

PROCEEDINGS

OF THE

Forty-eighth Annual Meeting

Indiana Academy of Science

FOUNDED DECEMBER 29, 1885

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STANLEY A. CAIN, Editor

Held at University of Notre Dame
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OFFICERS AND COMMITTEES FOR 1932¹

- President*, FERNANDUS PAYNE, Indiana University, Bloomington.
Vice-President, RICHARD LIEBER, Department of Conservation, Indianapolis.
Secretary, RAY C. FRIESNER, Butler University, Indianapolis.
Treasurer, MARCUS W. LYON, JR., 214 LaPorte Ave., South Bend.
Press Secretary, W. E. EDINGTON, DePauw University, Greencastle.
Editor, STANLEY A. CAIN, Indiana University, Bloomington.
Trustees of the Academy Foundation, FRANK B. WADE (Term expires 1935), Shortridge High School, Indianapolis; JOHN S. WRIGHT, (Term expires 1936), Eli Lilly & Co., Indianapolis; MARCUS W. LYON, JR., Treasurer.
Committee for Bonding Trustees, H. L. BRUNER, Chairman, Butler University, Indianapolis; W. A. COGSHALL, Indiana University, Bloomington. (This committee is appointed by the Executive Committee.)
Executive Committee, Officers and Past Presidents.

COMMITTEES FOR 1932-33

- Archeological Survey*, E. Y. GUERNSEY, Bedford, Chairman.
Auditing, J. B. DUTCHER and J. E. SWITZER, Indiana University.
Biological Survey, B. E. MONTGOMERY, Purdue University, Chairman.
Membership, F. M. ANDREWS, Indiana University, Chairman.
Program, WILL SCOTT, Indiana University, Chairman.
Publication of Proceedings, J. J. DAVIS, Purdue University, Chairman.
Relation of Academy to State, JOHN S. WRIGHT, Indianapolis, Chairman.
Research, A. L. FOLEY, Indiana University, Chairman.
State Library, STANLEY COULTER, Indianapolis, Chairman.
Academy Representative on the Council of A. A. A. S., H. E. ENDERS, Purdue University.
Nominations, (To be announced later).
Junior Academy of Science, H. E. ENDERS, Purdue University, Chairman.
Anniversary Publicity, W. E. EDINGTON, DePauw University, Chairman.

¹ A complete report of the Secretary is filed at the Indiana State Library, Indianapolis, and may be seen on request.

MINUTES OF THE SPRING MEETING

May 19-21, 1932

TURKEY RUN STATE PARK

President Payne called the meeting to order at 7:40 P. M., May 19. Reports were heard from the Editor, Treasurer, the Program, Junior Academy, Membership and Proceedings committees. The meeting was then turned over to Dr. Weatherwax who spoke on his recent Central American trip in search of corn relatives. Friday and Saturday were spent on various field trips in the vicinity.

WINTER MEETING

PROGRAM OF THE FORTY-EIGHTH ANNUAL MEETING OF
THE INDIANA ACADEMY OF SCIENCE

HELD AT

THE UNIVERSITY OF NOTRE DAME

SOUTH BEND, INDIANA

November 17-19, 1932

THURSDAY, NOVEMBER 17, 1932

- 2:00 p. m. Meeting of Entomologists, Cushing Hall, Room 22.
- 2:00 p. m. Meeting of Taxonomists, Cushing Hall, Room 5.
- 6:30 p. m. Executive Committee Dinner, Oliver Hotel.
- 8:00 p. m. Executive Committee, Business Session, Oliver Hotel.

FRIDAY, NOVEMBER 18, 1932

- 8:00 a. m. Registration, Concourse, Cushing Hall.
- 9:00 a. m. General Session, Auditorium, Cushing Hall.
- 10:30 a. m. Sectional Meetings for Botany and Zoology.
- 10:30 a. m. Meeting of the St. Joseph Valley Section of the American Chemical Society, Auditorium, Cushing Hall.
- 12:00 m. Luncheon, University Cafeteria.
- 1:30 p. m. Technical Sessions for all Sections.
- 5:00 p. m. Symposium on the Teaching of Freshman College Chemistry, L. A. Test, Chairman, Auditorium, Cushing Hall.
- 7:00 p. m. Academy Dinner.
- 8:30 p. m. Public Session. "Mental and Physical Differences in Identical Twins Reared Apart." Dr. H. H. Newman, University of Chicago.

