


PROCEEDINGS
OF THE
Forty-second Annual Meeting
Indiana Academy
of Science

VOLUME 36
1926

J. J. DAVIS, *Editor*

Held at Indiana State Normal School
Muncie, Indiana
December 2-4, 1926

INDIANAPOLIS:
WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING
1927



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ORIGINAL CONSTITUTION OF THE INDIANA ACADEMY OF SCIENCE ¹

We, whose names are hereto subscribed, citizens of the State of Indiana, do hereby associate ourselves together as a corporation under the laws of said state.

The name of this association shall be: "Indiana Academy of Science."

The objects of said association are scientific research and the diffusion of knowledge concerning various departments of science.

Members of said academy shall consist of two classes, active and honorary.

The officers of said academy shall consist of a president, three vice-presidents, secretary, treasurer, and librarian, who shall perform the duties usually pertaining to their several offices, and such other duties as shall be prescribed by the by-laws of the academy.

The officers of said academy shall constitute an executive committee.

The officers shall be chosen by ballot at the annual meeting each year, and shall serve one year, or till their successors are elected.

Said Academy may adopt such constitution and by-laws as are not inconsistent with the laws of the state and the objects herein expressed.

The place of the general business of said Academy shall be Indianapolis, Marion County, Indiana, where the annual meetings shall be held. Other meetings may be held at such times and places as may be determined by the executive committee from time to time.

The Seal of such Academy shall consist of an outer circle within which are the words "Indiana Academy of Science", an interior circle containing the word "Seal" and the date "AD 1886"—an impression of which seal is hereto affixed as a part hereof.

The following signatures were attached:

J. T. Scovell, Terre Haute.	E. R. Quick, Brookville.
Maurice Thompson, Crawfordsville.	Stanley Coulter, Terre Haute.
David S. Jordan, Bloomington.	J. P. D. John, Greencastle.
O. P. Jenkins, Terre Haute.	Thos. B. Redding, New Castle.

¹This constitution and list (mostly autographs) of the original members of the Indiana Academy of Science in 1885 as it was verified by the treasurer Dr. O. P. Jenkins and forwarded to the Secretary Amos W. Butler Jan. 4, 1886.

In later years it was lost. Special efforts were made to find it at the 25th meeting without success. Dr. Harlow Lindley of the department of History, Earlham College, Richmond, wrote Mr. Butler December 4, 1926, and sent therewith the original list, copy of the constitution, certificate of incorporation, and Dr. Jenkins' letter and other papers which he found in an envelope in the college library. He said of this package: "I think it must have gotten here with miscellaneous papers and pamphlets which Mrs. Dennis turned over to me for the college library after Professor Dennis's death," and which he had been unable before that time to examine.

The above note was furnished by Amos W. Butler.—Editor.

- Carl H. Eigenmann, Bloomington.
S. P. Stoddard, Brookville.
L. D. Waterman, Indianapolis.
D. A. Owen, Franklin.
David R. Moore, Brookville.
B. W. Evermann, Bloomington.
Chas. R. Dryer, Ft. Wayne.
Morton W. Fordice, Bloomington.
Philip S. Baker, Greencastle.
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Jerome McNeill, Bloomington.
O. P. Hay, Irvington.
Arthur B. Chaffee, Franklin.
G. K. Greene, New Albany.
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J. P. Naylor, Bloomington.
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Editor of Proceedings, J. J. DAVIS, Purdue University, Lafayette.

