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of the
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Chairman-Elect JAMES R. ALDRICH, Indiana Department of
Natural Resources
612 State Office Building
Indianapolis, Indiana 46204

Science Education

Chairman PATRICIA A. ZECK, 1404 Cherry Hill
Kokomo, Indiana 46901

Chairman-Elect STANLEY S. SHIMER, Science Teaching Center
Indiana State University
Terre Haute, Indiana 47809

Soil and Atmospheric Sciences

Chairman JOHN T. SNOW, Department of Geosciences
Purdue University, West Lafayette, Indiana 47907

Chairman-Elect H. RAYMOND SINCLAIR, State Soil Scientist
410 Montrose Court, Indianapolis, Indiana 46234

Zoology

Chairman DAVID M. SEVER, Department of Biology
Saint Mary's College, Notre Dame, Indiana 46556

Chairman-Elect RONALD L. RICHARDS, Indiana State Museum
202 North Alabama Street
Indianapolis, Indiana 46204

EXECUTIVE COMMITTEE, COUNCIL AND BUDGET COMMITTEE

Executive Committee

*OTTO K. BEHRENS	DOUGLAS DUFF	*JERRY J. NISBET
ALICE S. BENNETT	*WILLIAM R. EBERLY	*JOHN B. PATTON
WILLIAM BERANEK, JR.	*RAYMOND E. GIRTON	ROBERT R. PINGER
WARREN WILLIAM	*ARTHUR T. GUARD	*S. N. POSTLETHWAITE
BOWDEN	*FRANK A. GUTHRIE	*H. M. POWELL
KEN BRUNSON	*ROBERT E. HENDERSON	ROGER ROTH
LOIS BURTON	DONALD R. HENDRICKS	*DAMIAN V. SCHMELZ
ERNEST E. CAMPAIGNE	*WILLIAM B. HOPP	DAVID M. SEVER
MARGARET S.	MARION T. JACKSON	AKHTAR H. SIDDIQI
CAVANAUGH	*WILLIS H. JOHNSON	JOHN T. SNOW
RICHARD L. CONKLIN	DUVALL A. JONES	DAVID F. SPENCER
*DONALD J. COOK	GENE KRITSKY	PATRICK J. SULLIVAN
ROBERT H. COOPER	*ALTON A. LINDSEY	CURTIS H. TOMAK
WALTER A. CORY, JR.	*C. A. MARKLE	*W. J. WAYNE
THEODORE J. CROVELLO	JOHN H. MEISER	*J. DAN WEBSTER
FAY K. DAILY	*MELVIN C. MELLON	*WINONA H. WELCH
*WILLIAM A. DAILY	*A. H. MEYER	KATHRYN J. WILSON
*HARRY G. DAY	*HOWARD H. MICHAUD	DONALD R. WINSLOW
*CLARENCE F. DINEEN	BENJAMIN MOULTON	*HOWARD R. YOUSE
WILLIAM N. DOEMEL	CRAIG NELSON	PATRICIA A. ZECK

*Past President of Academy

Council

President—WILLIAM R. EBERLY
 President-Elect—ALICE S. BENNETT
 Secretary—JOHN MEISER
 Treasurer—DUVALL A. JONES
 Director of Public Relations—WALTER A. CORY, JR.
 Editor—DONALD R. WINSLOW
 Chairman, Science & Society Committee—CRAIG NELSON

Budget Committee

President—	WILLIAM R. EBERLY
President-Elect—	ALICE S. BENNETT
Immediate Past President—	ROBERT E. HENDERSON
Secretary—	JOHN H. MEISER
Treasurer—	DUVALL A. JONES
Director of Public Relations—	WALTER A. CORY, JR.
Editor—	DONALD R. WINSLOW
Chairman, Science & Society Committee—	CRAIG NELSON
Co-Director, Junior Academy of Science—	KEITH HUNNINGS
Co-Director, Junior Academy of Science—	LEOTA SKIRVIN
Chairman, Program Committee—	THEODORE J. CROVELLO
Chairman, Library Committee—	LOIS BURTON
Chairman, Youth Activities Committee—	JERRY J. NISBET
Chairman, Academy Foundation—	WILLIAM A. DAILY
Chairman, Research Grants Committee—	ERNEST E. CAMPAIGNE

Indiana Academy of Science
SPRING MEETING
MINUTES OF THE EXECUTIVE COMMITTEE MEETING
April 23, 1982

President William R. Eberly called the meeting to order at 4:13 p.m. in Room 202, Center for Continuing Education at the University of Notre Dame, South Bend, Indiana.

TREASURER'S REPORT

The Academy finances as of April 21, 1981 were presented by Treasurer Duvall A. Jones.

Current Assets

Checking Account	\$ 6,105.83*
Savings Account	\$16,323.51
Total	<u>\$22,429.34</u>

*Check for \$990 not yet negotiated

These are distributed in

Academy Accounts	\$ 9,203.47
Administered Accounts	\$12,235.87
Total	<u>\$21,439.34</u>

Acceptance of the report was moved, seconded, and approved.

ELECTED COMMITTEE REPORTS

Academy Foundation Committee

William A. Daily, Chairman, reported that on March 31, 1982 the John W. Wright Invested Income Account held \$65,000 in two Commercial Paper Funds, yielding an average of 15.43%. An additional \$30,000 is held in U.S. Treasury Notes 15 1/8%. An additional \$6,000 was in cash to be invested in Commercial Paper.

The Foundation account was \$27,712, and the market value of the John S. Wright Fund was \$605,999.

Research Grants Committee

Walter A. Cory, Jr. presented the committee report for E. Campaigne, Chairman. Total research applications numbered 25 with requests for \$22,000, about 100% more than usual. Generally the Spring awards are about 60% of requested funds. This would require \$13,000 if the previous practice is followed, leaving \$2,000 for the Fall round.

Motion: To make a maximum of \$21,000 available for research grants using \$6,000 appropriated from last year but left unspent. Seconded. The motion passed unanimously.

Campaigne also requested a clarification of Academy support for Secondary School grants for the summer. In 1980, AAAS supplied \$600 supplemented by \$90 of Academy funds to award eight Secondary School Grants. In 1981, \$300 was received from AAAS and was supplemented by \$298 from Academy funds to award six grants.

President Eberly pointed out that funds have been appropriated for the purpose of giving grants in case AAAS funds become unavailable.

COMMITTEE REPORTS

Academy Representative to NAAS

John H. Meiser, appointed representative of the Academy to attend the Washington AAAS meeting, reported that due to certain circumstances he was unable to attend the meeting.

Youth Activities Committee

John H. Meiser presented the report for Jerry J. Nisbet, Chairman. Leota Skirvin, Director of the Junior Academy has confirmed facility arrangements for the autumn meeting of the Junior Academy at the University of Notre Dame.

Karl Kaufman and Lloyd Anderson, Co-Directors of Indiana Science Fairs report financial support for five \$1,200 scholarships and for a financial subsidy of approximately \$21,900 to defray travel expenses for the Science Fair Winners to attend the International Science Fair will be provided by The Indiana Science Education Fund, Inc.

Also reported from Walter Cory, Jr., Director of the Indiana Science Talent Search, was that 49 students entered competition for the state talent search this year. Of this number, 26 were selected as finalists with two of these, Richard Meyer, East Noble High School and Lynn McCaslin, R. N. Snyder High School, awarded \$1000 scholarships. Kappa Kappa Kappa has continued its financial support of the Indiana Science Talent Search program.

A meeting of the Youth Activities Committee was held on February 2, 1982 with reports and discussions on each of the Academy's Youth Activities programs including ways of making more science students aware of the Academy's grant programs for research support.

Jerry Colglazier had sent a report that two of the 25 national finalists and one of the two national winners of the Thomas Edison/McGraw Scholarship Program were Indiana students. Thomas Beutner, Marquette High School, Michigan City, is the Indiana winner.

It was pointed out from the floor that a number of state winners in these programs are Academy members. Additional chapters of the Junior Academy are to be encouraged through personal contact.

Library Committee

President William R. Eberly reported for Lois Burton, Chairwoman. Proceedings for 1980 have been sent. Eberly raised the question of the future of the Academy library now housed in State Library building. No conclusions were reached.

Program Committee

Theodore J. Crovello, Chairman, indicated that there were 28 paid dinners from Indiana Academy members and 60 from Sigma Xi members for the evening's joint dinner meeting. This meeting marks the first time IAS has met with the Northern Indiana Natural Areas Conference.

The Fall meeting will accommodate the Junior Academy at Stephen Center. The question of a registration fee for meetings was raised. The question was discussed and the suggestion was made to handle each meeting on an individual basis through the Invitations Committee. The question of having organizations, vendors, and schools setting up booths at our meetings was discussed. This is important because the symposium on Saturday will be Computers and Education. Should there be charges, and how much? By consensus, there is support for exhibitors setting up booths. Crovello is to investigate the possibility of charging fees for space. The Saturday program will have two sessions: the first focusing on computers in science education, the second on value oriented science education.

Publication Committee

President Eberly gave the report for Benjamin Moulton that several monographs are in preparation and one should be off the press soon.

Donald R. Winslow, Editor, reported that there is no longer a master contract by the State for printing the Proceedings. Art Craft Press, Inc. will print Vol. 91 whereas Western Newspaper Publishing Co., Inc., published Vol. 90 on an off-set press and on white book paper rather than by hot lead and on an enamel printing stock (the way it has previously been printed).

The editing has been done on Vol. 91. Some 75 papers were reviewed and 70 were recommended for publication.

Science and Society

It was reported that there would be a meeting on May 7th in Indianapolis.

Membership Committee

Alice S. Bennett, Chairperson, noted the need for new members and indicated the best way to attract new members is through personal contact, particularly with faculty and people in industry.

Invitations Committee

President Eberly gave the report for Donald Cook, Chairman. The 1983 meeting will be held at the I.U. Purdue Campus at Fort Wayne. Dr. Haddock may be program chairman. The 1984 meeting will be held at Butler University.

Emeritus Membership Selection Committee

John H. Meiser presented two names in nomination for Dr. Robert H. Cooper, Chairman: Mrs. George F. Martin, Membership 1951 through 1981 and was a division chairman; Dr. Robert L. Stone, Membership 1955 through 1981. It was moved and seconded to make the nominees emeritus members. The motion passed.

Biological Survey Committee

Theodore J. Crovello, BSC Chairman listed six items: 1. Questionnaires about publications or works in progress concerning biota or environment were distributed. 2. Selected results from returned questionnaires will appear in the Proceedings. 3. Data from each questionnaire is being entered into the computer data bank. 4. A proposal has been submitted to publish approximately 3,000 references of the cumulative bibliography. 5. The contract from the U.S. Department of Interior to study rare plants in the State was completed. 6. The BSC and Academy are cosponsoring at this Spring meeting, The Northern Indiana Natural Areas Conference and Field Day with over 140 professionals in attendance.

NEW BUSINESS

Constitution Revisions

Eberly led a discussion of some changes to be considered to bring our normal operations in line with the constitution, such as having the Editor be chairman of the Publications Committee. Another area of concern discussed was the relation of the Academy to the State.

Symposium on Indiana-Kentucky Boundary

This question is now referred to the Science and Society Committee.

