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INDIANA ACADEMY
OF SCIENCE

THIRTY-NINTH ANNUAL
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†Presented at the 1922 Meeting

PURPOSES AND AIMS OF THE INDIANA ACADEMY OF SCIENCE.

The Indiana State Academy of Science was founded December 29, 1885, by a group of zealous workers in the field of science. During the 38 years of active development it has published 32 volumes of scientific papers of high character and immense value, including studies on the fauna and flora of the state, conservation of forests, topographic, meteorological, and many other studies which have reacted favorably on the health and prosperity of the people of the state. The Academy has benefited and encouraged several thousand men and women and has helped to train some of the foremost scientists of the past few decades; it is now the most important and representative body of scientists in Indiana and as such has acted as a clearing house for scientific information; and by the acquaintances and contacts there has developed a feeling which has indirectly increased the efficiency and usefulness of all who are fortunate in regularly attending the annual meetings.

The Academy has been of incalculable value to the State of Indiana in raising the level of intellectual life, making familiar the idea and worth of research, in bringing the greatness of Indiana to the eyes of the world, and, in a word, contributing in a large measure to our economic prosperity.

"The object of this Academy shall be scientific research and the diffusion of knowledge concerning the various departments of science", according to the Constitution, in other words, to stimulate and encourage scientific work so as to make it an important adjunct to the educational system of the state. The Academy fosters scientific research and its members are constantly extending the boundaries of knowledge and making scientific truths serviceable to the citizens of the state. In the realms of Zoölogy, Entomology, Botany, Bacteriology, Mathematics, Physics, Chemistry, Geology, Medicine, Engineering and Agriculture and in the practical conservation of the national resources of the state, our Academy is rendering a valuable service. The Academy acts as an important factor in education, in promoting interest in and appreciation of science among the citizens of the state, especially among the students of our high schools, colleges and universities; enabling teachers of science in our common schools to maintain their contact and to stimulate them to continue research for which many are well trained that they may materially contribute to the scientific data by devoting their spare time to some phase of science in their own locality and also that they may better inspire their students; and finally by offering to students and amateurs incentives and opportunities to present for constructive and friendly criticism the results of their efforts.

Co-operation is the basis for many of the Academy's activities. The Constitution specifically states that it shall be the duty of the Academy to assist the various state agencies in an advisory capacity

in the direction and execution of any investigations within its province without pecuniary gain to the Academy. Similarly, it is a function of the Academy to guide and counsel individuals and companies engaged in economic activities in the solution of problems involving scientific research. The regular annual meetings stimulate better acquaintances, establish friendships, offer opportunities for the mutual discussion of various interests and problems, and become not only a personal aid but give the advantage that organization and co-operation have over isolated effort.

The Academy is a productive agency. It brings together at its annual meetings the results of scientific activity for the preceding year. These results are published in the annual Proceedings and made available to the people of the state, nation, and world, and thus the name of Indiana and its scientific achievements are carried to all the educated peoples.

The Academy becomes a utilitarian agency by furnishing information of practical value to the citizens of Indiana. The scientific facts concerning the agricultural, mining and manufacturing industries and the facts concerning the natural resources of the state which they publish in the annual Proceedings of the Academy materially aid in the development of all our industries.

As has been noted, the State Academy fosters scientific research and affords, through the Proceedings, a vehicle for the publication of the results of such investigations. It is a big factor in education. It is the representative scientific organization of the state and as such should include in its membership all Indianians who are directly or indirectly interested in science and because of its importance as a contributing factor in the education of the citizens and development of the industries of the state, it should continue to have the moral and financial support of the state.