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PAST OFFICERS OF THE INDIANA ACADEMY OF SCIENCE

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1886	Davis S. Jordan	Amos W. Butler		O. P. Jenkins	C. A. Waldo
1887	John M. Coulter	Amos W. Butler		O. P. Jenkins	C. A. Waldo
1888	*J. P. D. John	Amos W. Butler		O. P. Jenkins	C. A. Waldo
1889	*John C. Brauner	Amos W. Butler		O. P. Jenkins	G. W. Benton
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1892	*J. L. Campbell	Amos W. Butler		C. A. Waldo	D. Bedline
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1897	*Thomas Gray	John S. Wright		W. P. Shannon	A. C. Foley
1898	*C. A. Waldo	John S. Wright	Geo. W. Benton	J. T. Scovell	L. B. McMullen
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1900	*D. M. Dennis	John S. Wright	Geo. W. Benton	J. T. Scovell	H. L. Bruner
1901	*M. B. Thomas	John S. Wright	Geo. W. Benton	J. T. Scovell	H. L. Bruner
1902	Harvey W. Wiley	John S. Wright	Geo. W. Benton	J. T. Scovell	L. J. Rettger
1903	W. S. Blatchley	John S. Wright	C. A. Abbott	W. A. McBeth	L. J. Rettger
1904	C. L. Mees	John S. Wright	C. A. Abbott	W. A. McBeth	C. C. Deam
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1906	Robert Hessler	B. McMullen	Charles R. Clark	W. A. McBeth	H. E. Barnard
1907	D. M. Mottler	B. McMullen	C. A. Abbott	W. A. McBeth	H. E. Barnard
1908	Glen Culbertson	J. H. Ransom	C. A. Abbott	W. A. McBeth	L. F. Bennett
1909	*P. N. Evans	J. H. Ransom	C. A. Abbott	W. A. McBeth	L. F. Bennett
1910	C. R. Dryer	Geo. W. Benton	J. W. Woodhams	W. J. Meekhaus	L. F. Bennett
1911	*L. P. Naylor	A. J. Bigney	Milo H. Stuart	W. J. Meekhaus	L. F. Bennett
1912	*Donaldson Bodine	A. J. Bigney	Milo H. Stuart	W. J. Meekhaus	L. F. Bennett
1913	Severance Burrage	A. J. Bigney	F. B. Wade	W. J. Meekhaus	L. F. Bennett
1914	W. A. Coeshall	A. J. Bigney	F. B. Wade	W. A. Coeshall	L. F. Bennett
1915	W. A. Coeshall	A. J. Bigney	F. B. Wade	W. A. Coeshall	L. F. Bennett
1916	H. E. Enders	H. E. Enders	F. B. Wade	W. M. Blanchard	L. F. Bennett
1917	W. J. Meekhaus	H. E. Enders	F. B. Wade	W. M. Blanchard	L. F. Bennett
1918	E. B. Williamson	H. E. Enders	F. B. Wade	W. M. Blanchard	L. F. Bennett
1919	E. B. Williamson	H. E. Enders	F. B. Wade	W. M. Blanchard	L. F. Bennett
†1920	H. L. Bruner	H. E. Enders	F. B. Wade	W. M. Blanchard	L. F. Bennett
1921	Howard E. Enders	Walter N. Hess	F. B. Wade	W. M. Blanchard	L. F. Bennett
1922	F. M. Andrews	Walter N. Hess	F. B. Wade	W. M. Blanchard	L. F. Bennett
1923	Charles A. Behrens	Walter N. Hess	H. F. Dietz	W. M. Blanchard	L. F. Bennett
1924	C. C. Deam	Flora Anderson	H. F. Dietz	W. M. Blanchard	L. F. Bennett
1925	E. R. Cummings	Flora Anderson	H. F. Dietz	W. M. Blanchard	L. F. Bennett
1926	W. M. Blanchard	R. C. Friesner	H. F. Dietz	C. M. Smith	J. J. Davis
1927	Frank B. Wade	R. C. Friesner	H. F. Dietz	M. W. Lyon, Jr.	J. J. Davis

* Deceased.

† Officers continued—Annual meeting not held because of influenza epidemic.

‡ Listed in year of Proceedings edited.

MINUTES OF THE SPRING MEETING, 1926

DUNES PARK, MICHIGAN CITY, INDIANA.

The Indiana Academy of Science met for its Spring Meeting at Michigan City, Indiana, May 20, 21, and 22, 1926. Headquarters were at the Spaulding Hotel.

Sixty-two members and guests enjoyed the wonder of this unique section of Indiana. Those present were: A. R. Addington, G. W. Albertson, Flora Anderson, H. S. Anderson, E. A. Baie, Lora Baker, Mrs. C. H. Baker, Mrs. A. Behrens, C. H. Behrens, W. M. Blanchard, Mr. and Mrs. F. J. Breeze, Mr. and Mrs. Charles Brossman, A. W. Butler, C. B. Christy, Dr. and Mrs. Stanley Coulter, H. C. Cowles, Mr. and Mrs. F. P. Cullman, E. R. Cumings, J. J. Davis, D. H. Dunham, H. E. Enders, Ethel B. Finster, R. C. Friesner, H. B. Froning, E. L. Gardner, A. L. Giordiano, Martin Goshorn, Alice Gracy, F. V. Graham, Mr. and Mrs. Laurenz Greene, H. Hansford, R. N. Harger, Cora B. Hemmel, H. Hourck, F. G. Hufford, O. L. Kelley, Emma Lieber, Richard Lieber, Mr. and Mrs. M. W. Lyon, E. G. Mahin, C. A. Malott, J. A. Nieuwland, A. L. Pierce, W. P. Rawles, W. E. Riecken, S. A. Rifenburg, Robert Scofield, Mrs. Schickel, N. M. Shock, C. M. Smith, Charles Stoltz, H. G. Warren, Mr. and Mrs. Paul Weatherwax, Mr. and Mrs. M. L. Weems.

BUSINESS SESSION.

HOTEL SPAULDING, MAY 20, 1926.

Meeting called to order by President Blanchard at 8:00 p. m.

Upon motion by Doctor Lyon and duly passed by members of the Academy President Blanchard appointed A. W. Butler chairman and John S. Wright and Ray C. Friesner members of a committee to look after the interests of the Academy in the proposed new State Library and Museum.