Academy Council Functions

Eberly discussed the possibility of having the Academy Council meet with

the program chairman to oversee the entire meeting arrangement process. No decision was made.

The meeting adjourned at 5:26 p.m.

The meeting was reconvened at 9:50 p.m. This was to have been the General Meeting. However, due to the lateness of the hour and because mostly only the previous attendees were present, it was decided to continue in executive session.

President Eberly discussed the possibility of speaking on Creationist Beliefs for his address to the Academy. The Resolution on Teaching Creationist Beliefs in Public School (AAAS) was referred to the Science and Society Committee.

Discussed at some length was the mailings to members, especially the Call for Papers. It was moved and seconded to send all calls for papers in a general mailing. Passed. This will be tried in the Newsletter in order to hold down the cost of duplication of individual mailings.

The meeting adjourned at 10:21 p.m.

Indiana Academy of Science
FALL MEETING
MINUTES OF THE EXECUTIVE COMMITTEE MEETING
October 28, 1982

President William R. Eberly called the meeting to order at 7:15 p.m. in Room 202, Center for Continuing Education at the University of Notre Dame, South Bend, Indiana.

SECRETARY'S REPORT

Secretary John H. Meiser read the minutes of the Executive Committee Meeting of April 23, 1982. The minutes were approved as amended.

TREASURER'S REPORT

Treasurer Duvall A. Jones presented the Academy finances as of October 27, 1982.

Current Assets

Checking Accounts	\$ 4,457.54
Savings Accounts	<u>17,328.50</u>
	\$21,786.04

These are distributed in

Academy Accounts	\$10,698.16
Administered Accounts	<u>11,087.88</u>
Total	\$21,786.04

Membership totals on October 27, 1982 were 987 consisting of 31 sustaining, 533 senior, 243 regular, 97 emeritus and the rest in other categories. It was moved and seconded to accept the treasurer's report. The motion passed. Jones reported that some inconsequential invoices and other paper work more than three years old would be discarded due to lack of space for storage.

EDITOR'S REPORT

Donald R. Winslow, editor, reported some of the problems with the production of *Vol. 91* of the *Proceedings* including the faulty typesetting and the possible problem of funding restrictions by the State. It now appears that *Vol. 91* will be ready sometime in December.

DIRECTOR OF PUBLIC RELATIONS

Walter A. Cory, Director, discussed the use of the differently colored name tags and publicity for the meeting.

PROGRAM COMMITTEE

Theodore J. Crovello, Chairman, distributed a sheet listing last minute changes in the announced program. He also indicated that papers for this meeting were down slightly from last year, 187 against 204 last year.

REPORTS, ELECTED COMMITTEES

Academy Foundation Committee

William A. Daily, Chairman, reported that on September 30, 1982 that the Foundation account had a market value of \$31,218.78 and had earned \$2,421.86 in the last year. The John S. Wright Fund had income of \$35,255.37 from 10-01-81 to 9-30-82 of which \$27,724.39 was transferred to the Invested Income Account. The Fund had a market value of \$581,004.32 and fluctuates with the value of the investment portfolio. The Invested Income Account earned \$11,324.40 in the same period and had a net value of \$104,217.28 on 9-30-82. Money is transferred from this latter account to support Academy publications and research grants.

Bonding Committee

Duvall A. Jones reported for Frank Guthrie that the old Fraternal Order Form bond has been changed to a Position Schedule Form bond to cover the person in the office of treasurer.

Research Grants Committee

Ernest Campaigne, Chairman, reported that for the Fall round of grants, 12 proposals had been received with 4 fully funded and 7 partially funded spread over 8 institutions. Some \$7,659 were awarded with the average being \$696. Nine secondary school awards were granted for a total of \$840. A considerable increase in both the number of applications and the dollar amounts was noted. The awards now follow.

Investigator/Institution Spring, 1982	Abbreviated Title	Amount
Berquist, A.M. Notre Dame	Zooplankton Assemblages in Dune Ponds	\$685
Brown, R. E., Dr. Huntington College	Survey of Flora and Fauna at Salamonie Reservoir	\$536
Cave, J.B. Ball State	Fish Mortality/Angling Gear	\$183
Fogle, T.A. St. Mary's College	Cytogenetic Analysis of Zoo Monkeys	\$600
Greene, R. W., Dr. Notre Dame	Symbiotic Association of Flatworm and Algae	\$850
Greenlee, J. K. Notre Dame	Genetic and Morphological Differentiation	\$525
Hogarth, A.J.C.L. DePauw	Redox Properties of Cu(II)perchlorate	\$850
Hughes, A.L. Indiana University	Seasonal Trends in Body Size of Mosquitofish	\$185

Investigator/Institution	Abbreviated Title	Amount
Kamo, K. Indiana University	Alkaloid Biosynthesis in Opium Poppy	\$625
Krohne, D.T. Wabash	Structure of Populations of <i>Peromyscus leucopus</i>	\$735
Litton, J.R. St. Mary's College	A New Vitamin E Compound	\$500
Mandraccchia, M.J. Notre Dame	Glochidium larva	\$725
Mays, C.D. DePauw	Murine Reproduction, Effects of Smoke On	\$500
McCreary, N.J. Notre Dame	Competition and Coexistence in Freshwater Perennials	\$860
Mould, E. D. St. Mary's College	Effect of Phenolics on Forage of Herbivores	\$655
Riemenschneider, V.L. IUSB	Wind Damage Survey (Renewal)	\$105
Schwarzwalder, R. Indiana University	Analysis of Platanaceae of Mexico	\$650
Stewart, C.A. Indiana University	Cycles of Lipids in Eastern Gray Squirrels	\$575
Swartz B.K., Dr. Ball State	Radiocarbon Dating of Bertsch Site, Wayne Co.	\$185
Wasser, J.S. Indiana University	Hibernation in Northern Water Snake	\$775
Total Recommended		\$11,304

Fall, 1982

Carter, C. Purdue University	Effects of Concepts and Strategies on Learning	\$616
Dhawale, S.W. Indiana Uni. East	Stability of Sodium Thiosulfate in Acid Solutions	\$485
Vas Dev Notre Dame	Genetics of Speciation in <i>Aedes</i> (<i>Stegomyia</i>) <i>scutellaris</i>	\$470
Huang, C.T. Purdue University	Feasibility of Long Wall Coal Mining in Shallow Overburden, Warrick Co.	\$520
Latino, J.C. Notre Dame	Role of Zooplankton in Nutrient Cycling in Dune Ponds	\$895
MacMillan, P.C. Hanover College	Analysis of Log Samples from Michigan and Pennsylvania	\$1040
Rybarczyk, J.P. Ball State	Effect of Sample Particle Size and Composition on Excitation Mechanisms in Inductively Coupled Plasma	\$1000

Investigator/Institution	Abbreviated Title	Amount
Sever, D.M. St. Mary's College	Cold-blooded Vertebrates of Kingsbury State Fish and Wildlife Area	\$683
Vaughn, M. Indiana State	Calcium Uptake in Subcellular Membrane from Corn	\$725
Weeks, H.P., Jr. Purdue University	Regulatory Effects of Supplementary Sodium on Wild <i>Microtus pennsylvanicus</i>	\$940
Yoder, S.C. Goshen College	Tree Survey in Proposed Addition to Merry Lea State Nature Reserve	\$285
	Total Recommended	\$7659

Secondary School Research Grants

Name/School/Sponsor	Research	Amount
Alan Engel John Adams H.S., South Bend Nevin Longenecker	Possible Effects of Altered Diets on Allergic Reactions	\$100
James A. Barsic Marquette H.S., Michigan City Dean G. Christakis	Scanning Electron Microscope Studies of Metallic Stress Fractures	\$75
Susan Rucinski Gavit H.S., Hammond M. Kobe	Formation and Movement of Sand Dunes vs Increasing Amounts of Industrial Pollution	\$100
Tamara M. Hughes Plainfield H.S., Plainfield Mrs. Nell Walthers	Effects of Low pH on Bluegills and Catfish	\$100
Valori Miller, Jeff Medwetz, Scott Bearby Gavit H.S., Hammond M. Kobe	Vitamins as Plant Growth Stimulants	\$115
Jim Szalony Gavit H.S., Hammond M. Kobe	Effects of Contaminated Flood Water on Soil Microfauna	\$100
Laura Warot Gavit H.S., Hammond M. Kobe	Effect of Highway Salt Runoff on Adjacent Ponds	\$100
Steve Longenecker Riley H.S., South Bend John Koellner	Relative Rates of Absorption of <i>Alpha</i> and <i>Beta</i> -glucose	\$100
Kathleen Ramos Gavit H.S., Hammond M. Kobe	Effect of Tobacco and Steel mill Smoke on Bacteria	\$50
	Total Approved	\$840

REPORTS, APPOINTED COMMITTEES

Youth Activities Committee

Leota Skirvin, director of the Junior Academy, announced that this was the 50th year of the Junior Academy; the first meeting was here at Notre Dame. Concern was voiced that this year the Junior Academy coincides with the annual State Conference on Instruction for teachers. It appears that some teachers will not be able to participate. However, this might be remedied next year by having the Junior Academy included on the list of approved events in the Conference on Instruction. Other concerns will be discussed at the Junior Academy Council in February.

Walter A. Cory reported that work for the Science Talent Search on December 15 is progressing nicely and he expects 40-50 to participate.

Reporting for Karl L. Kaufman, director of Youth Science Development, Cory reported that of the 9 one-day workshops for Fall 82, 7 have been held with approximately 100 people attending each. The regional fairs are in March and April again with the national meeting in Albuquerque. A note of appreciation was voiced for all the work done by Karl Kaufman.

Library Committee

Lois Burton, Chairman, reported that the *Proceedings Vol. 90* has been distributed to some 500 libraries, institutions, and societies. The "Requisition for Printing" for *Vol. 91* was submitted to the Indiana Department of Administration and the Budget Agency in August. In addition 108 volumes were prepared for binding and 107 interlibrary loan requests were filled during the year.

Nomination Committee

Nominations forwarded by Robert Henderson, chairman, were presented by Cory.

President-elect	Theodore J. Crovello
Secretary	Richard Conklin
Research grants	John O. Whitaker

The nominations were moved and approved for presentation to the membership.

Program Committee

James Haddock and Douglas Lyng gave the Spring dates at IU-Purdue Fort Wayne as April 22, 23 and for the Fall meeting October 27, 28, 29. Suggestions were requested for speakers and possible topics for the Saturday meeting next year. The IAS Council consisting of the six officers will clear program contributions and policy. By consensus it was felt that we should continue the Saturday meetings and that they may profitably be combined with meetings of other organizations where possible.

Publications Committee

Benjamin Moulton, Chairman, listed September 1983 as the deadline for material to appear in the Centennial volume. We are still looking for an author for a volume possibly titled *Scientists of Indiana*.

Science and Society

Craig E. Nelson, Chairman, was sick and no report was made.

Membership Committee

Alice S. Bennett, Chairman, reported that in October letters were sent to former division chairmen for the years 77 through 80 asking personal contacts with colleagues to recruit new members.