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1915-1916	A. J. Bigney . . .	Howard E. Enders . . .	E. B. Williamson . . .	F. B. Wade . . .	Wm. M. Blanchard.
1916-1917	W. J. Moenkhaus . . .	Howard E. Enders . . .	P. A. Tetrault . . .	F. B. Wade . . .	Wm. M. Blanchard.
1917-1918	E. B. Williamson . . .	Howard E. Enders . . .	P. A. Tetrault . . .	F. B. Wade . . .	Wm. M. Blanchard.
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1921-1922	F. M. Andrews . . .	Walter N. Hess . . .	Harry F. Dietz . . .	F. B. Wade . . .	Wm. M. Blanchard.
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1923-1924	C. C. Deam . . .	Flora Anderson . . .	Marie Bell . . .	Harry F. Dietz . . .	Wm. M. Blanchard.

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



The Town Hall of Brookville, Indiana, the birthplace of the Indiana Academy of Science.

MINUTES OF THE SPRING MEETING, 1923.

BROOKVILLE, INDIANA.

The Spring Meeting of the Academy this year not only afforded its members the opportunity to visit the birthplace of the Academy, but also the opportunity to pay a tribute of respect to one of its most distinguished members, Mr. Amos Butler, who was largely instrumental in founding the society.

The very pleasant time which the members enjoyed was largely made possible through the efforts of the Kiwanis Club of Brookville, and especially its distinguished member, Mr. John P. Goodwin.

The meeting was planned to occupy three days: Thursday, Friday, and Saturday, May 10, 11, and 12, 1923.

Seventy-nine members and eighteen guests were in attendance at the meetings and on the trips.

THURSDAY, MAY 10.

Members of the Academy assembled at the Valley House, Brookville, during the late afternoon and after a brief visit went in automobiles to Magnesia Springs Summer Resort, about two miles east of Brookville, where dinner was served to about 80 members and friends. Following the dinner the party returned to Brookville for the evening meeting which was held in the city hall.

Mr. John C. Shirk gave a most interesting address on the subject of "Brookville and Its Contribution to the Intellectual Life of the State".¹

Clyde A. Malott gave a short talk on the "Geological Aspects of Brookville and Vicinity".

Stanley Coulter discussed briefly the subject of "Changes in Indiana Flora".

Amos Butler gave a very interesting talk on "Reminiscences of Early Academy Days".²

Wm. M. Blanchard concluded the program by reading letters from men who were active in the early days of the Academy, including the following:

David Starr Jordan.

B. W. Evermann.

J. M. Coulter.

Childs W. Hardy.

Amos Butler announced the plan of the field excursions for the following day. He stated that Dr. Case and Harry Stupes would act as guides on the trips.

¹ Published in full on page 19 of this volume.

² Published in full on page 14 of this volume.

FRIDAY, MAY 11.

The party assembled at the Valley House Hotel at 9:00 A. M. and together with citizens of Brookville as guides, went in automobiles to the eastern part of Franklin County and from there to Boundary Hill. Due to heavy rain several of the party spent the forenoon at the hotel in reminiscence of days in South America and elsewhere.

In the afternoon other trips were taken including Cedar Grove, the historic Cedar Grove Church, and the beautiful country along the Whitewater River.

After a sumptuous chicken dinner at Mound Camp the party returned to Brookville to enjoy an illustrated lecture by Prof. C. H. Eigenmann on "Explorations and Fishing Experiences in South America".

SATURDAY, MAY 12.

Due to rain and the fact that most of the members came in automobiles no trips were planned for the day and everyone left early for their respective homes. Although the two days at Brookville were very rainy everyone greatly enjoyed the social time together.

BUSINESS SESSION.

BROOKVILLE, INDIANA, May 11, 1923.

A short business meeting of the Academy was called to order by President Behrens following the dinner at Magnesia Springs at 2:00 P. M. Sixty-four members were present.

A letter was read by the secretary from Demarchus Brown, State Librarian, stating that he no longer had room to store the exchanges of the Academy. After some discussion it was voted to refer the matter to the Library Committee for investigation and report at the next winter meeting.