President Blanchard reported that he had communicated with Senators Watson and Robinson and others concerned, voicing the protest of the Academy against the Stanchfield Grazing Bill which sought to grant certain grazing rights which, in the opinion of scientists, would cause incalculable loss to our national forests. Prof. H. C. Cowles reported that the above mentioned bill had been temporarily tabled in congressional committee.

Action similar to the above was authorized against the Yellowstone Reservoir Bill, which seeks to permit the removal of some 20 square miles from Yellowstone National Park.

The Secretary was instructed to write letters of sympathy to the widow of the late Judge Robert McBride and to the widow of the late Prof. A. H. Young, both honored and highly esteemed members of this Academy.

President Blanchard suggested that the Academy could render valuable service to the high schools of the State by admitting more of the teachers of science into its membership.

The Program Committee announced plans for the field work of the next day. Prof. H. C. Cowles then gave a most interesting and instructive talk on the flora and physiographic features of the Dunes Region. This was followed by interested and pointed remarks on the flora and fauna of the Dunes by Dr. M. W. Lyon.

Dean Stanley Coulter reported briefly on the status of the Dunes Park work by the Conservation Commission.

The meeting was adjourned to meet at 8:00 a. m. for the trips of the following day.

FRIDAY, MAY 21

Academy members and friends assembled at the Hotel Spaulding and left by automobile at 8:00 a. m. for Mineral Springs.

At a brief business session held following the steak fry at Waverly Beach, at 7:30 p. m. the following 20 new members were voted into the Academy:

Atkins, Dora, Assistant in Botany, Butler College.
Carter, Annice, Asst. in Geol. and Geog., Ball Teachers' College,
Muncie.

- Champion, C. C., Terre Haute.
Cooprider, J. L., Teacher of Biology, Evansville.
Cowles, Henry C., Professor of Botany, Chicago University.
Garregies, John Paul, Teacher, Brazil.
Giordiano, Dr. Alfred, Epworth Hospital, South Bend.
Gracy, Dr. Alice, Physician, South Bend.
Hufford, Gayle, Teacher of Biology, Joliet High School.
Kelly, Lowell E., Biology Student, Purdue University, Lafayette.
King, Mary E., Student of Biology, Terre Haute.
Mengenhardt, Dennis, Student, Center Point.
Michael, Curtis, Teacher, Jasonville.
Moore, John A., Asst. in Botany, Butler College, Indianapolis.
Pittman, Lenard, Teacher, Terre Haute.
Smith, Elmer A., Consulting Engineer, Secaucus, N. J.
Stanton, Joseph, Student in Chemistry, Terre Haute.
Warren, Harris, Student in Biology, Purdue University,
Lafayette.
Willis, Fred, Student, Terre Haute.
Worth, Leefe, Assistant in Botany, Butler College, Indianapolis.
- Meeting adjourned sine die.

RAY C. FRIESNER, Secretary.

WINTER MEETING

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

HELD AT

THE BALL TEACHERS' COLLEGE,
MUNCIE, INDIANA.

December 2, 3, and 4, 1926.

THURSDAY, DECEMBER 2, 1926.

- 10:00 a. m. Meeting of Entomologists of Indiana.
8:00 p. m. Meeting of the Executive Committee.
Reports of Officers and Committees.

FRIDAY, DECEMBER 3, 1926.

- 9:30 a. m. General Session.
General Business Session.
Greetings, Pres. Benjamin J. Burris.
In Memoriam—
Clarence A. Waldo.....Stanley Coulter
Robert W. McBride.....W. S. Blatchley
C. M. Smith.....W. H. Bair
Presentation of Papers of General Interest.
The Status of Science Education.....James F. Mackell
*An Attempt to Develop Spelling Conscious-
ness¹.....Clem O. Thompson
*Conservation of National Aquatic Resources.....
.....Barton W. Evermann
Teaching Conservation in Indiana.....Sidney R. Esten
*The Hopi Snake Dance of 1925.....Albert B. Reagan
President's Address—The Unselfish Service of Science....
.....William M. Blanchard
12:00 Noon. Academy Luncheon.
2:00 p. m. Sectional Meetings.

BOTANY

- Vaucheria aversa.....F. M. Andrews
A List of Algae of Monroe County, Indiana II.
.....F. M. Andrews

* Papers starred not published in this Proceedings.

¹ To be published in Journal of Educational Psychology.