Duvall Jones asked if club memberships could be increased and put on a firmer basis. Furthermore, a concerted effort to bring high school teachers into the Academy should be made, since many do not know that the Academy would be beneficial for them.

Fellows Committee

The report from Richard L. Conklin was presented by John J. Favinger. A motion was made and seconded to accept the list of candidates for presentation at the General Meeting. The motion was approved.

Invitations Committee

President Eberly reported for Donald J. Cook, Chairman, that the 1984 meeting will be at Butler University. Indiana University is not yet confirmed for 1985. Some question was raised about facilities at IU East which has invited the Academy for 1986. The question of a possible registration fee was raised for a future meeting and will be carefully considered in the future.

Emeritus Members Committee

Robert Cooper, Chairman, put in nomination the following people for emeritus membership.

Dr. Howard B. Burkett	1945-1981	37 years
Dr. Marvin Carmack	1953-1982	30 years
John C. Finney	1946-1982	36 years
Maynard K. Hine, D.D.S.	1945-1981	37 years
Dr. Barbara Shalucha	1948-1982	34 years

The nominations were seconded and approved to emeritus status.

It was mentioned that if any of the emeritus members wished to continue to contribute to the Academy that it would be permitted.

REPORTS, SPECIAL APPOINTMENTS

Representative to Indiana Natural Resources Commission

Damian V. Schmelz reported on some of his continuing activities on this Governor's Commission where he has the opportunity to monitor and help shape policies for the wise usage of Indiana's natural resources.

Newsletter Editor

Walter A. Cory, Jr. distributed forms for reporting news for the Newsletter. Mention is again made to the membership that the call for papers will appear in the Newsletter.

A note of appreciation was made to Cory for his editorship of Newsletter Volumes 14 thru 38.

Biological Survey Committee

Theodore J. Crovello reported that the Annual Survey of Literature and Works

in Progress Dealing With Plants, Animals and Environments of Indiana continues. Questionnaires for the 1982 Survey are now available. A questionnaire to establish a Register of Indiana Herbaria is available. The Register will complement the International Index Herbariorum.

Speaker of the Year Committee

Damian Schmelz, Chairman, presented a listing detailing the presentations of our Speaker-of-the-Year at the various colleges and universities in Indiana since 1971.

NEW BUSINESS

President Eberly solicited names to serve on the Committee for the Relation of the Academy to the State. This committee has been inactive for some years but its activities could be particularly important now.

President Eberly also instituted a Special Centennial Program Committee for 1984 to begin planning for the 100th year celebration.

The meeting adjourned at 10:00 p.m.

MINUTES OF THE GENERAL MEETING

October 19, 1982

The meeting was called to order by President Eberly at 1:35 p.m. in the Auditorium of the Center for Continuing Education at the University of Notre Dame.

Robert E. Gordon, Vice President of Advanced Studies, The University of Notre Dame and Fellow of the Indiana Academy of Science presented the welcoming remarks. He pointed out that this was the sixth time the Academy had met on the Notre Dame campus.

John H. Meiser, Secretary, read the minutes. The following nominations were presented to the membership:

President-Elect	Theodore Crovello University of Notre Dame
Secretary	Richard Conklin Hanover College
Research Grants Committee	John Whitaker Indiana State University

After there were no nominations from the floor, nominations were closed and the membership voted to approve the named individuals for their respective positions.

The following individuals were presented for election to the rank of Fellow by John J. Favinger, Representative of the Committee on Fellows.

John A. Bacone, Alice S. Bennett, Robert F. Dale, Jacques W. Delleur, William B. Hopp, Duvall W. Jones, Gayton C. Marks

Certificates were issued to those present.

The minutes were moved for acceptance, seconded and approved.

Ed Miller of the Resolutions Committee presented the following Resolution:

RESOLUTION:

WHEREAS: The Indiana Academy of Science is highly appreciative to the University of Notre Dame for their invitation to hold its 98th annual meeting on their campus; and

WHEREAS: Students, faculty and administration have cooperated in sharing their facilities with us for this meeting; be it

RESOLVED: That the members of the Academy assembled here express their appreciation to Father Theodore Hesburgh, President of The University of Notre Dame, and to Robert E. Gordon, Vice President of Advanced Studies, for all the courtesies that have been extended to the Academy during this meeting. We wish especially to thank Dr. Theodore J. Crovello and his committee for the arrangements of the entire program and for the comfort and conveniences provided to us. We also express our thanks to the members who organized and are participating in the symposium on "Computers and Value-Oriented Science Education."

This was seconded and approved.

The following are the Division Chairmen and the Chairmen-Elect elected at this meeting.

Anthropology

Chairman: Gary D. Ellis
Chairman-Elect: Donald R. Cochran

Botany

Chairman: David Polley
Chairman-Elect: Phil Pope

Cell Biology

Chairman: Zafar Iqbal
Chairman-Elect: Ralph Jersild

Chemistry

Chairman: Eric R. Johnson
Chairman-Elect: Shannon Lieb

Ecology

Chairman: Richard Whitman
Chairman-Elect: Edwin R. Squiers

Engineering

Chairman: David D. Chesak
Chairman-Elect: Thomas R. Hanley

Entomology

Chairman: R. Bruce Cummings
Chairman-Elect: Paul Robert Grimstad

Environmental Quality

Chairman: Robert H. L. Howe
Chairman-Elect: William Beranek, Jr.

Geology and Geography

Chairman: Terry R. West
Chairman-Elect: Gerald R. Showalter

History of Science

Chairman: Gene Kritsky
Chairman-Elect: Gene Kritsky

Microbiology and Molecular Biology

Chairman: Mary Lee Richeson
Chairman-Elect: J. R. Garcia

Physics and Astronomy

Chairman: Malcom Hults
Chairman-Elect: Vincent A. Di Noto, Jr.

Plant Taxonomy

Chairman: James R. Aldrich
Chairman-Elect: Marion Jackson

Science Education

Chairman: Stanley Shimer
Chairman-Elect: Linda A. Hamrick

Soil and Atmospheric Sciences

Chairman: H. Raymond Sinclair, Jr.
Chairman-Elect: Charles Rhykerd

Zoology

Chairman: Ronald Richards
Chairman-Elect: Wynn Cudmore

Fay Kenoyer Daily, necrologist, reported on the following members

G. Bryant Bachman	Robert A. Ragains
Hillis L. Howie	Bernard Henry Schockel
Louis Augustus Krumholz	William John Tinkle
Nathan E. Pearson	Yeram Sarkis Touloukian

President Eberly introduced the speaker, Sherman A. Minton, Jr., M.D., Indiana University Medical Center, Indianapolis. The talk was titled, "Highlights in Herpetology: It's Not All Snakes!"

After a very interesting presentation, the meeting was adjourned at 3:05 p.m.
Respectfully submitted,

John H. Meiser
Secretary

**Indiana Academy of Science
FINANCIAL REPORT**

1 January - 31 December 1982

I. ACADEMY ACCOUNTS

	Income	Budgeted	Expenditures	Budget
Dues	\$ 8,370.00	\$ 8,000.00	—	—
Reprints: Vol. 90	2,510.90	3,500.00	\$ 2,347.40	\$ 3,000.00
Interest	2,026.56	1,500.00	—	—
Miscellaneous	10.00	—	—	—
Secretary	—	—	901.40	600.00
Treasurer	—	—	751.75	600.00
General Office	—	—	0.00	250.00
Officer Honorarium	—	—	150.00	150.00
Membership Committee	—	—	34.33	200.00
President's Contingency Fund	—	—	69.00	225.00
Newsletter	—	—	750.00	750.00
Speaker of the Year Honorarium	—	—	700.00	700.00
Program Committee	—	—	3,164.49	1,900.00
AAAS Representative	—	—	0.00	100.00
Public Relations	—	—	150.00	150.00
Editor's Expense	—	—	700.00	700.00
Youth Activities	—	—	0.00	400.00
Biological Survey Committee	—	—	0.00	2,250.00
Section Chairmen's Expenses	—	—	0.00	100.00
CPA Fees for Tax Returns	—	—	775.00	800.00
Miscellaneous (Research Committee)	—	—	100.00	100.00
Transfers to Administered Accounts	—	—	2,700.00	2,700.00
Junior Academy (\$400.00)				
Science Talent Search (\$500.00)				
Library Binding (\$1,500.00)				
<i>Proceedings</i> : Mailing (\$300.00)				
TOTAL	\$12,917.46	\$13,000.00	\$13,293.37	\$15,675.00

II. ADMINISTERED ACCOUNTS

	January 1 Balance	1982 Transfers & Income*	1982 Expenditures	Dec. 31 Balance
Junior Academy	\$ 1,230.66	\$ 400.00 (T1)	\$ 418.90	\$ 1,211.76
Science Talent Search	295.43	500.00 (T1) 2,598.00 (I)	2,774.25	619.18
Science & Society	1,447.89	0.00	0.00	1,447.89
Research Grants	(- 6,331.51)	18,963.00 (T2) 900.00 (I)	19,803.00	- 6,271.51
Natural Areas	0.00	0.00	0.00	0.00
J.S. Wright Library Fund	134.28	0.00	0.00	134.28
Lilly III Library Fund	2,632.76	0.00	0.00	2,632.76
Lilly V Library Fund	4,500.20	0.00	0.00	4,500.20
Library Binding	1,202.55	1,500.00 (T1)	1,201.90	1,500.65
<i>Proceedings</i> : Publication	1,561.89	5,522.25 (T2) 28.00 (I)	5,522.25**	1,589.89
<i>Proceedings</i> : Mailing	822.75	300.00 (T1)	365.88	756.87
Monographs	2,346.20	13,009.08 (T2) 1,048.55 (I)	13,438.92	2,964.91
Dept. of Interior Grant 14-16-0003-79-133	(- 595.36)	2,698.25 (I)	2,102.89	0.00
TOTAL	\$ 9,247.74	\$47,467.13	\$45,627.99	\$11,086.88

*I: Income from external sources. T1: Transfer from Academy Accounts.

T2: Transfer from Academy Trust Funds.