The following 13 names were proposed by the secretary and upon motion they were duly elected to membership:

- Coffel, Hal Herbert, Pennville.
- Davis, Edna E., Indiana State Normal, Muncie.
- Fadely, Leon, Ball Teachers' College, Muncie.
- Finster, Ethel B., Indiana State Normal, Muncie.
- Frazier, Jesse M., Indiana State Normal, Muncie.
- Hargrave, Ellis, 410 E. Third St., Bloomington.
- Hill, William J., 322 Kirkwood Ave., Bloomington.
- Morgan, Lawrence O., 314 S. Grant St., Bloomington.
- Ricketts, Helen E., 3215 Olney St., Indianapolis.
- Riecken, William E., 515 Smith Ave., Bloomington.
- Robertson, Leo Fred, 521 S. Grant St., Bloomington.
- Shirk, John C., 1100 Main St., Brookville.
- Spangler, Iva, Indiana State Normal, Muncie.

The following resolution was presented by Wm. M. Blanchard:

Resolved, That we as members of the Indiana Academy of Science express to the Kiwanis Club and to the citizens of Brookville our ap-

preciation for their hearty co-operation and helpfulness in making this annual field meeting a fitting memorial of the birth of the Academy here 37 years ago.

W. M. BLANCHARD,
E. B. WILLIAMSON,
Committee.

President Behrens then turned the meeting over to a round-table discussion of the "Problem of the Conservation of Wild Life". Among those that took part in the discussion were D. M. Mottier, H. S. Jackson and Amos Butler. At the close of the discussion the following committee was appointed to investigate and propose means best feasible for the preservation of the wild flowers of the state: D. M. Mottier, M. W. Lyon, H. S. Jackson, C. C. Deam.

Adjourned at 2:45 P. M. to attend the afternoon field trip.

CHAS. A. BEHRENS,
President.

WALTER N. HESS,
Secretary.

EARLY HISTORY OF THE INDIANA ACADEMY OF SCIENCE.

AMOS W. BUTLER, Indianapolis.

When a youth I was very much interested in animate nature. Books were scarce. I soon learned of the interest in Natural History of Dr. Rufus Haymond. He was very helpful to me in acquiring a knowledge of the more common animals. As I grew older I found there were a few other persons in the community who had similar tastes. Later a few persons interested in Natural History used to get together and talk over scientific subjects. Among those were Edgar R. Quick, Oscar M. Meyncke, Charles F. Goodwin, Rev. David R. Moore, Clifford R. Case and Amos W. Butler.

Rev. Moore had arranged for occasional lectures in the Presbyterian Church. Some of them were on scientific subjects. About this time Moore and I discussed the possibility of organizing a local scientific society. Receiving encouragement from others, a meeting was called to consider the subject. The following persons met January 12, 1881, at the residence of Rev. Moore: Edgar R. Quick, Charles F. Goodwin, John E. Rehme, T. H. Barton, Clifford R. Case, Amos W. Butler. The Brookville Society of Natural History was formed. The following officers were elected:

Rev. David R. Moore, President.
Charles F. Goodwin, Vice-President.
Amos W. Butler, Secretary.
Edgar R. Quick, Correspondent.
John E. Rehme, Treasurer.

A committee was appointed to draft a constitution and by-laws, composed of Messrs. Butler, Quick and Barton.

The second meeting was held January 21, 1881. A constitution was adopted. Departments were specified and curators were chosen. At that meeting Frank Barton, Oscar M. Meyncke and L. D. Dillman joined the original members.

In the fall of 1881 I attended the meeting of the A. A. A. S. at Cincinnati and the succeeding year its meeting in Montreal. At these two meetings I met practically all the leading scientific men of the country—as a boy would meet them. They were very kind to me and many of them showed me special favors. Among those I recall were George J. Brush, president of the Cincinnati meeting; Wm. J. Dawson, president of the Montreal meeting; Harvey W. Wiley, David Starr Jordan, Asa Gray, James D. Dana, Otis T. Mason, Frederick W. Putnam, Major J. W. Powell, C. V. Riley, F. W. Clarke, W. W. Dudley, Alexander Winchell, N. H. Winchell, James Hall, T. Sterry Hunt, Wm. Saunders, E. D. Cope, Edw. S. Morse, Simon Newcomb, O. C. Marsh, T. C. Mendenhall, and many others. Some of them afterwards came to Indiana and took part in its scientific activities. The thing that im-

pressed me most was the friendliness of these distinguished men, their interest in a beginner and their genuine desire to be helpful.