SATURDAY, NOVEMBER 19, 1932

- 8:30 a. m. Junior Academy of Science, H. E. Enders, Chairman.

MEETINGS OF THE SECTIONS

Bacteriology (12 papers). C. A. Behrens, Chairman.
Botany (37 papers). Paul Weatherwax, Chairman.
Chemistry (16 papers). M. G. Mellon, Chairman.
Geology and Geography (7 papers). C. A. Malott, Chairman.
Physics and Mathematics (17 papers). W. E. Edington, Chairman.
Zoology (27 papers). N. E. Pearson, Chairman.

MINUTES OF THE EXECUTIVE COMMITTEE

The committee met with thirteen members present. Reports of officers followed:

Academy Foundation. Mr. Frank Wade presented a detailed report of the condition of the Foundation funds:

December 1, 1931, balance on hand.....	\$35.71
Total receipts, including interest and other additions.....	2,600.17

Total	\$2,635.88
Investments made, including cost of same.....	2,465.96

Balance in Indiana National Bank savings account.....	\$169.92
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ASSETS

U. S. 4th L. L. Bond E06142095.....	\$50.00
U. S. Treasury Bonds.....	3,700.00
Muncie Masonic Temple, Preferred.....	200.00
Standard Oil Company of Indiana, Common.....	150.00
Balance as shown above.....	169.92

Total assets	\$4,269.92
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Biological Survey. Chairman Lyon made a progress report. The committee recommended that a sum not to exceed \$100.00 be allowed for clerical aid in final compilation of the bibliography of Indiana biology. It was recommended that the universities of the state be urged to provide adequate facilities for permanent preservation of specimens of Indiana fauna and flora. The report was adopted and the recommendations were authorized.

Editor. Volume 41 of the Proceedings was reported by Editor Cain to have consisted of 538 pages and to have incurred a deficit of \$91.00.

The Academy authorized the Treasurer to make available to the Editor from the general fund \$150.00.

State Funds (Editor's report, 12-7-32):

Stafford Engraving Co., for illustrations.....	\$499.95
Burford Printing Co., for printing.....	1,532.14
Burford Printing Co., extra reprints.....	150.00
Paid from state appropriation.....	1,500.00
Balance due Burford's, to be paid from Editor's Funds, which see	\$682.09

Editor's Funds:

Cash on hand, audit of 5-18-32.....	\$1.50
Balance, Irvington State Bank, Indianapolis.....	123.05
From authors, arrears vol. 40.....	15.75
From authors, vol. 41.....	247.47
Special appropriation from Academy treasury.....	150.00

Total income \$537.77

Editorial expenses, vol. 40.....	\$47.13
Editorial expenses, vol. 41 to date of audit.....	21.04
Burford's on balance due, vol. 41.....	400.00
Revenue on checks.....	.14

\$468.31 468.31

Balance on hand, First National Bank, Bloomington, 12-7-32	69.46
Author's arrears, vol. 39.....	\$11.20
Author's arrears, vol. 40.....	61.20
Author's arrears, vol. 41.....	182.25
From Academy Treasurer, refund for editorial expenses.....	47.13

Receivable, 12-7-32	\$301.78
Balance, First National Bank, Bloomington.....	69.46

\$371.24

Balance due Burford's, vol. 41.....	282.09

\$89.15

(Signed) STANLEY A. CAIN, Editor.
WILL MORGAN, Auditor.

Press Secretary. Progress report by Chairman Edington. The Academy authorized subscription to clipping service.