** The State of Indiana paid an additional \$8,000 toward printing of the *Proceedings*.

III. SUMMARY

	Academy Accounts	Administered Accounts	Totals
Balance: 1 January 1982	\$ 9,041.08	\$ 9,247.74	\$18,288.82
1982 Income & Transfers	12,917.46	47,467.13	60,384.59
1982 Expenditures	13,293.37	45,627.99	58,921.36
Balance: 31 December 1982	8,665.17	11,086.88	19,752.05

IV. BANK BALANCES

Checking Account		
Farmers and Merchants Bank, Rensselaer, IN		\$ 1,489.82
Savings Accounts (Principal as of 31 December)		
Farmers and Merchants Bank, Rensselaer, IN - C.D.		5,522.12
Farmers and Merchants Bank, Rensselaer, IN - Passbook		379.64
State Bank of Rensselaer, IN - C.D.		<u>12,360.47</u>
TOTAL		\$19,752.05

V. SUMMARY OF TRUST FUNDS

A.	Foundation Account (00430-00-0)		
1.	Income Account		
	Income cash balance (1/1/82)	\$ 0.00	
	Dividends and interest for 1982	2,463.07	
	Disbursements for 1982		
	Research grants (Received in 1983)	\$ 300.00	
	Transfer to Principal cash	<u>2,163.07</u>	
		\$ 2,463.07	<u>-2,463.07</u>
	Income cash balance (12/31/82)	\$ 0.00	0.00
2.	Principal Account		
	Principal cash balance (1/1/82)	\$ 1,028.60	
	Total receipts for 1982	19,000.00	
	Transfer from Income Account	2,163.07	
	Total disbursements for 1982		
	Investments purchased	\$21,900.00	<u>-21,900.00</u>
	Principal cash balance (12/31/82)	\$ 291.67	291.67
	Market value of investments (12/31/82)		<u>\$35,105.42</u>
	Total value of account (12/31/82)		\$35,397.09*
	*Carrying value of investments (12/31/82) is \$32,081.50		
B.	John S. Wright Fund (00430-01-9)		
1.	Income Account		
	Income cash balance (1/1/82)	\$ 5,720.36	
	Dividends and interest for 1982	36,388.99	
	Disbursements for 1982		
	Commission and fees	\$ 3,527.00	
	Miscellaneous expenses	<u>37,069.85</u>	
		\$40,596.85	<u>-40,596.85</u>
	Income cash balance (12/31/82)	\$ 1,512.50	\$ 1,512.50
2.	Principal Account		
	Principal cash balance (1/1/82)	\$ 112.15	
	Total receipts for 1982	42,076.93	
	Total disbursements for 1982		
	Principal cash balance (12/31/82)	\$20,009.77	\$ 20,009.77
	Market value of investments (12/31/82)		<u>662,945.47</u>
	Total value of account (12/31/82)		\$684,467.74*
	*Carrying value of investments (12/31/82) is \$296,751.79		

C.	J.S. Wright Invested Income Account (00430-02-8)		
1.	Income Account		
	Income cash balance (1/1/82)	\$ 2,268.75	
	Total interest for 1982	13,750.22	
	Disbursements for 1982	0.00	
	Transfer from Principal Account	684.97	
	Transfer to Principal Account	<u>10,778.94</u>	
	Income cash balance (12/31/82)	\$ 5,925.00	\$ 5,925.00
2.	Principal Account		
	Principal cash balance (1/1/82)	\$ 1,102.10	
	Total receipts for 1982	161,869.85	
	Disbursements for 1982		
	Investments purchased	100,681.25	
	Distributions (Grants & Proceedings)	37,494.33	
	Transfer from Income Account	10,778.94	
	Transfer to Income Account	<u>684.97</u>	
	Principal cash balance (12/31/82)	34,890.34	\$ 34,890.34
	Market value of investments (12/31/82)		<u>59,053.00</u>
	Total value of account		\$ 99,868.34

VI. NOTES

Membership dues: The Treasurer's records show that the Academy has 1069 paid memberships for 1982: 33 sustaining, 2 sustaining family, 535 senior, 28 senior family, 251 regular, 14 regular family, 85 student, 102 emeritus, 2 honorary, 3 life and 14 club memberships.

- 7 members deceased (included in totals above).
- 93 members on file from 1981, but not paid for 1982.
- 114 new members for 1982 (included in totals above).
- 4 previous members reinstated in 1982 (included in totals above).
- 7 persons resigned.
- 65 individuals and one club dropped for nonpayment of 1981 dues.

Dues Structure for 1982:

- \$ 2.00 for student memberships
- 5.00 for memberships and club memberships
- 10.00 for senior memberships
- 25.00 for sustaining memberships
- 2.00 additional for family memberships
- 300.00 for life memberships
- 150.00— 500.00 corporate memberships
- 50.00— 100.00 institutional memberships
- 1.00 initiation/reinstatement fee (\$2.00 for family membership)

Reprints: All authors of papers in Volume 90 of the *Proceedings* have paid for the reprints which they ordered. Cost of reprints to the Academy was \$2,347.40. Authors paid the Academy \$2,510.90 for reprints.

Publications: The monograph on *Ectoparasites of Mammals of Indiana* by John Whitaker was printed and released by the Academy in October, 1982. Sales of reprints, monographs and *Proceedings* in 1982 totaled \$3,587.45.

Research Grants: Funds totaling \$19,803.00 have been awarded to: A.M. Berquist (Notre Dame), R.E. Brown (Huntington C.), J.B. Cave (Ball State U.), T.A. Fogle (St. Mary's C.), R.W. Greene (Notre Dame), J.K. Greenlee (Notre Dame), A.J.C.L. Hogarth (DePauw U.), A.L. Hughes (Indiana U.), K. Kamo (Indiana U.), D.T. Krohne (Wabash), J.R. Litton (St. Mary's C.), M.J. Mandracchia (Notre Dame), C.E. Mays (DePauw U.), N.J. McCreary (Notre Dame), E.D. Mould (St. Mary's C.), V.L. Riemenschneider (IUSB), R. Schwarzwald (Indiana U.), C.A. Stewart (Indiana U.), B.K. Swartz (Ball State U.), J.S. Wasser (Indiana U.), C. Carter (Purdue U.), S.W. Dhawale (Indiana Univ. East), Vas Dev, (Notre Dame), C.T. Huang (Purdue U.), J.C. Latino (Notre Dame), P.C. MacMillen (Hanover CO.), J.P. Rybarczyk (Ball State U.), D.M. Sever (St. Mary's C.), M. Vaughn (Indiana State U.), H.P. Weeks, Jr. (Purdue U.), S.C. Yoder (Goshen C.), Alan Engel and Nevin Longenecker (John Adams High School), James A. Barsic and Dean Christakis (Marquette High School), Susan Rucinski and M. Kobe (Gavit High School), Tamara M. Hughes and Mrs. Nell Walther (Plainfield High School), Valori Miller, Jeff Medwetz, Scott Bearby, and M. Kobe (Gavit High School), Jim Szalony and M. Kobe (Gavit High School), Laura Warot and M. Kobe (Gavit Senior High School), Steve

Longenecker and John Koellner (Riley High School), and Kathleen Ramos and M. Kobe (Gavit High School).

Grants Received: The final installment (\$2,698.25) of the U.S. Department of Interior Grant 14-16-0003-79-133 for biological survey was received and disbursed.

Kappa Kappa Kappa Sorority made \$2,500 available for awards and expenses for the Science Talent Search for Indiana high school students.

The American Association for the Advancement of Science granted \$900.00 to be used by high school students for research.

State Audit: The State Board of Accounts has examined the records of the Academy for the period July 1, 1977 to June 30, 1981, and certified that the records are satisfactory.

VII. BUDGET FOR 1983

The following budget was approved by the Budget Committee in the meeting of 4 December 1982.

Academy Accounts

Anticipated Income

Dues, Initiation and Reinstatement Fees	\$ 8,000.00
Interest on Savings	1,750.00
Reprint Charges to Authors: Vol. 91	<u>3,250.00</u>
	\$13,000.00

Budgeted Expenditures

Secretary	\$ 600.00
Treasurer	600.00
General Office	250.00
Officer Honoraria	150.00
Membership Committee	400.00
President's Contingency Fund	225.00
Newsletter	800.00
Speaker of the Year	700.00
Program Committee	2,300.00
Editor's Expenses	700.00
Youth Activities Committee	400.00
Biological Survey Committee	1,000.00
Centennial Committee	200.00
AAAS representative	250.00
Division Chairmen's Expenses	50.00
Public Relations/Research Grants	250.00
CPA Fees for Tax Returns	500.00
Miscellaneous	100.00
Reprint Charges to Academy	2,850.00
Transfers to Administrated Accounts	2,450.00
Science Talent Search (\$500.00)	
Library Binding (\$1,500.00)	
Proceedings: Mailing (\$450.00)	
	<u>\$14,775.00</u>

Endowment Funds

Anticipated Income

IAS Foundation	\$ 300.00
J. S. Wright Invested Income Account	35,000.00
Invested Income carryover	<u>88,500.00</u>
	\$123,800.00

Budgeted Expenditures

Bank Fee	\$ 3,500.00
Research Grants for Senior Academy Members	21,000.00
Research Fellowships for Secondary School Teachers (who are Academy Members)	3,000.00
Publications	
Proceedings—Volume 91 (\$13,218—8,000)	<u>5,218.00*</u>
	\$ 32,718.00

* Anticipated funds of \$8,000 from State of Indiana.
Expenses for monographs in preparation will come from the Endowment Funds.

Restricted Accounts

Anticipated Income

AAAS Funds for High School Research Grants	\$ 900.00
Tri-Kappa Funds for Science Talent Search	2,000.00
Sale of Publications	
<i>Proceedings</i>	50.00
Monographs	750.00
	\$ 3,700.00

Anticipated Expenditures

Research Grants awarded to Junior Academy members	\$ 900.00
Science Talent Search	2,000.00
Publications	
<i>Proceedings</i> (part)	50.00
Monographs (part)	250.00
	\$ 3,200.00

Respectfully submitted,

Duvall A. Jones, Treasurer

We, the undersigned, have audited the Treasurer's records for the Indiana Academy of Science for the year 1982 and have found them to be accurate and in order.

Andrew G. Mehall

John Ricketts

_____, 1983

_____, 1983

INDIANA JUNIOR ACADEMY OF SCIENCE

OFFICERS

President Jody Sibbitt, Paoli Jr.-Sr. High School
President-Elect Rick Karr, Highland Sr. High School
Secretary Michelle Trinkle, Paoli Jr.-Sr. High School

JUNIOR ACADEMY COUNCIL

Jr. Scientist, Sr. Division Thomas Anderson, Paoli Jr.-Sr. H.S.
Chairpersons
..... Michael Kobe, Gavit High School,
Hammond
Jr. Scientist, Jr. Division William Fariss, Gavit Middle School
Chairpersons
..... Laural Krool, Gavit Middle School
Senior Papers, Chairperson Jane Tucker, St. John the Baptist
Fort Wayne
Junior Papers, Chairperson Virginia Rhodes, East Noble High School
Kendallville
Polemics, Chairperson Cheryl Mason, Highland High School
Highland
Science Fiction, Chairperson Leota Skirvin, Brown County High School
Nashville
Poster Papers Joanne Richardson, Pat Fleming, Eileen
Jr. and Sr. Divisions
Ridley
University of Notre Dame
Mousetrap Cars Steve Makurat, Brown County High
School
Steve Brown, University of Notre Dame
Paper Planes Steve Kraemar, Richard Bush
University of Notre Dame

PROGRAM

(Notre Dame Liason: Reverend James J. McGrath, Professor of Biology)

Thursday, October 28

7:30-11:00 PM Check in at Stepan Center

Friday, October 29

8:30-11:00 AM Registration, Stepan Center

9:00- 9:30 AM Welcome by Dr. Daniel H. Winicur, Assistant Dean
of the College of Science

Dr. William Eberly, President of the Indiana Senior
Academy of Science, congratulates the Jr. Academy
on its 50th Anniversary

9:40-11:30 AM Introduction of Candidates and Announcements
Poster Paper Session, Stepan Center

9:40-10:30 AM	Paper Plans and Mousetrap Car Contests, Stepan Center
9:40-	Junior Scientist Interviews, Stepan Center
10:00-11:30 AM	Presentation of Papers, Jr. Division Room 355, Galvin Life Sciences
	Presentation of Papers, Sr. Division Room 357, Galvin Life Sciences
10:15-10:55 AM	Group "A" Polemic, Stepan Center
11:00-11:40 AM	Group "B" Polemic, Stepan Center
12:00- 1:00 PM	LUNCH
1:30PM	Presentation of Awards
	Election of Officers
2:45 PM	Adjournment

ELECTED STATE OFFICERS 1983-1984

President-Elect Petra Fuerhaupter, Highland Sr. High School
 Secretary Joseph V. Pawlowski, Highland Sr. H.S.