- Reversion in *Trillium* F. M. Andrews
Lycopodium complanatum..... F. M. Andrews
 *Reforestation in Indiana..... Stanley Coulter
 *List of the Flowering Plants, Ferns, and Fern
 Allies, Collected in the Dunes State Park and
 Vicinity²..... Marcus Ward Lyon, Jr.
 On the Continued Growth of Certain Fern Pro-
 thallia..... David M. Mottier
 *On the Occurrence of an Endophytic Fungus in the
 Prothallium of *Osmunda Claytoniana*.....
 David M. Mottier
 Indiana Plant Diseases, 1925..... Max W. Gardner
 The Seeding Habits of the White Snakeroot,
Eupatorium urticaefolium Reichard. Albert A. Hansen
 Recent Indiana Weeds, 1926..... Albert A. Hansen
 *The Relation of White Snakeroot, *Eupatorium*
urticaefolium Reichard, to Milk Sickness.....
 Albert A. Hansen
 A Botrytis Disease of *Ribes Odoratum* Wendl....
 J. M. Van Hook
 Natural Production of Seedlings within a Pumpkin
 T. G. Yuncker
Amorphophallus titanum..... T. G. Yuncker
 Additional Bibliography of the Genus *Cuscuta*
 T. G. Yuncker
 *Anomaly in the Dandelion..... Flora Anderson
 Survey of the Vegetation in the Vicinity of Cement
 Mills..... C. L. Porter
 Airplane Photography and Ecological Mapping
 Stanley A. Cain
 Photomicrography as an Aid to Teaching and
 Research in Biology..... Edwin J. Kohl
 The Effect of Fertilizer in the Control of Corn Root
 Rot..... Charles T. Gregory
 Fungi Growing in "Mineral Oil"..... Robert Hessler

GEOGRAPHY—GEOLOGY—ARCHEOLOGY.

- Note on the So-called Synthetic "Aqua Marine"...
 Frank B. Wade
 Some Features of the Cincinnati Arch as shown
 by Geological Conditions in an Indiana Gas Field
 W. N. Logan
 The Silurian Coral Reefs of Northern Indiana and
 their Associated Strata.....
 E. R. Cumings and R. S. Shrock

* Papers starred not published in this Proceedings.

² To be published in *The Midland Naturalist*.

- Notes on the Present Status of Waterway Development in the United States.....J. E. Switzer
- Indiana's Ability to Support Higher Education; Analyzed and Compared with that of Michigan, Wisconsin, Minnesota, Iowa, Illinois, and Ohio.....S. S. Visher
- Bell Creek—Fall Creek Valley.....Annice Carter and Louise Painter
- Porter's Cave and Recent Drainage Adjustment in its Vicinity.....A. R. Addington
- Notes on the Areal Geology of Miami County, Indiana.....W. E. Tharp
- Fossils from the Mancos-Dakota-Tununk Formation in the Vicinity of Steamboat, Arizona.....Albert B. Reagan
- *Narrow Upland Spurs near Bluff Mills, Montgomery County, Indiana..Fred J. Breeze and James Pugh
- Proper Motion of Weisse XXIII 175....W. A. Cogshall
- *Photographs of Milky Way.....W. A. Cogshall

PHYSICS—CHEMISTRY—MATHEMATICS.

- A New Type of Sound Amplifying Horn.....Arthur L. Foley
- The Effect of a Dissolving Salt on the Pitch of a Vessel Partially Filled with Water...Arthur L. Foley
- Toxicity of Colloidal Arsenic to Plants....R. H. Carr
- Mathematics and the Other Sciences Will E. Edington
- *Some Observations on the Rotation of the Plane of Polarization of Light Passing through a Glass Rod Produced by Strains Due to Sound.....Rolla A. Cook
- Notes on Qualitative Analysis.....Ralph W. Hufferd
- An Indestructible Steam-bath.....Ralph W. Hufferd
- An Improved Test for Acetone in Urine.....R. E. Lyons and J. T. Brundage
- A Study of the Available Methods for the Determination of Selenium in Organic Compounds..W. E. Brandt and R. E. Lyons
- A Qualitative Study of the Catalytic Hydrogenation of the Oxides of Carbon.....W. N. Morris and L. H. Reyerson
- Some Theoretical Discussions of Hypnotics.....Thomas C. Jaleski
- *Some Effects of a Magnetic Field on the Spectra of Gases.....John B. Dutcher
- Measurement of Condenser and Coil Resistance by the Differential Thermometer Method..R. R. Ramsay

* Papers starred not published in this Proceedings.

A Straight Line Frequency Audio Oscillator.....	R. R. Ramsay
Calibration of Ammeters at Radio Frequencies	Herbert C. Hazel

ZOOLOGY

Insects of Indiana for 1926.....	J. J. Davis
Record of Indiana Dragonflies, II..	B. E. Montgomery
Some Habits of the Garden Slug, <i>Limax maximus</i>	Clem O. Thompson
*Cytoplasmic Inclusions of the Male Germ Cells of the Toad-bug ³	F. Payne
Raising Fleas for Laboratory Purposes.....	S. A. Rifenburgh
*On the Composition of Pancreatic Juice.....	L. J. Rettger
*The Normal School "Biological Reservation" at Allyndale.....	L. J. Rettger
Agglutinin Production: Frequency of Injections Constant, Dosage and Total Amount Injected Varied.....	C. A. Behrens
*Cytology of Gynandromorphic Katydid ^s ..	N. E. Pearson
Formation of the Intranuclear Rod in Succinea... ..	C. P. Hickman
Symptoms as Indicators.....	Robert Hessler
Two Years Bird-banding at West Lafayette, Indiana.....	Louis A. Test
*Weights of Banded Birds.....	Everett C. Myers
Notes on Some Birds of Anderson, Indiana.....	Charles Piper Smith
Gynandromorphic Earwigs.....	W. P. Morgan
Hog Lungworms: Corrections of Previous Papers	George Zebrowski
*The Spring Bird Fauna of Bloomington, Indiana	Will Scott
Notes on Indiana Amphibians and Reptiles.....	George S. Myers
A Note on the Distribution of Earwigs.....	W. P. Morgan
Some Sources of Ornithological Material and What They Tell.....	Amos W. Butler