For many years after, I attended regularly the meetings of the American Association. Now I am one of the oldest members and fellows.

In my endeavor to obtain information on zoölogical subjects I corresponded with a number of scientific men in the state. The results were often unsatisfactory. I found the experience of other Indiana men was the same. So I began thinking of some way to bring those interested in science in the state together to get acquainted and exchange experiences. To that end correspondence was undertaken with John M. Coulter, Charles R. Barnes, Daniel Kirkwood, T. A. Wylie, David Starr Jordan, Stanley Coulter, R. B. Warder, Philip S. Baker, O. P. Jenkins, David W. Dennis, J. P. D. John, Richard Owen and others. From most of these came favorable responses. Others wrote discouraging replies. In 1885 I attended the meeting of the A. A. A. S. at Ann Arbor. There I first met John C. Branner, then fresh from the work of the Imperial Geological Survey of Brazil, where he had rendered valuable service. He had been elected head of the Department of Geology at Indiana University. Upon mentioning my idea of a state society, he strongly approved it and volunteered his assistance. We took up the subject with other men present from this state. They also encouraged the project. It was finally suggested that the subject be taken up with the Brookville Society of Natural History, as the most active scientific society in the state and that it be requested to call a state meeting of those interested in science and also to appoint a committee to have charge of the details. The Brookville Society endorsed the proposal and appointed a committee: David R. Moore, its president; Amos W. Butler and S. P. Stoddard, to make all necessary arrangements. The meeting was held in the Marion County Court House, December 29, 1885. About 40 persons attended. Dr. J. P. D. John was called to the chair. A permanent organization was effected, with David Starr Jordan, president; Amos W. Butler, secretary. A constitution and by-laws were adopted. A program of papers presenting the knowledge of that time of different departments of science in Indiana was carried out. There were papers by William H. Ragan, Edgar R. Quick, Richard Owen, David Starr Jordan, John M. Coulter, J. P. Naylor, O. P. Jenkins, O. P. Hay, P. S. Baker, Maurice Thompson, Ryland T. Brown, R. B. Warder, David R. Moore, John B. Conner, Amos W. Butler, J. T. Scovell, Daniel Kirkwood. All the above persons were present and read their papers, except Richard Owen and Daniel Kirkwood. Their papers were read by others.

It was decided to hold two meetings a year—the annual meeting in the winter and a field meeting in the spring. By vote, the first spring meeting was set for Brookville, the following spring. That meeting was held May 20-22, 1886—37 years ago—and here are the members of the Indiana Academy of Science to hold another spring meeting where that organization had its conception. Not many of us were at that first spring meeting. Robert Hessler and Amos W. Butler are the only persons present who attended the first spring meeting at Brookville in 1886. But it is the hope that all of you will be charmed

by the beauties of Brookville and that you will hereafter come more frequently.

There were 33 persons registered at the first meeting. Unfortunately the roster has been lost. The following were among those who attended the spring meeting 37 years ago:

David Starr Jordan, Bloomington.
 John C. Branner, Bloomington.
 Jerome McNeill, Bloomington.
 R. L. Green, Bloomington.
 M. W. Fordice, Bloomington.
 Philip S. Baker, Greencastle.
 Oliver P. Jenkins, Greencastle.
 David W. Dennis, Richmond.
 Albert Porter, Richmond.
 J. F. Thompson, Richmond.
 Fletcher M. Noe, Indianapolis.
 Robert Hessler, Connersville.
 Edw. A. Enos, Connersville.
 Cal. O. Enos, Connersville.
 H. E. Ludwick, Connersville.
 T. H. Barton, Connersville.
 W. P. Shannon, Greensburg.
 Charles W. Hargitt, Greensburg.
 John E. Rehme, Brookville.
 Edward Hughes, Brookville.
 Oscar M. Meyncke, Brookville.
 John G. Chafee, Brookville.
 Edgar R. Quick, Brookville.
 David W. McKee, Brookville.
 Amos W. Butler, Brookville.
 Charles F. Goodwin, Brookville.
 Rev. David R. Moore, Brookville.