CANDIDATES FOR STATE OFFICE 1983-1984

President-Elect Petra Fuerhaupter, Highland Sr. High School
 Secretary Joseph V. Pawlowski, Highland Sr. H.S.

- *SENIOR DIVISION PAPERS
- *JUNIOR DIVISION PAPERS
- *NOMINATIONS FOR INDIANA JUNIOR SCIENTIST—SR. DIVISION
- *NOMINATIONS FOR INDIANA JUNIOR SCIENTIST—JR. DIVISION
- *SCIENCE FICTION STORIES—SR. DIVISION
- *SCIENCE FICTION STORIES—JR. DIVISION

*The above information is on the enclosed pages.

NOMINATIONS FOR INDIANA JUNIOR SCIENTIST

SENIOR DIVISION

CENTRAL NOBLE HIGH SCHOOL—Jennifer Farr
 PAOLI JR.-SR. HIGH SCHOOL—Jody Lynn Sibbitt
 GAVIT JR.-SR. HIGH SCHOOL—Marc Hockman, Jennifer Kucharski
 HIGHLAND HIGH SCHOOL—Anne Tseng
 MARQUETTE HIGH SCHOOL—Jim Barsic, Ali Raheem
 INDIAN CREEK HIGH SCHOOL—Michael Fell

NOMINATIONS FOR INDIANA JUNIOR SCIENTIST

JUNIOR DIVISION

THE CANTERBURY SCHOOL—Christopher Moses
 GAVIT JR.-SR. HIGH SCHOOL—James Warner Huggler, Jr.
 MARQUETTE HIGH SCHOOL—James Jensen, Mark Owens

SENIOR DIVISION PAPERS

MARQUETTE HIGH SCHOOL

Jim Barsic—“Scanning Electron Microscope Studies of the Effectiveness of HIP Processing and Single Crystal Components in Reducing Stress Fractures and Cleaving on Industrial and Military Turbine Components.”

Ali Raheem—“Research into Hyperglycemia: A Comparison of R-Regular Iletin Insulin and an Author-Extracted Mouse Insulin on the Blood and Urine Glucose Levels of the C57BL/BL?KsJ-dbm Diabetic Strain of Mouse.”

CENTRAL NOBLE HIGH SCHOOL

Jennifer Farr—“The Effect of Trazco B*401 on the Decomposition of Herbicidal Residues Under Specific Environmental Conditions”

PAOLI JR.-SR. HIGH SCHOOL

Heidi White—“The Direct Effects of Glucocorticoids *In Vitro* on Populations of Lymphocytes”

Jody Lynn Sibbitt—“Possible Contributory Factors to Toxic Shock Syndrome”

EAST NOBLE HIGH SCHOOL

Nanette Latchow—“The Effects of Volcanic Ash versus Silica on the Mammalian Respiratory System”

GAVIT JR.-SR. HIGH SCHOOL

Marc Hochman—“The Isolation and Revival of Clostridium”

Jennifer Kucharski—“The Effects of Food Stuffs Prepared in a Microwave Oven on Bacteria Commonly Found in the Human Digestive System.”

HIGHLAND HIGH SCHOOL

Ernst Tseng—“The Role of Testosterone in Regulating Rat Acid Phosphatase Activities and Specific Gene Expression”

Kelly Ward—“Identification of the Site of Esterase 6-Synthesis in *Drosophila melanogaster*”

JUNIOR DIVISION PAPERS

MARQUETTE HIGH SCHOOL

Mark Owens—“Holographic Interferometry: Measurement of Pressure-mediated Micro-movement in Various Metals”

James Jensen—“Parabolization of an 8-inch, F-5, Primary Mirror to be Integrated in a Cassegrain-Newtonian Reflecting Telescope.”

GAVIT JR.-SR. HIGH SCHOOL

James W. Huggler, Jr.—“The Burning Question”

Paul Chojenski—“Catching the Sun’s Energy”

EAST NOBLE HIGH SCHOOL

Laura Emerson—"Burning Wood, an Energy Alternative"

THE CANTERBURY SCHOOL

Debbie Parrott—"Interaction of Ions: Do All Metals and Non-metals Interact?"

Christopher Moses—"In Quest of the Photon: Laser-induced Holographic Images"

SAINT JOHN THE BAPTIST

Paul Sinnes—"Telephone Communication by the Use of Laser Light"

SCIENCE FICTION STORIES

SENIOR DIVISION

HIGHLAND HIGH SCHOOL

Todd Gyure—"The Selection Line"

Kelly Ward—"The Drosophila Disaster"

GAVIT JR.-SR. HIGH SCHOOL

Jennifer Kucharski—"The Cold Sleep"

MARQUETTE HIGH SCHOOL

Tom Totten—"The Map"

Jim Barsic—"New World Man"

Patrick Bobillo—"The Silver Bear"

JUNIOR DIVISION

HIGHLAND HIGH SCHOOL

Charles E. Wolven—"The Encounter"

GAVIT JR.-SR. HIGH SCHOOL

Marc Vockell—"Chips"

SAINT JOHN THE BAPTIST

Mary Brita—"The Cloning of Mary Brita"

Janet Libbing—"The Demanding Muscles"

THE CANTERBURY SCHOOL

Stanton W. Clark—"Molecular Manipulation"

Renata Bauman—"The Great Explosion"

MARQUETTE HIGH SCHOOL

Mark Owens—"Light Traveler"

Eric Bonfield—"The Abogenitive Crisis"

Lisa Totten—"Speculations"

James Jensen—"A Matter of the Mind"

SENIOR DIVISION

OUTSTANDING SCIENTIST	Jody Lynn Sibbitt, Paoli Sr. High School
PAPER PRESENTERS	1st— Jennifer Farr, Central Noble
	2nd— Jody Sibbitt, Paoli Jr.-Sr. H.S.
	3rd— Kelly Ward, Highland Sr. H.S.
SCIENCE FICTION STORIES	1st— Todd Gyure, Highland
	2nd— Jim Barsic, Marquette
	3rd— Kelly Ward, Highland
POLEMICS	1st— Marquette High School
	2nd— Highland High School
	3rd— Marquette High School
PAPER PLANE CONTEST	1st— Marquette High School
	2nd— Gavit High School
	3rd— Gavit High School
MOUSETRAP CAR CONTEST	1st— Highland High School
	2nd— Marquette High School
	3rd— Highland High School
POSTER PAPERS	1st— Chris Brown, Highland H.S.
	2d— Petra Fuerhaupter, Highland H.S.
	3rd— Ali Raheem, Marquette H.S.

JUNIOR DIVISION

OUTSTANDING SCIENTIST	Mark Owens, Marquette
PAPER PRESENTERS	1st— James Jensen, Marquette
	2nd— James Huggler, Jr.
	3rd— Laura Emerson, East Noble
SCIENCE FICTION STORIES	1st— Mary Brita, St. John The Baptist
	2nd— Renata Bauman, The Canterbury School
	3rd— Stanton Clark, The Canterbury School
POLEMICS	1st Marquette
	2nd— Highland
	3rd— Gavit
PAPER PLANE CONTEST	1st— Sean Evisten, Canterbury
	2nd— Steve Rogers, Gavit
	3rd— Allan Spott, Highland
MOUSETRAP CAR CONTEST	1st— Allan Spott, Highland
	2nd— Eric Bonfield, Marquette
	3rd— Erin Dellinger, The Canterbury School
POSTER PAPERS	1st— Heather Hamrick, The Canterbury School
	2nd— Stan Clark, The Canterbury School
	3rd— Debbie Parrott, The Canterbury School

Necrology

Fay Kenoyer Daily, Butler University

G(USTAVE) BRYANT BACHMAN

Kansas City, Missouri
August 18, 1905

Lafayette, Indiana
April 14, 1982

Dr. Gustave Bryant Bachman was an Emeritus Professor of Chemistry at Purdue University who died April 14, 1982, at Lafayette, Indiana. He had been in ill health several months.

Born at Kansas City, Missouri, August 18, 1905, he attended Kemper Military School in Boonville, Missouri. Later, he lived in New Mexico and then Colorado where he received an A.B. degree, Magna Cum Laude from Colorado University in 1926. A Ph. D. degree from Yale followed in 1930 as well as some post graduate work at Munich Germany from 1929 to 1930.

Dr. Bachman's teaching career began at Ohio State University in 1930 as an instructor and continued from 1933 to 1936 as assistant professor. In 1936, he joined Eastman Kodak in New York, but returned to teaching in 1939 as an Associate Professor at Purdue University in Lafayette, Indiana. He became a Professor of Chemistry in 1941. When he retired in 1971, he remained active in campus life and retained an office there. During his teaching career, he trained about 75 students for the Ph. D. degree and 75 for an M.S. degree. He initiated courses in Theories of Organic Chemistry, Natural Products and Heterocyclic Chemistry for graduate students. He published the textbook, *Organic Chemistry*, in 1949.

Dr. Bachman also served in various university affairs chairing the Committee for Reorganization of the Faculty, Committee Structure and Committee for Writing a Constitution for the School of Science. He was a member of the Convocation Committee and University Senate Faculty Affairs Committee. He was instrumental in founding a Phi Beta Kappa Chapter at Purdue. He also served as a consultant for several chemical companies including Commercial Solvents, Eli Lilly and Company, Diamond Alkali Company, Continental Carbon Company, General Tire and Rubber Company and others.

Dr. G. Bryant Bachman was internationally known for his research in the organic chemistry field with special interest in aliphatic nitro compounds and the mechanism of combustion. Included, too, were plastics, rubbers, antimalarials and other drugs, nitration and synthetic organic chemistry. He published over 100 papers and obtained about 35 patents.

Outside his academic life, Dr. Bachman was interested in music becoming the founder and first President of the Lafayette Symphony. He was a member of the Rotary Club and gave lectures to them on Astronomy in which he also was interested. He liked sailing and was associated with the Indiana Power Squadron in Indianapolis. This interest gave rise to his writing a witty book after retirement. It was called *Definitions: Nautical and Naughtical*.

Dr. Bachman joined the Indiana Academy of Science in 1939 when he came to teach at Purdue University in Indiana, and was honored as Fellow in 1952. He was an Emeritus Member at death. He gave several papers at meetings: one

on a college undergraduate course in organic chemistry, another (co-author) on hydrolysis rates of unsaturated esters in alkaline emulsion systems of the GR-S type, and also on (co-author) synthetic resins and base exchange phenomena. He was Chairman of the Division of Chemistry of the Academy in 1967 and served on the Executive Committee. He was a member of the University Club, American Chemical Society (local), Sigma Xi, Phi Beta Kappa and was in elected offices of the St. John's Episcopal Church.