6:00 p. m. Annual Academy Dinner.

Barton W. Evermann, Toastmaster.

7:30 p. m. Concert by Orchestra of Ball Teacher's College.

Courtesy Prof. C. E. Palmer, Conductor.

8:15 p. m. *Illustrated Lecture, "The First Greenland Expedition of the University of Michigan", by Prof. W. H. Hobbs, University of Michigan.

* Papers starred not published in this Proceedings.

³ To be published in the Journal of Morphology.

SATURDAY, DECEMBER 4, 1926.

9:00 a. m. Trip to Ball Brothers Glass Factory and to other Manufacturing Plants.

9:00 a. m. High School Section.

*The Indiana Academy of Science and High School Teachers of Science.....W. T. Blanchard

*The Training of High School Teachers of Science....
.....F. B. Wade

*Biology, After Four O'Clock.....Joel W. Hadley

*Improving the Teaching of Science in the High School,
Round Table Discussion.

* Papers starred not published in this Proceedings.

MINUTES OF THE EXECUTIVE COMMITTEE

DECEMBER 2, 1926.

The Executive Committee was called to order by President Blanchard at 8:15 p. m. in the Hotel Hoberts. The following members were present: F. M. Andrews, C. A. Behrens, W. M. Blanchard, F. J. Breeze, H. L. Bruner, W. A. Cogshall, Stanley Coulter, E. R. Cumings, J. J. Davis, C. C. Deam, H. F. Dietz, H. E. Enders, A. L. Foley, R. C. Friesner, W. N. Logan, W. J. Moenkhaus, W. P. Morgan, D. M. Mottier, E. B. Williamson and J. S. Wright.

The minutes of the spring meeting were read and approved.

Reports of officers were as follows:

Report of Treasurer.—

December 1, 1925, balance in treasury.....	\$405 30
Dues collected, December 1, 1925-December 1, 1926.....	753 00
Total	\$1,158 30
Total expenditures	582 85

Balance, December 1, 1926..... \$575 45

Upon motion duly seconded and passed the report was accepted.

Upon recommendation of the Treasurer the Committee voted to transfer \$200 from the General Fund to the Endowment Fund.

Press Secretary.—H. F. Dietz, Press Secretary, reported excellent co-operation on the part of the press, both in Indianapolis and throughout the State. He pointed out that contributors could help very materially in the work of publicity if they would send him abstracts of their papers, since he is continually being asked for publicity statements concerning papers on the program. The report was accepted with thanks.

Editor.—J. J. Davis reported as follows:

Volume 35 of the Proceedings of the Indiana Academy of Science was distributed September 21, 1926. The editor used every means that time and opportunity would permit to secure better printing service but was unsuccessful. The state printers have repeatedly laid aside the Proceedings to handle some other publication of less importance and no more urgent than our own. We would therefore recommend that the resolutions committee take cognizance of this situation and that the State Printing Board be strongly advised of the unsatisfactory situation.

The cost of the 1925 Proceedings was somewhat less than the 1924 Proceedings because of the fewer pages.

	1923	1924	1925
Cost	\$1,282.18	\$1,668.64	\$1,404.80
Number copies	1,000	1,300	1,300
Number pages	336	428	393
Number cuts	74	107	61
Kind of binding	Paper	Cloth	Cloth

The financial report, not including clerical help and other editorial expenses, as follows:

STATE FUNDS.

Annual Appropriation for 1925 Proceedings.....	\$1,200 00
Cost of 1925 Proceedings.....	\$1,404 80
Balance due, paid from sale of reprints.....	204 80
	<hr/>
	\$1,404 80

REPRINT ACCOUNT.*

Balance from 1924 Fund.....	\$157 23
Received from authors for reprints.....	297 46
	<hr/>
Total	\$454 69
Total funds available (Brought fwd.).....	\$454 69
Paid Burford for extra reprints.....	\$141 86
Paid Burford for extra cost of Proceedings.....	204 80
Photographic work (3 bills)	2 80
Express and postage not elsewhere charged.....	7 93
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	\$357 39 357 39
	<hr/>
Balance in Reprint Fund	97 30
Balance due for reprints	17 50
	<hr/>
Total	\$114 85

Program.—Chairman Breeze presented the program of papers and meetings to be held on Friday and Saturday.