Some of us recall a few of the events of that first field meeting—how we were disappointed that John M. Coulter was unable to be present for one of the principal addresses; how well his place was filled by David W. Dennis; that Evermann and others of the Indiana University crowd drove through in a carriage and on the way made a collection of the fishes in the western part of Franklin County. We had no Kiwanis Club to make such splendid arrangements as have been made for this meeting, but the Society of Natural History and its friends did the best they could. The sessions were held in the town hall. On the evening of May 20, 1886, was the following program:

Dr. David Starr Jordan in the chair.

Prayer—Rev. D. R. Moore.

Welcome—D. W. McKee, President Brookville Society of Natural History.

Response—David Starr Jordan.

Address—J. C. Branner.

The next evening, May 21, 1886, the following was the program:

Dr. David Starr Jordan presiding.

Prayer—Rev. J. G. Chafee.

Addresses—

David Starr Jordan.

D. W. Dennis.

P. S. Baker.

The first day was spent among the hills and along the East Fork of Whitewater to Templeton's Ford. Near there, luncheon was served in picnic style. In the deep water above the ford the members of the Academy went swimming. There, as Dr. Dennis said, the members saw each other as they were, a thing they had never done before. There Jordan climbed upon a rock just below the surface of the water and formally christened the Academy. "For," said he, "when the members of the Academy can all go swimming together, it is bound to be a success." There Hessler first came in contact with scientific men and determined to be a scientist. Before going home he discussed with Jordan the question of his going to Indiana University. Altogether, it was a delightful meeting and it brought inspiration and enthusiasm to the members of the local Society of Natural History.

Other spring meetings have been held that are ever to be remembered. Those at Bloomington, where the University made our visit very pleasant. The one to Wyandotte Cave; we drove from Orleans to Paoli, for the first night meeting. Next morning we were up early to get the carriages for the drive to the Cave. Various things happened. Among others, we lost our way so did not reach our destination until mid-afternoon. Having eaten nothing since breakfast and the meal hour being past, we had to take what we could get. I broke out with chickenpox on the way and presume I spread it over most of that part of Indiana. Some thought that having arrived so late it would be necessary to wait until the next morning to explore the cave. It was explained they could see the cave as well by night as by day. When the Sulphur Spring was reached there was no drinking vessel. One must kneel and drink from the basin or lift the water in his hands. One swallow was enough for Professor Karstens. "Oh, my, oh, my," he uttered, "hasn't some one something to take the cruelty out of the water?"

Didn't we have a good time at Maxinkuckee and at Manitou? At Richmond, where the Ohio Academy met with us, and at Oxford, Ohio, where we met with the Academy from that state? Wasn't that a splendid meeting at Greencastle, and how fine was the one at Terre Haute. One that will ever be remembered was the first one at Waveland. Mendenhall, Waldo, Jordan, Jenkins and others, were at their best. How when the herpetologists gathered the first morning at Shades of Death they began to inquire of the owner where they could be most likely to find snakes. He replied there were no snakes there; they had all been killed. Two hours later in their sacks the herpetologists had collected at least a bushel of reptiles to the horror of the proprietor. At Waveland we had a peanut feast. A 50-pound flour sack full of fresh roasted peanuts were eaten in front of the hotel. Those