Besides the *American Men and Women of Science*, we are in debt to colleagues of Dr. Bachman at Purdue, Harry Morrison (chairman), M.G. Mellon and Richard Sneen for sharing biographical information about Dr. Bachman. We not only received the memorial resolution from Dr. Morrison, but a copy of the fine article in the *Journal and Courier*, Lafayette, Indiana, April 15, 1982, which were very helpful in writing this report.

HILLIS LANGHORNE HOWIE

Indianapolis, Indiana
January 31, 1903

Bloomington, Indiana
June 2, 1982

Mr. Hillis Howie was a school administrator, teacher and director of expeditions to the southwest United States who died at Bloomington, Indiana, June 2, 1982.

Born in Indianapolis, Indiana, January 31, 1903, most of his early education was obtained there, too, and he graduated from Shortridge High School. He studied at Wesleyan University at Middletown, Connecticut, for two years and then obtained a B.A. degree from Butler University in 1925. He worked on a Master's degree many years later obtaining an M.A. at Yale University in 1949.

Before his years as administrator, Mr. Howie was a teacher in woodcrafts and nature study for eight years at Culver Military School beginning while he was a high school student. From 1926 to 1928, he was a teacher at Orchard School in Indianapolis, Indiana. From 1928 to 1929, he taught at Dalton School in New York City. From 1930 to 1933, he was back teaching at Orchard School. From 1933 to 1938, he served as Director of Orchard School where he was much loved and admired. He was a good teacher and had a great influence on young people. He resigned in 1938 to study at Yale University. He was Chairman of the School Service Department of the Peabody Museum of Natural History at Yale from 1942 to 1946. In 1946, he was appointed Director of the Community School in St. Louis, Missouri, where he stayed until 1959. He was Director of Poughkeepsie Day School in New York from 1963 to 1965.

Mr. Howie may be as well known for the Prarie Trek Expeditions which he organized in 1926 in order to take boys on camping trips to the southwestern United States of America. We learn from *Keep an Eye on that Mummy*, a history of the Children's Museum of Indianapolis, by Nancy Kriplen that the trips were fashioned after camping trips to the west taken by boys Mr. Howie had known while a counselor at Culver's summer Woodcraft School. Most of the boys were members of a Boy Scout Troop which he had led and there were nine that first year. Mr. Stewart Springer (now an internationally known authority on sharks and a former Indiana Academy of Science member) was drafted as an assistant. He had left the Children's Museum a few months earlier where he had been the Museum Curator. His interest in collecting and preserving natural history specimens led to instructing the boys in the rudiments of good zoological techniques. Mr. Howie saw how the trips could be more than sightseeing events and provide a sound scientific education in various scientific fields and journalism (chosen by some who were responsible for sending reports back to the *Indianapolis Star* newspaper). The *Indianapolis Star* published a good article May 16, 1933, about Mr. Howie and the treks. Also, one appeared in the May 7, 1960, *Indianapolis News*.

In 1928, Mr. Howie left Orchard School to go to New York City to teach, but the next summer, he took the Prarie Trek expedition to England as a delegation from Indianapolis to an International Boy Scout Jamboree. He was "disillusioned" by the affair and conducted the treks after that without Boy Scout emphasis.

Back in Indianapolis at Orchard School in 1930, Mr. Howie offered to make the trek a Children's Museum expedition to bring back archeological and natural history exhibits for the museum. The trek attracted much attention. He had also made the first seahorse emblem for the Museum while a teacher of shop at Orchard

School. It was designed by Kurt Vonnegut. Mr. Howie had been on the Museum Board for a year before going to New York and had collected small mammals for the Washington National Zoo and American Museum of Natural History.

In 1934, the Turquoise Trail headed west. This was fashioned after Mr. Howie's expeditions and was for girls. It was headed by Gordon Thompson, a former assistant of Mr. Howie.

Mr. Howie bought 500 acres called Cottonwood Gulch near Thoreau, New Mexico in 1934. He used the ranch as headquarters for the expeditions of which he was Director from 1926 to 1970 when he retired and was Chairman of the Board of Trustees until 1977. Mr. Kurt Vonnegut designed the cabins built there in exchange for tuition for his son, Kurt Vonnegut, Jr., to attend the 1937 trek. The camp and expeditions were incorporated as a non-profit educational foundation, the Cottonwood Gulch Foundation.

Mr. Howie was back on the Children's Museum Board in 1931 and was first vice president from 1933 to 1937. The Museum was a point of departure for the treks until 1942 and World War II which caused a temporary halt in the activity.

Mr. Howie's hobbies were numerous such as woodcrafts, birds and antique tools. He was author of several articles on out-of-door education.

Mr. Howie joined the Indiana Academy of Science in 1935 and was an Emeritus Member at death. He was also a member of Psi Upsilon Fraternity, Indiana Historical Society and Unitarian Universalist Church of Bloomington, Indiana.

Mr. Howie died in Bloomington, Indiana, June 2, 1982. His interest in young people is the thread woven through all the accounts of his life upon which this report is based. Besides the Children's Museum history cited above, material was kindly sent us by Mrs. Howie and son, John.

LOUIS AUGUSTUS KRUMHOLZ

Harrington, Washington
December 1, 1909

Louisville, Kentucky
January 23, 1981

Dr. Louis A. Krumholz was a retired educator, research scientist in biology and administrator who died January 23, 1981, in his Louisville home. He was the subject of numerous articles in the *Courier Journal* of Louisville, many of which were provided for us by Mr. Dwayne Cox, archivist, at the library of the University of Louisville. These and other records from the archives provided much of the information here.

Born at Harrington, Washington, December 1, 1909. When a few years old, Dr. Krumholz moved to Minnesota where he spent his boyhood. He lived in Fairmount, an agricultural community, near a chain of lakes where he became fascinated with the aquatic life he saw. A B.S. degree was obtained from the College of St. Thomas in St. Paul, Minnesota in 1932. At that time, he wanted to be a bone surgeon and entered medical school at Marquette University. After two years, he could not continue because of the deepening depression and his lack of funds. He began teaching general science and English at a small consolidated school in Minnesota and decided to study German. However, he returned to biology after two years with a renewed interest developed while working with Dr. Josephine Tilden on her algal studies. He obtained an M.S. degree from the University of Illinois in 1938 and a Ph. D. in zoology at the University of Michigan in 1945.

While at Illinois, he was assistant zoologist with the State Natural History Survey from 1937 to 1940. He was Aquatic Biologist with the Michigan Institute for Fisheries Research at Ann Arbor from 1940 to 1945. He came to Indiana in 1945 to be an instructor in Zoology at Indiana University and was Research Associate of the Indiana Lake and Stream Survey until 1950. He then went to Oak Ridge, Tennessee, with the Tennessee Valley Authority as Aquatic Biologist from 1950 to 1954. He was Technical Reports Analyst for Oak Ridge TVA in 1954. He then moved to the Bahamas where he was Resident Biologist in Charge of the Lerner Marine Laboratory on Bimini from 1954 to 1957. In 1957, he went back to teaching at the University of Louisville in the Department of Biology. He became Director of the Water Resources Laboratory in 1967 where he served until 1975. From 1975 until he retired in 1979, he was Assistant Vice President for Academic Affairs.

Dr. Krumholz was a very active and productive teacher and was also active in academic affairs. He was an internationally known aquatic ecologist and radiation biologist. His research included population studies of fishes, embryology, comparative anatomy and fecundity of fishes, the effect of radioactive wastes on aquatic fauna and the accumulation and selective concentration of radioactive materials in aquatic vertebrates. He was author or co-author of over 100 scientific articles and had around 25 graduate students whose scientific research was directed by him. His work at TVA attracted great interest and was reported in the *New York Times*, July 1, 1956, because he concluded that radioactive waste from the atomic energy plant was cumulative in fish shortening their life span and speed of growth. He received many honors. Perhaps the most important one was bestowed by the *Wildlife Society* for his outstanding publication in wildlife ecology and management 1955 to 1956 and Honorary Membership for outstanding achievement and service. He also received the Kentucky Academy of Science Distinguished Scientist Award in 1976. He was invited to participate in many national and international symposia as the one on radiation ecology in Stockholm in 1966 and the

British Ecological Society in Northern Ireland in 1975. His activities were often of public interest and were reported in newspapers as mentioned above and the *Louisville Times* reported on his work. He attracted international interest in 1967 when he was a consultant in a study of the effect on wildlife and food supply that the use of underground nuclear power might have if used for blasting for a new Panama Canal. He was an editor for the *Journal of Wildlife, Ecology, Journal of Fisheries Research Board of Canada, Copeia, and Wildlife Monographs*.

Dr. Krumholz joined the Indiana Academy of Science in 1969 and presented a paper that year on Mussels of the Wabash and White Rivers of Indiana. He was also a member of the American Society of Ichthyologists and Herpetologists, American Fisheries Society, American Society of Limnology and Oceanography, American Association for the Advancement of Science, American Institute of Biological Science, American Society of Zoologists, American Association of University Professors, Ecological Society of America, British Ecological Society, Wildlife Society, American Institute for Fisheries Research Biology, Gulf and Caribbean Institute, Kentucky Academy of Science and International Society of Limnology.

A list of 75 publications by Dr. Krumholz was prepared while he was Director of Water Resources Laboratory at the University of Louisville. It ended with a 1972 paper and was provided for our files by Mr. Cox.

NATHAN E(VERETT) PEARSON

Amboy, Indiana
December 12, 1895

Hamilton, Indiana
September 25, 1982

Dr. Nathan E. Pearson was a native of Indiana and former head of the Zoology Department of Butler University, Indianapolis, Indiana.

Born at Amboy in 1895, Dr. Pearson received much of his education in the state. He attended Jonesboro, Indiana, High School from which he graduated in 1915. He earned an A.B. degree in 1921, an A.M. in 1923 and a Ph. D. in 1926 at Indiana University, Bloomington, Indiana. He also studied at Indiana State Normal College at Terre Haute, Indiana, for 24 weeks in the summers of 1915 and 1916. The summers of 1919 and 1920, he was at the Indiana University Biological Station. He was a student at Lake Forest College, Lake Forest, Illinois, from 1917 to 1918. He served as a private in the U.S. Army during World War I from 1918 to 1919.

Dr. Pearson's teaching career began in rural schools of Indiana in 1915. At that time, a high school graduate could take 12 weeks normal training in the summer and teach in the fall. He was at Woods Hole Biological Station in Massachusetts the summer of 1925 and was teaching at Columbia University from 1925 to 1926. He was an assistant in Zoology at Indiana University from 1921 to 1925. He served as Ichthyologist of the Mulford Biological Exploration in Peru, Bolivia, and the Amazon Basin in Brazil from 1921 to 1922, and was a collector for Indiana University on an expedition to Peru, South America in 1923. He collected specimens for University of Michigan on both of the above expeditions, too. He became quite interested in the taxonomy and distribution of South American fresh-water fishes.