Academy Foundation.—Chairman Butler gave the following report:

December 1, 1925, balance on hand.....	\$68 67
Total receipts, including cash for U. S. L. L. bond due.....	464 06
	<hr/>
Total	\$532 73
Total investments including accrued interest made during year	451 67
	<hr/>
Balance on hand December 1, 1926.....	\$81 06

ASSETS.

Railroadmen's Building and Savings Association, 6%.....	\$900 00
Muncie Masonic Temple Preferred, 5½%.....	200 00
U. S. 4th L. L. Bonds, 4¼%.....	100 00
Balance shown above	81 06
	<hr/>
Total Assets	\$1,281 06

Report was accepted with thanks.

* A charge was made for reprints in order to add to the available publishing fund.

Biological Survey.—Chairman Dietz reported a number of survey papers recently published and others in the process of publication by members of the Academy. Among those mentioned as completed or in the process were:

Blatchley's, Heteroptera of Eastern United States.

Montgomery's, Studies of Indiana Dragonflies.

Deam's, Grasses and Sedges of Indiana.

Myer's, Reptiles of Indiana.

Attention was called to the fact that papers of a survey nature and exhibiting high grade work would be given recognition by the Conservation Commission.

A motion was passed asking the Committee on Biological Survey to take action with regard to obtaining certain information of a survey nature by questionnaire as requested in a motion presented and passed at the annual meeting a year ago (see Proceedings, vol. 35, page 22).

Research Committee.—Chairman Foley of the research committee reported an increase in interest shown by manufacturers and the public by way of submitting technical problems to the committee for solution. He reported 18 such problems for the year. Of these, eight have already been solved, six were referred to other institutions for solution, and four were in the process of solution at present.

A motion was passed to have a report of this work published in the next volume of the Proceedings.

Archeological Survey.—Chairman Logan reported five mounds opened in the vicinity of Worthington, Indiana. He reported that "skeletons, charcoal, pottery fragments, arrow points, and other artifacts were taken and added to the local collection." Three other mounds were sectioned but contained no remains. The chairman of this committee also assisted in the excavation of the Albee Mound located near the Sullivan-Vigo line in the Wabash Valley. This investigation was made on the basis of a plan of co-operation between the Division of Geology and the Historical Bureau. The Chairman, assisted by Mr. E. Y. Guernsey, a member of the committee, made a study of the material collected and classified them. The skeletal materials and artifacts obtained are now a part of the collection in the State Museum.

State Library.—Chairman Dietz reported extremely cramped conditions at the State Library. He called attention especially to the lack of space for the proper handling of the library material belonging to the Academy.

The question of the proper housing of the library and museum materials was referred to the committees on Relation of Academy to State and on State Library for immediate action.

Relation of Academy to State.—In the absence of Chairman Wallace, H. F. Dietz reported that a report and request for additional appropriations had been very carefully worked out by Treasurer Enders in which he very skillfully presented the Academy's cause. Chairman Wallace

had presented this to the Budget Committee of the State Legislature and expressed the hope of favorable action.

Membership Committee.—Chairman Enders of the Membership Committee reported that 45 applications for membership were then in his hands. These names were not read, but were held over to the final business session of the meetings for action.

New Business.—The science faculty of Notre Dame University extended an invitation for the next winter meeting of the Academy to be held at that institution. The invitation was recommended for action to the general session of Friday morning.

Doctor Rettger made a recommendation to the Program Committee for next year that a new section on Bacteriology, Physiology, and Hygiene be established on the program of sectional meetings. A general discussion of the congestion on the program and lack of time for discussion of papers followed.

The Program Committee was requested to bring in a report at the Friday morning business session concerning the advisability of having a two-day session for the reading of papers.

A motion was made to amend section 2 of the By-Laws to read as follows, "The President shall deliver a public address at one of the sessions of the Winter Meetings of the Academy at the expiration of his term of office." This was referred for action to the business session of Friday morning.

President Blanchard appointed the following committee on resolutions: E. B. Williamson, E. M. Bruce, and F. Payne.

Chairman Enders of the Membership Committee read the following names recommended by his committee for Fellows in the Academy:

Marcus W. Lyon, Jr., South Bend,
Edwin M. Bruce, Terre Haute,
J. E. Switzer, Bloomington,
O. B. Christie, Muncie,
George Hoffer, West Lafayette.

Upon motion duly seconded and passed these members were elected to Fellowship in the Academy.

MINUTES OF THE GENERAL SESSION.

DECEMBER, 3, 1926.

The General Session was called to order by President Blanchard at 9:30 a. m.

Minutes of the Executive Committee were read and approved.

Attention was called to a previous invitation to the Academy to hold its next meetings at Indiana University. Professor Rettger moved that inasmuch as we have never met previously at Notre Dame University the invitation to meet at that institution be accepted. Motion was passed.

