. Dr. Knight became Professor of Biology at Saint Mary's College, Notre Dame, Indiana, in 1954 where he taught until his death. He also served as Visiting Professor of Biology at the University of Notre Dame during the summer from 1958 to 1966.

Dr. Knight joined the Indiana Academy of Science in 1952 and was interested in the Zoology Section. He was a member of the Program Committee in 1965 and served as judge at science fairs. He reported on his research on lungworms in swine at annual meetings. He wrote a number of papers for various journals primarily on the subjects: biochemistry of vitamins and physiology of parasites. He also belonged to the American Association for the Advancement of Science, American

Association of University Professors and Sigma Xi. He is listed in *American Men of Science*.

Dr. Knight served on a number of college committees: admissions and scholarships, counseling, revision of statutes and by-laws and academic affairs council. He was chairman of the Faculty Forum in 1966 and chairman of the Teaching Faculty Association from 1966 to 1967. He was particularly effective in the counsel of undergraduate students who often sought his help in preference to others. He received the special Unica award in 1961 "for accomplishments as a research scholar and dedicated teacher".

Dr. Knight was also active in community service and fraternal organizations such as Boy Scouts of America, South Bend Moose Lodge of which he was a former Governor and Prelate and the American Legion Post 357. Death at 51 years of age took Dr. Knight prematurely from an active, useful life.

#### G(EORGE) D(AVID) KOCH

Winside, Nebraska  
December 2, 1902

West Terre Haute, Indiana  
September 20, 1972

Dr. G. D. Koch was an expert on weather, a retired geography professor from Indiana State University and champion of soil conservation in Indiana.

Born on a farm near Winside, Nebraska, December 2, 1902, Dr. Koch received his education in that state. He graduated from Wayne State Teacher's College in Wayne, Nebraska, with an A.B. in 1929. He received an M.S. degree in 1934 and a Ph. D. degree in 1938 from the University of Nebraska at Lincoln. He also took graduate work at the University of Colorado.

Meteorology was one of his graduate majors for a Master's degree and his thesis was on the hailstones of Nebraska. His doctorate study concerned geography and conservation of resources.

He taught at Kearney State Teacher's College, Kearney, Nebraska; for three summers at Miami University, Oxford, Ohio; and Eastern Illinois University, Charleston, Illinois, for a year. He became an associate professor at Indiana State Teacher's College at Terre Haute, Indiana in 1939. He was made Chairman of the Science Division in 1954 and continued in that capacity until 1961 when he relinquished the position to devote more time to teaching. He retired in 1968 with the rank of Professor Emeritus.

Dr. Koch joined the Indiana Academy of Science in 1939, the year he came to teach at Indiana State University, and was honored with the rank of Fellow in 1950. He served as Chairman of the Geology and Geography Section in 1946 and on the Program Committee. He presented a number of papers before the Academy on hail storms in Nebraska;

growing season in Vigo County, Indiana; geography in secondary education; daily weather map function; soil conservation; and a giant earth mover. Dr. Koch was also a member of the Scottish Rite and active in the Community Theatre Sycamore Players. He was a member of Theta Alpha Phi (National Theatre Honorary), Society of Sigma Xi, and was a fellow in the American Geographical Society. He was a member and former clerk of the First Congregational Church of Terre Haute. He was instrumental in setting up an educational program at the Federal Penitentiary at Terre Haute and was active in civil defense work.

Dr. Koch was well known in the Terre Haute community for supplying weather information to the news media and climatological data to the Terre Haute waterworks. He was a volunteer weather observer for the Terre Haute area for many years and continued to maintain a weather station at his rural West Terre Haute home after retiring from teaching. He was honored for this service by the Terre Haute Exchange Club in 1970 when he was given the annual *Book of Golden Deeds* award. He was a former president of the club. After the award, a local television station presented an editorial about him and he was named citizen of the day by a local radio station Feb. 4, 1970.

Dr. G. D. Koch had suffered a heart attack in August, 1972. However, he had shown improvement and had just been home from the hospital about a week when he suffered another and fatal attack. He was 69 years old.

#### JOHN I(RWIN) MOORE

Gibson County, Indiana  
October 4, 1897

San Angelo, Texas  
April 4, 1972

Mr. John I. Moore, a native of Indiana, died in San Angelo, Texas, April 4, 1972. He was the sole owner, geologist, president and Chairman of the Board of the Moore Petroleum Corporation of San Angelo, Texas.

Born October 4, 1897, on a farm near Owensville, Gibson County, Indiana, Mr. Moore attended public school in that county and graduated from the Owensville High School in 1915. He received an A.B. degree from Indiana University in 1921 and an M.S. degree from the University of Chicago in 1922.

His career began as Field Geologist for the Roxana Petroleum Corporation (now Shell Oil Company) in 1922. In 1928, he left their employ, where he was then District Geologist, to engage in independent oil work. He was joined by his brother, P. D. Moore, in 1932 to form the Moore Petroleum Corporation of which he was president and chairman of the board. He was also director of many oil-oriented corporations in which he held the major stock. At his brother's death in 1955, he became sole owner of the Moore Petroleum Corporation in which he was an active geologist until his death.



Mr. Moore joined the Indiana Academy of Science in 1922, after attending Indiana University. He presented a paper at an annual meeting on fossil scorpions from the Pottsville formation of Clay County, Indiana. He was a member of a number of honorary and scientific societies: Geological Society of America, Fellow; Society of Sigma Xi; American Meteorological Society, charter member; Kappa Epsilon Pi; American Association of Petroleum Geologists; American Geophysical Union; American Association for the Advancement of Science, Fellow; West Texas Geological Society; San Angelo Geological Society (Past President); Oklahoma Academy of Science; Texas Academy of Science, Life Member; American Geographical Society, Fellow; American Polar Society; Arctic Institute of North America; The American Museum of Natural History; National Audubon Society; Royal Geographical Society of London, Fellow; New York Zoological Society; Zoological Society of London, Fellow; The Explorers Club of New York. He was also a member of four oil organizations: Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, Texas Mid-Continent Oil and Gas Association, Texas Independent Producers and Royalty Owners Association. He was also active and had been an officer in some of the 24 gun clubs and social clubs to which he belonged. He is listed in *American Men of Science*, *Leaders in American Science*, *International Yearbook of Statesman's Who's Who*, *Who's Who in Commerce and Industry*, *Who's Who in the South and Southwest*, *Who's Who in Finance and Industry*, *Who's Who in Texas Today*, and *Outstanding Personalities of the South*.

Mr. John I. Moore was a sportsman and conservationist and was widely known here and abroad for his love of nature. He traveled extensively to Europe, Asia, Africa as well as the United States, Canada, Alaska and South America. He made two trips around the world. Once, he traveled 2500 miles on horseback across Canada in the interest of a geological survey. He had great intellectual curiosity, and was a philanthropist, patriot and avid collector of art objects, living his 75 years to the fullest.

## MEMBERSHIP LIST

The following list contains the names and addresses of all members of the Indiana Academy of Science, as of March 1, 1973. New members who joined during 1972 are indicated by an asterisk. The letter(s) following the address indicates the Section(s) of the Academy in which the member has indicated major interest, according to the following code:

A—Anthropology	N—Engineering
B—Botany	O—Cell Biology
C—Chemistry	P—Physics
D—Science Education	R—Microbiology & Molecular Biology
E—Entomology	S—Soil Science
G—Geology & Geography	T—Plant Taxonomy
H—History of Science	Y—Psychology
L—Ecology	Z—Zoology
M—Mathematics	

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