Dr. Pearson began teaching at Butler University in 1926 in the Zoology Department. The summers of 1926 and 1927, he was Professor of Biology and Nature Study at Winona Normal School. He became Head of the Department of Zoology at Butler University in 1938 in which capacity he continued until retirement in 1964. He was well-liked and a very effective teacher. His patience, even temper and genuine interest in young people helped him establish a good rapport with students. His lectures were well-organized and the material was current. In 1963, he received the Butler Medal, the highest award given by the Butler Alumni Association, for distinguished service. He taught and was adviser to many pre-medical students and more than 250 of them earned a doctor of medicine degree. Many other students who did not go into the medical profession have distinguished themselves in other fields after preparation under his guidance. He also wrote many articles on fishes. He was listed in *Who's Who of America* and *Who's Who in the Midwest, American Men and Women of Science, Indiana Authors and their Books 1917-1966* by D.E. Thompson, *Indiana Scientists* by S.S. Visher, articles in the *Butler Alumnus* and *Indianapolis Star* and *Indianapolis News*.

Dr. Pearson joined the Indiana Academy of Science in 1922 and became a Fellow in 1931. He was an Emeritus Member at death. He gave several papers at meetings on the cytology of a group of katydids, a disease in fishes and the reproductive cycle of an infusorian. He was very active for about thirty years serving on the Publication of the Proceedings, Program (twice), Auditing, Biological Survey, Membership, Fellows, and Executive Committees. He was also on a special committee on undergraduate research in biology and was Vice-president of the Indiana Academy of Science in 1946. In addition, he was a member of Phi Kappa

Phi, Sigma Xi, the American Society of Zoologists, American Association of University Professors, American Association for the Advancement of Science and Fellow. The Blatchley Nature Study Club made him an Honorary Member.

During Dr. Pearson's later years, he spent the summers on a farm near Hamilton, Indiana, the home of Patty Douglas, his daughter, who provided much of the information for this article. There he followed one of his hobbies, gardening, to the envy of the neighborhood. He had many other interests, too, as repairing old clocks, genealogy, woodworking, and many others following his natural curiosity down many avenues with enthusiasm. Another daughter, Barbara Scott, survives him.

It was while visiting the farm that Dr. Pearson had a heart attack and died suddenly September 25, 1982.

ROBERT A. RAGAINS

Corydon, Indiana
September 6, 1904

Olney, Maryland
November 1, 1981

Mr. Robert A. Ragains was interested, chiefly, in Entomology and was retired from 34 years of service with the United States Department of Agriculture Home Administration where he was a Credit Specialist. Some biographic material was found in the *Thomas Say Alumnus 1972-1973*, Department of Entomology, Purdue University supplied to us by Mr. John Favinger, a friend of Mr. Ragains while in Indiana. Mrs. Ragains also provided material.

Mr. Ragains was born at Corydon, Indiana, and attended public school in Hardinsburg, Indiana. He then studied at Indiana Central University where he obtained an A.B. degree in 1928. He majored in Entomology at Purdue University where he earned a Master of Science degree in 1933.

Mr. Ragains taught 4 years in high school at Zionsville, Indiana before employment by the United States Department of Agriculture. He was living in Zionsville in 1931 when he joined the Indiana Academy of Science. When at Purdue University, Mr. Ragains wrote a thesis (unpublished) including a list of ground beetles which, according to John Favinger, Indiana State Entomologist, has been very useful to him. Mr. Ragains was not in Indiana long enough after joining to be very active in the Academy, but must have valued the association highly, because he was still a Senior Member at death.

Unfortunately, biographical material about Mr. Ragains seemed meagre; and as he was out-of-state for so long many of us did not know him. His brief note to the *Thomas Say Alumnus* is very revealing, though. In that, his hobbies of golfing, woodworking and raising azaleas are mentioned as retirement activities. Three grandchildren are also mentioned as "really Grand and the joys of our lives".

Mr. Ragains was 77 years old when he died suddenly of a heart attack November 1, 1981, in a hospital in Olney, Maryland.

BERNARD HENRY SCHOCKEL

Aurora, Indiana
December 15, 1887

Lawrenceburg, Indiana
March 5, 1972

Dr. Bernard Henry Schockel was interested chiefly in Geography and Geology. Born at Aurora, Indiana, December 15, 1887, his early education was secured locally according to a record of training and professional experience kindly supplied to us by the archivist at Valparaiso University where Dr. Schockel taught as a visiting lecturer from 1954 to 1957. Dr. Schockel graduated from high school at Aurora June, 1905, and began teaching in a country school of Washington Township that year. The next year, he entered Indiana State Normal where he received a diploma in 1909. He received a B.S. degree from the University of Chicago in 1911 and an M.A. in 1913 and Ph. D. degree in 1947. His major was Geography and Geology. He did a survey of the Galena, Illinois, Quadrangle and later wrote a bulletin for the Illinois Geological Survey. The survey was done in 1910.

In 1913, Dr. Schockel was elected head of the Department of Geography and Geology by the board of Indiana State Teachers College. In the *History of Indiana State Teachers College 1865-1945* by William O. Lynch (material by courtesy of the Public Relations Office of Indiana State University), Dr. Schockel is described as "a young man of much promise already on the road to high scholarship". He was employed after the resignation of Dr. Charles Dryer, a charter member of the Indiana Academy of Science.

When World War I began, he had a leave of absence to enter Meteorological School of the American Expeditionary Force at Langres, France, in preparation for service in the U.S. Signal Corps. He served well receiving a military citation.

Dr. Schockel returned from France to Indiana State, but had numerous leaves of absence to further graduate study and he carried on concurrent work to help with finances. He was employed by the U.S. Weather Bureau, St. Louis, Missouri in 1917, working consecutively in every position up to and including forecasting. He was a special expert with the U.S. Shipping Board (Planning and Statistics) 1919 to 1920. In the 1920s, he conducted field trips for adults to the East Coast and Rocky Mountains. He had about 7 classes in Geology and Geography at the University of Chicago interspersed from 1912 to 1936, which he conducted.

When Dr. Schockel asked for an extension of a leave of absence from Indiana State from 1931 to 1932, he was notified of the termination of his service after the 1932 to 1933 year, because it had become necessary to reduce the staff in his field.

He had another class at the University of Chicago in 1932 and was special expert with the Tennessee Valley Authority (Planning and Housing Div.) from 1934 to 1935 making land use studies and surveys of the area. From 1935 to 1936, he was head of the Geography and Geology Department of YMCA Central College, now Roosevelt College, Chicago, Illinois. He took classes at the University of Chicago in 1934 and 1936. Concurrent with all of the other activities, Dr. Schockel spent 20 years in newspaper work from 1907 to 1954. He contributed hundreds of newspaper articles to the *Terre Haute Star*, *Indianapolis Star*, *Chicago-Record Herald* and others. He was visiting Geography Professor at Washington University from 1947 to 1948 and also at the University of Kentucky from 1951 to 1952. Meanwhile, he spent 3 years at Mankato Teachers College, Minnesota, 1948 to 1949, 1949 to 1950, and 1952 to 1953. In 1952, he spent a month on the Pacific Coast, and in 1953 he stayed a month on the East Coast and visited Canada.

As mentioned before, Dr. Schockel was a visiting lecturer in the Department of Geography and Geology at Valparaiso University, Valparaiso, Indiana from 1954 to 1957.

Dr. Schockel joined the Indiana Academy of Science in 1913 and became a Fellow in 1917. He was one of the few Life Members of the Society. He was Chairman of the Geology and Geography Section in 1956, and gave about 17 papers at Academy meetings. Some of his chief work consists of the book, *Manufactural Evansville* (submitted in candidacy for the Ph. D. degree), *Pictorial Map of Indiana* (1924), *Indiana Supplement for the Atwood Geography*, *Changing Conditions in the Kentucky Mountains* (Scientific Monthly), *Pupils Help Book in Geography*. He also originated three dimensional maps in black and white or color, produced a land use map of the Mediterranean, studied land use in Indiana and estimated the economic importance of Indiana's counties. In addition to membership in the Academy, Dr. Schockel was a member of the Association of American Geographers, Indiana Historical Society, Sigma Xi, Phi Kappa Sigma, Legion and Veterans of Foreign Wars.

After retiring from teaching at Valparaiso in 1957, Dr. Schockel wrote articles for the local newspaper about problems concerning the locality, Aurora, Indiana, where he was living. He was an avid reader, gardener and sportsman according to his niece, Elizabeth Rullman. He played golf up until a few months before death at 85 years of age. His physical-political map of Indiana was the official one until asked to prepare a new one just before he died. His age and health would not permit it. He died in the Dearborn County Hospital, Lawrenceburg, Indiana, March 5, 1972. We regret that we learned of his death only recently.

WILLIAM JOHN TINKLE

Grant County near Marion, Indiana
November 20, 1892

North Manchester, Indiana
June 12, 1981

Dr. William John Tinkle was a biologist with a long teaching record in Indiana. Born in Grant County near Marion, Indiana, November 20, 1892, he was educated in district and high schools at Sweetser until 1911. From 1911 to 1913, he taught school at Sweetser, Indiana. He went to Manchester College, North Manchester, Indiana, where he secured an A.B. degree in 1916. We are indebted to the *History of the Mississinewa Church of the Brethern* by Ralph G. Rarick, 1917, for a glimpse of his early years. Dr. Tinkle was ordained a minister in 1914 at Somerset. He soon placed membership with the Mississinewa Church, but was absent so much because of the academic work at Manchester College that he could devote little time to the pulpit. He was married in August, 1916, and a few days later, moved to Taft, Texas, where he and his wife taught and engaged in church work in a pioneer settlement. In 1922 to 1923, Dr. Tinkle was a lecturer at the World's Purity Federation and was back to teaching high school in Indiana from 1924 to 1926. Interspersed with the teaching, he worked on an M.A. degree at Ohio State University receiving the degree in 1927. He was a Professor of Natural Science at Mission House College from 1927 to 1929 and Head of the Department of Biology at Juniata College from 1929 to 1931. He had classes at Wisconsin in 1929. He returned in earnest to his education and was an assistant in Zoology at Ohio State University from 1931 to 1932, and received a Ph. D. degree in 1932. After graduation, he taught a year at Marshall College, but moved to Taylor University at Upland, Indiana in 1933 as an Instructor in Biology. He moved up to professor by the 1939-1940 school year. From 1941 to 1944, he was Professor and Head of the Department of Biology, La Verne College. He was back at Taylor University as Chairman of the Division of Science from 1944 to 1948. From 1946 to 1949, he spent summers teaching at Ball State University and was an associate professor at Anderson College from 1956 to 1958 when he retired.

Dr. Tinkle joined the Indiana Academy of Science in 1934 while at Taylor University. He was on the Program Committee in 1936, the Membership Committee from 1936 to 1939 and was Divisional Chairman of the History of Science Division in 1956. He gave several papers at annual meetings and wrote a memorial for Hal Herbert Coffel. He spoke to the Academy on the genetics of sweet peas, Darwinism, conservation of the germ plasm of species, biological theories of Henri Fabre, effectiveness of natural selection, and Creationism. He was also a member of the Genetics Association and American Scientific Affiliation. He is listed in *American Men of Science* and *Indiana Scientists* by Visser. Dr. Tinkle lived in Eaton, Indiana, before entering Timbercrest Church of the Brethern Retirement Home at North Manchester, Indiana, January 18, 1973. His last paper before the Academy, the one on Creationism in the 20th century was given that fall. At 88 years of age, Dr. Tinkle died, June 12, 1981, at the Timbercrest Health Care facilities, and was buried at Eaton, Indiana. We are indebted to Wanda E. Miller, Assistant Administrator of Timbercrest, and Betty G. Freese, Associate Director of Alumni Relations at Taylor University for information about him.