Section 2 of By-Laws was amended in accordance with recommendation of the Executive Committee. See above minutes.

Chairman Breeze of the Program Committee made the following recommendations for future programs:

1. That the printed programs give names of institutions of the persons presenting the papers.

2. That the first general session begin promptly at 9:00 a. m.

3. That in case of more than one paper by a given individual the additional paper or papers be dropped to the end of the program in order of receipt.

4. That the President shall deliver his presidential address at any one of the general sessions.

5. That the Academy issue an invitation to the local state branches of the Mathematical Society, local sections of the American Chemical Society, and members of the medical profession to join with the Academy in their annual meetings.

This report was adopted as presented.

Upon motion duly seconded and passed the members recommended by the Executive Committee as Fellows were declared elected.

The following nominating committee was appointed to report at the business session following the annual dinner: Foley, Bruner, and Williamson.

Chairman Enders of the Membership Committee reported 56 names as candidates for membership in the Academy. These were read and voted into membership by the general session.

Business session was adjourned and the reading of papers followed.

At a brief business session following the annual dinner the following business was transacted:

Committee on Resolutions made the following report:

"Inasmuch as we have been so courteously received and entertained by our hosts, The Ball Teachers' College and the City of Muncie, we wish to extend to them our sincere thanks for these courtesies."

The report was unanimously accepted.

The nominating committee made the following recommendations for officers for the year 1927:

President, Frank B. Wade, Indianapolis.

Vice-President, Fred J. Breeze, Muncie.

Secretary, Ray C. Friesner, Indianapolis.

Assistant Secretary, W. P. Morgan, Indianapolis.

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

Press Secretary, Harry F. Dietz, Indianapolis.

Assistant Press Secretary, J. A. Nieuwland, Notre Dame.

Editor, J. J. Davis, West Lafayette.

By action of the session these officers were declared elected.

Chairman Enders of the Membership Committee reported a number of additional names as applicants for membership. These were read and declared elected. Names of all new members elected during these meetings follow:—(98 in all)

Allen, Dorothy, Asst. in Botany, 1522 N. Tuxedo, Indianapolis.

Allibach, Theodore, Chemist, 120 Quincy St., West Lafayette.

Alter, Chester M., Chemistry, 909 University, Muncie.

- Alquist, Francis N., Chemistry, 216 Russell St., Lafayette.
Amidii, Terzo Paul, Botany, Bloomington.
Austin, Raybrom C., Physiology, 311 E. Smith, Bloomington.
Babcock, Clarence, Physics, Muncie.
Barkley, Grace, Botany, 107 S. College, Greencastle.
Beebe, Ralph E., Chemistry, 726 Ashland, Muncie.
Bell, Bessie, Botany, Logansport.
Bennett, Wallace, Chemistry, 5 Waldron, West Lafayette.
Benson, Wallace F., Chemistry, 215 Columbia, W. Lafayette.
Betzner, Ruth A., Botany, Bunker Hill.
Bockstahler, Harold W., Botany, 27 Russell St., W. Lafayette.
Bolinger, Maurice G., Chemistry, 140 N. Grant, W. Lafayette.
Brackmeier, Gladys H., Geology, 708 Woodlawn, Bloomington.
Brinton, Howard H., Physics, 403 College, Richmond.
Brown, Roy E., Biology, 421 S. Fourth, Lafayette.
Burmester, Rosa M., Geography, 219½ S. Jefferson, Muncie.
Carpenter, F. F., Zoology, Thorntown.
Childs, Lewis, Geology, 213 N. Grant, Bloomington.
Cooper, Delmer C., Botany, 29 N. Salisbury, W. Lafayette.
Copeland, Joseph J., Biology, Earlham College, Richmond.
Cramer, Paul, Mathematics, 216 Russell, W. Lafayette.
DeVries, Thomas, Chemistry, 139 S. Grant, W. Lafayette.
Eaton, Harold S., Botany-Chemistry, 502 S. Woodlawn, Bloomington.
Fillingham, Judith, Zoology, 1218 Broadway, Vincennes.
Fischer, George W., Botany, 5637 N. Penn., Indianapolis.
Fish, William E., Chemistry, 220 Waldron, W. Lafayette.
Fletcher, Worth A., Chemistry, 744 E. Third, Bloomington.
German, F. A. O., Chemistry, Valparaiso University, Valparaiso.
Gibbons, Robert C., Chemistry, 140 Pierce, West Lafayette.
Gorhorn, Benjamin, Geology, 117 S. Alabama, Brazil.
Hazard, Clifton T., Mathematics, 344 N. W. Avenue, W. Lafayette.
Heck, Joseph E., Chemistry, 447 Vine, W. Lafayette.
Headlee, W. Hugh, Botany, Earlham College, Richmond.
Hershman, J. Bernard, Physics, 305 Monroe, Valparaiso.
Hiatt, Lee Atta, Geology, 233 E. Arch, Portland.
Hile, Ralph O., Zoology, 429 E. Seventh, Bloomington.
Holl, Carl W., Chemistry, North Manchester.
Johnson, William, Botany, 3645 N. Denny, Indianapolis.
Jordan, William, Mathematics, 119 First, Oakland City.
Kepley, Charles L., Chemistry, 619½ W. Howard, Muncie.
Kintner, Edward, Biology, 1004 East, North Manchester.
Kraybill, Henry R., Chemistry, 615 University, W. Lafayette.
Lancaster, Forrest W., Physics, 1421 Congress, W. Lafayette.
Leach, William J., Zoology, Fowlerton.
Lee, Charles O., Pharmacy, 208 Sylvania, W. Lafayette.
Lefler, Ralph W., Physics, 1212 Atwater, Bloomington.
Little, Neil, Mathematics, 300 Sylvania, W. Lafayette.
Long, Betty, Botany, Memorial Hall, Bloomington.
Long, Gertrude, Biology, 2111 S. Jefferson, Muncie.