Relation of Academy to State. Chairman Wright reported by telegram that the annual appropriation for the publication of the Proceedings had been cut to \$1,000.00 by the special session of the state legislature. (This was reduced to \$750.00 by the 1933 General Assembly.)

State Library. Chairman Coulter reported on the condition of the Academy collection and the progress of the new State Library building.

Treasurer. Marcus W. Lyon, Jr., Treasurer, reported up to and including November 9, 1932. The following report is up to and including January 24, 1933:

RECEIPTS

Balance on hand January 2, 1932.....	\$519.99
Collected from members as dues and initiation fees.....	837.00
Amer. Assoc. Adv. Sci.....	101.50
Contributions from friends.....	10.00
	—————\$1,468.49

DISBURSEMENTS

Secretary	\$223.04
Treasurer	81.90
Editor	197.13
Program Committee	392.96
Academy Foundation	130.06
Junior Academy	36.00
	—————\$1,061.09
Balance in bank January 26, 1933.....	407.40
	—————\$1,468.49

(Signed) MARCUS W. LYON, JR., Treasurer.
FRANK W. HORAM, Auditor.

January 27, 1933.

Junior Academy of Science. Chairman Enders gave a progress report.

NEW BUSINESS AND REPORTS OF SPECIAL COMMITTEES

Committee on Bonding Trustees. Chairman Bruner presented a report which was accepted and the committee was authorized to secure the necessary bonds. H. L. Bruner and W. A. Cogshall were authorized to continue as the Committee on Bonding of Trustees and to have custody of the bonds.

Anniversary Publicity. Chairman Edington discussed plans for the fiftieth annual meeting in 1934. The committee was authorized to secure reproductions and cuts of important documents.

Nominating Committee. Chairman Scott reported the following for fellows: Edward Kintner, John E. Potzger and Henry G. Nester.

The Academy authorized the appointment of a committee to consider revision of the constitution with instructions to report at the spring meeting. Stanley A. Cain was made chairman.

MINUTES OF THE GENERAL SESSION

The minutes of the Executive Committee were read and approved. The program for the day was then begun. A brief session followed the annual Academy dinner. The following business was transacted:

The Membership Committee reported the names of applicants for membership. These were all unanimously elected. The Committee on Invitations recommended that the next winter meetings be held at Indiana University between the 15th and 30th of October.

Chairman Scott of the Committee on Nominations made the following report, which was unanimously adopted:

President, Marcus W. Lyon, Jr., South Bend.

Vice-President, M. S. Markle, Earlham College, Richmond.

Secretary, Ray C. Friesner, Butler University, Indianapolis.

Assistant Secretary, W. P. Morgan, Indiana Central College, Indianapolis.

Treasurer, Paul Weatherwax, Indiana University, Bloomington.

Editor, Stanley A. Cain, Indiana University, Bloomington.

Press Secretary, W. E. Edington, DePauw University, Greencastle.

Trustees of the Academy Foundation, Frank B. Wade, Indianapolis (term expires in 1935) and John S. Wright, Indianapolis (term expires in 1936).

REPORT OF THE JUNIOR ACADEMY OF SCIENCE

The Junior Academy of Science met in its second annual session at 9:00 o'clock, November 19, 1932, in Cushing Hall, University of Notre Dame, and was called to order by Dr. Howard E. Enders, Chairman. The adoption of an emblem and a model constitution was reported. The following clubs have become affiliated with the Junior Academy of Science: (1) The Hilltop Nature Study Club, North Madison; (2) the Scimus Club, Valparaiso; (3) the General Science Club, Junior High School, Bloomington; (4) the Audubon Society, Crawfordsville; (5) the Biology Club, Crispus Attucks High School, Indianapolis; (6) the Chemistry Club, Shortridge High School, Indianapolis; (7) the Science Club, Union City; (8) the Nature Study Club, Indianapolis; (9) the Geography Council, North Side High School, Fort Wayne.

An attendance of 26 members from 4 clubs and 20 visitors was reported. The program consisted of reports, exhibits and talks by members.