YERAM SARKIS TOULOUKIAN

Istanbul, Turkey
December 28, 1920

Bethesda, Maryland
June 12, 1981

Dr. Yeram Sarkis Touloukian was a world renowned mechanical engineer specializing in the thermophysical properties of substances. He was born in Istanbul, Turkey, December 28, 1920, to an Armenian merchant family. He studied there at Robert College of Engineering receiving a B.S.M.E. degree in 1939. He came to the United States of America to attend the Massachusetts Institute of Technology on a tuition scholarship receiving an M.S. M.E. degree in 1941. He was an assistant and instructor in Mechanical Engineering there from 1941 to 1943. In 1944, he went to Purdue University on a teaching fellowship and studied under G.A. Hawkins toward a Ph. D. degree majoring in heat transfer. He received the doctorate in 1946. He became an assistant professor in 1947, associate professor in 1953 and professor in 1957. He had become an American citizen in 1952.

Dr. Touloukian and his work were highly praised in a Purdue University *Thermophysics and Electronics Newsletter* (V. 10, No. 3) dedicated to him and some issues of the *Purdue Alumnus* which were kindly sent to us by Dr. W.M. Phillips, Head of the Purdue University School of Mechanical Engineering. Dr. Touloukian received the Alcoa Distinguished Professor of Engineering Award in 1967 at Purdue; and in 1968, the Gold Medal of the Italian National Society of Thermal Engineering in ceremonies at Bologna, Italy. In 1970, he was honored by Purdue again by election to the chair of Distinguished Atkins Professor of Engineering. He received the American Society of Mechanical Engineers Heat Transfer "Memorial Award" in 1974; the International Thermal Conductivity Conferences "Thermal Conductivity Award" in 1977; and the International Thermophysics Congress "Distinguished Achievement Award" in 1981. He was invited by the U.S.S.R. Academy of Sciences to conduct a lecture tour of their country in April to May, 1967.

Professor Touloukian taught numerous courses at Purdue in heat and mass transfer and developed many new courses in physical thermodynamics. Many of his students became prominent in this country and others. He was the major professor of about 65 Ph. D. and M.S. degree candidates.

Another outstanding achievement was the conception, founding and implementing of the Thermophysical Properties Research Center (TPRC) at Purdue University in 1957. Its purpose was the synthesis and reasearch of world knowledge of the thermophysical properties of materials vitally important to science, engineering and technology. According to the memorial newsletter article by C.Y. Ho, it attained national and international recognition in a very short time. It was cited by President Eisenhower's Science Advisory Committee in 1958 as an example of centers offering a solution to acute problems of scientific and technical information needs of the nation. Dr. Alvin Weinberg, author of the *Weinberg Report*, from the U.S. President's Science Advisory Committee cited the Purdue research center as a model data analysis center. In 1960, the Air Force had established the Department of Defense Thermophysical Properties Information Center (TPIC) at Purdue's TPR Center. Other operations joined in rapid succession: in 1964, an external center for the National Bureau of Standards, a component of the National Standard Reference Data System (NSRDS); in 1972, the Underground Excavation and Rock Properties Information Center (UERPIC) established by the National Science Foundation; in 1973, the Electronic Properties Information Center (EPIC) moved to Purdue by the Defense Logistics Agency from Hughes

Aircraft to merge with TPIC. The latter move resulted in establishing the Department of Defense Thermophysical and Electronic Properties Information and Analysis Center (TEPIAC) of Purdue's TPRC.

After 17 short years in 1974, the center was reorganized becoming the Center for Information and Numerical Data Analysis (CINDAS) which incorporated all of the operations. The Department of Defense and National Bureau of Standards have long recognized the center at Purdue as a national center for thermophysical and electronic properties data. Dr. Ho states, "The steady and continued growth of CINDAS fully testifies to Dr. Touloukian's outstanding technical and administrative capabilities. Furthermore, his sustained and untiring insistence for the need of such data centers as CINDAS is now fully supported and echoed by many responsible bodies." CINDAS is cited as an example to follow to meet a national crisis in the "information explosion". Dr. Touloukian's counsel and views were sought by many national and international scientific and technical societies as well as industry and governmental agencies. He served on many committees and governmental panels and held several patents.

Dr. Touloukian joined the Indiana Academy of Science in 1951 when teaching in the School of Mechanical Engineering at Purdue University. He was an author or co-author of papers given at meetings on design of a sensitive dew point instrument and electrical analog circuits as applied to heat conduction problems. He was a Regular Member. He was Fellow of the American Society of Mechanical Engineers and American Institute of Aeronautics and Astronautics; and a member of the American Association for the Advancement of Science, American Society of Information Science, Pi Tau Sigma Mechanical Engineering Honorary Fraternity, Sigma Xi Scientific Research Society (Pres., Purdue Chap., 1975-76). A memorial fund has been established at Purdue in his honor. He can be found in *Who's Who in Indiana* (Hist. Record Assoc.), *Who's Who in the Midwest* (V. 8, Marquis), and *Indiana Scientists* by Visher.

He was attending one of his many meetings when he suffered a massive heart attack and died two hours later. He was at Bethesda, Maryland, June 12, 1981, when the attack occurred at a meeting of an international task group on Thermophysical Properties. In addition to other functions to perform at that meeting, he was also to deliver a welcoming speech at the National Bureau of Standards First International Joint Conferences on Thermophysical Properties and a banquet speech June 16. He was to be presented with a surprise distinguished achievement award at that banquet. He was only 60 years of age when the scientific community was shocked by his sudden death.

For further details of the many interests and accomplishments of this vigorous and enthusiastic man, a reading of the May/June, 1981 (V. 8, No. 3) *Thermophysics and Electronic Newsletter* cited above is highly recommended. In addition to his scientific achievements, he was a warm, happy individual, family man, good host and interested in young people. He was an avid collector of mementos from his wide travels.

INDIANA ACADEMY SCIENCE NEW MEMBERS 1982

- ALSOP, DR. TED. J., Dept. of Geography and Geology, Indiana State University,
Terre Haute, IN. 47809
- ARGOT, DR. JEANNE, Marion College, Marion, IN 46952
- AUSLINGER, MR. C. MICHAEL, Anthropology Laboratory, Indiana State University,
Terre Haute, IN 47809
- BAKER, MR. TOM, Peru High School, 401 N. Broadway, Peru, IN 46970
- BARBER, MRS. DIANE, Dept. of Biology, IU-PU at Fort Wayne, 2101 Coliseum Blvd.
E., Fort Wayne, IN 46805
- BASU, DR. ABHIJIT, Dept. of Geology, Indiana University, Bloomington, IN 47405
- BECKMAN, DR. JEAN C., Dept. of Chemistry, University of Evansville, Evansville,
IN 47702
- BENWAY, MS. DENISE, 1509 S. Macedonia Avenue, Muncie, IN 47302
- BEYNON, DR. DIANE E., IU-PU at Fort Wayne, Fort Wayne, IN 46805
- BLEDSON, MR. LARRY W., Dept. of Entomology, Purdue University, West Lafayette,
IN 47907
- BROWN, MR. RICHARD B., 2424 E. Kessler Blvd., Indianapolis, IN 46220
- BURNETT, DR. J. PAUL, Lilly Research Laboratories, 307 E. McCarty Street,
Indianapolis, IN 46285
- CAPOUCH, MR. BRIAN, R.R. #1, Box 270, Monon, IN 47959
- CAPSHAW, MR. JAMES H., Dept. of History and Sociology of Science, Smith Hall/D6,
University of Pennsylvania, Philadelphia, PA 19104
- CARTER, MS. CHARLOTTE, Dept. of Chemistry, Purdue University, West Lafayette,
IN 47907
- CASTRALE, DR. JOHN S., Forest Wildlife Office, R.R. #2, Box 477, Mitchell, IN 47446
- CHIANG, DR. PEN-CHI, Dept. of Civil Eng., Purdue University, West Lafayette,
IN 47906
- CUDMORE, MR. WYNN W., Dept. of Life Sciences, Indiana State University,
Terre Haute, IN 47809
- CUNDIFF, MS. GEORGINA L., 1600 Harmony Way, Evansville, IN 47712
- CURRAN, MR. JOHN T., National Weather Service, Indianapolis International
Airport, Indianapolis, IN 46251
- DAVIS, DR. GRAYSON S., Dept. of Biology, Valparaiso University, Valparaiso, IN
46383
- DEMANNO, MISS DEBORAH A., Dept. of Biology, University of Notre Dame, Notre
Dame, IN 46556
- DHAWALE, DR. SHRIKRISHNA W., Indiana University East, Richmond, IN 47374
- DROSTE, DR. JOHN B., Dept. of Geology, Indiana University, Bloomington, IN 47405
- FARON, MR. EUGENE J. II, 9317 Foliage Lane, Munster, IN 46321
- FRANKLIN, DR. THOMAS D. JR., Indiana University Hospital, A-32, 1100 W. Michigan,
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- GARCIA, DR. J.R., Dept. of Biology, Ball State University, Muncie, IN 47306
- GARCIA-HERNANDEZ, MS. ALICIA, 3710 Green Ash Ct., Indianapolis, IN 46222
- GHOSE, MR. S.N., Amax Coal Company, 105 S. Meridian Street, P.O. Box 967,
Indianapolis, IN 46206
- GOEBEL, DR. EDWIN M., Dept. of Biological Sciences, IU-PU at Fort Wayne,
2102 Coliseum Blvd. E., Fort Wayne, IN 46805
- GONCZGROW, MR. ANTHONY T., 138-004 Nimitz Dr., West Lafayette, IN 47906

- GROSS, MR. WILLIAM H., Dept. of Chemistry, Ball State University, Muncie, IN 47306
- HANLEY, DR. THOMAS R., Rose-Hulman Inst. of Technology, Terre Haute, IN 47803
- HARRIS, DR. RONALD L., IU-PU at Fort Wayne, 2102 Coliseum Blvd., E., Fort Wayne, IN 46805
- HAZEL, DR. WADE N., Dept. of Zoology, Depauw University, Greencastle, IN 46135
- HERRING, MRS. JANICE R., Lilly Research Laboratories, Dept. 626, 307 East McCarty Street, Indianapolis, IN 46285
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INDIANA SCIENCE TALENT SEARCH HONORS LUNCHEON

Indianapolis

March 13, 1982



Dr. William Eberly, President of the Indiana Academy of Science and Professor of Biology at Manchester College, congratulates Richard Meyer for being named one of two \$1,000 scholarship winners in the 1981-82 Indiana Science Talent Search. Richard, a senior at East Noble High School in Kendallville, plans to study horticulture in college and then manage his family's orchard.

These scholarships are provided by Kappa Kappa Kappa Sorority.