- Mallon, Marguerite G., Home Economics, 249 Littleton, Lafayette.
Marting, Dorsey, Biology, English.
Martin, Frank D., Chemistry, 202 North, W. Lafayette.
Martin, Lawrence, Chemistry, 681½ Wabash, Terre Haute.
Matchett, John R., Chemistry, 120 Quincy, W. Lafayette.
May, Ansley I., Physics, 515 W. Main, Boonville.
Maxwell, Harold L., Chemistry, Agric. Exp. Sta., W. Lafayette.
McClintock, Ralph B., Geology, R. R. 6, Bloomington.
Merry, Jesse Belle, Botany, 650 E. 13th, Indianapolis.
Meyer, A. H., Geology, Zoology, 505 Calumet, Valparaiso.
Miller, Oran E., Physics, 112 North, W. Lafayette.
Miller, Sayers J., Medicine, 1009 S. 12th, Lafayette.
Moore, Richard B., Chemistry, 534 Hayes, W. Lafayette.
Nipper, W. Ward, Physics, 348 State, W. Lafayette.
Ossenberg, June E., Chemistry, 139 E. Walnut, Martinsville.
Packard, C. M., Entomology, Box 495, W. Lafayette.
Painter, Louise, Geography, Springport.
Pittenger, John S., Mathematics, 700 E. Eighth, Bloomington.
Pittenger, Lemuel A., Education, Selma.
Poffenberger, John, Student, Butler.
Powell, Horace M., Bacteriology, 5807 Lowell, Indianapolis.
Price, Gladys, Botany, 334 S. Dunn, Bloomington.
Railsback, Fern L., Botany, 417 Webster, Plymouth.
Randolph, Thorne F., Chemistry, Franklin.
Richter, Arthur, Botany-Chemistry, Jasper.
Ross, Oran E., Jr., Pharmacy, 226 Washington, Winchester.
Rothrock, Henry S., Chemistry, 152 Sheetz, W. Lafayette.
Schafer, Pearl C., Botany, Bremen.
Settle, Ralph D., Physics, Petroleum.
Shaw, R. William, Physics, 306 Salisbury, W. Lafayette.
Small, Virginia, Zoology, 202 Washington Place, Indianapolis.
Snowden, Gale, Botany-Geography, R. R. 3, Huntington.
Spieth, Herman, Zoology, Charleston.
Swain, Jesse A., 108 E. Monroe, Alexandria.
Sweeney, Elmer D., Botany-Zoology, 300 S. Green, Crawfordsville.
Swim, Floyd R., Chemistry, 103 Russell, W. Lafayette.
Teder, John H., Botany-Physics, Jasper.
Thacker, Henry H., Geology-Anthropology, 719 W. Walnut, Brazil.
Thatcher, Everett W., Physics, 165 Littleton, W. Lafayette.
Thomas, Dorothy A., Geography, 405 E. High, Portland.
Wilcox, Ralph F., Forestry, State House, Indianapolis.
Wilson, Cyril Michael, Botany, Jasper.
Wright, Emerson B., Botany, 4250 Central, Indianapolis.
Zetterberg, Edward, Chemistry, 646½ N. Elm, Muncie.
Newton, Roy F., Chemistry, 526 Hayes, W. Lafayette.
Wimmer, Merle, Biology, R. R. 1, Greentown.

Authorized by motion, the Secretary cast the ballot for the above named candidates.

President Blanchard introduced Barton W. Evermann, Toastmaster. The spirit of the toasts was for better science education for the youth of America.

Following the dinner members enjoyed a most excellent program of music in the High School auditorium given by the Orchestra of Ball Teachers' College through the courtesy of Prof. C. E. Palmer, Conductor.

At 8:15 Professor W. H. Hobbs, of the University of Michigan lectured on the First Greenland Expedition of the University of Michigan. The lecture was illustrated with motion pictures and was enjoyed by all.

RAY C. FRIESNER,
Secretary.