who came on the three o'clock train the next morning located headquarters by the pile of peanut shells off the sidewalk. Maurice Thompson was there with his gun. He was trying to get specimens of two species of woodpeckers to study the anatomy of their tongues. One, the Flicker, he maintained had the tongue bones poorly developed, while the other, Picus, he said, had the bones so long that they passed over the head to the ear. The sensations produced by the movement of an insect larva in a tree were conveyed to the ear, when the bill was pressed against the trunk. Thereby the bird was able to locate his game and "go for him". Jenkins was not satisfied with his explanation—or pretended not to be. He addressed the Academy, explaining his perplexity, and said, "Mr. President, as near as I can make out, it is like a person trying to smell a rotten apple through a knitting needle stuck in his ear". The speaker evidently became offended at the discussion, for so far as I recall he never again attended a meeting. One has to know how to take these scientists.

All in all, the spring meetings are among our most valuable ones. They afford an opportunity for acquaintance and fellowship that the more formal^e ones do not.

From the small group that met here 37 years ago, the Academy has steadily grown. Its members are spread over the whole world. Where can one go where they are not? Our organization is highly regarded in the scientific world. Many times have I heard it spoken of by leaders in the scientific field as the best of all the state academies of science.

Here we are, back to the place where it originated—to Brookville—hail and all hail.

BROOKVILLE AND ITS CONTRIBUTION TO THE INTELLECTUAL LIFE OF THE STATE.

JOHN C. SHIRK, Brookville.

I have been asked to give a fifteen minutes talk this evening on Brookville and its contribution to the intellectual life of the state.

It is hard to do justice to the subject in the time allotted. It is 120 years since the first white settler came to Brookville. The hardy pioneers, the brightest and best manhood of the eastern states came down the Ohio River. It was necessary to follow and locate along streams where there was plenty of water power. After they had passed Cincinnati they found the big Miami River to be the first stream coming in from the north. This they followed for five or six miles to the northeast where they discovered a beautiful and enchanting stream coming in from the north, this they called the White Water. They followed it about 25 miles when they came to two forks of near equal size coming together in a beautiful valley with verdant hills beyond and on every side. It seemed to them a paradise on earth. Here in 1803 came Amos Butler, the grandfather of our honored guest this evening, the founder of the Indiana Academy of Science.

Amos Butler, Senior, built his cabin just north of where the Hermitage now stands and soon had built a flour mill on the river bank near by. Here he supplied the early settlers with flour.

In 1808 Amos Butler and Jesse B. Thomas first platted Brookville. The little town soon became quite thrifty. In the year of 1820 a United States land office was located at Brookville and continued there until 1825 when it was removed to Indianapolis, which was quite a calamity to Brookville.

On the 9th of January, 1836, a bill passed both houses of the State Legislature authorizing the building of the White Water canal. It was a gala day in Brookville and was celebrated with a parade, bonfires and booming of cannon all through the night. On the 13th of September, 1838, the ceremony of breaking the ground was celebrated in Brookville. Governor Noble, Ex-Governor Ray, David Wallace and others made addresses. James Finley, editor of the Richmond Palladium, gave the following toast: "There is not in the wide world a valley so sweet—As the vale where the branches of the White Water meet".

When the canal was completed as far as Brookville the town had quite a boom and the people were quite happy. But when the canal was built on to Connersville and Cambridge City and Brookville ceased to be the head of navigation, the town lost much of its importance. But the canal was a great convenience and our fathers boasted of how nice it was when they could board a canal boat at Brookville in the evening, arrive in Cincinnati the next morning, spend the day there and again take the boat, enjoy a good night's sleep and wake up on the morning of the third day back in Brookville. Then it took two nights and a day to make the trip to Cincinnati, now we make it in about one hour and one-half each way on the road.

The canal continued to operate through many vicissitudes on account of floods and dams washing out until 1866, when it was compelled to give way to the railroad.

Brookville has had its ups and downs, gaining slowly in population at the rate of about 150 each decade during the last one-half century.

Brookville has had many prominent men live in it. In fact it was not uncommon for its citizens to speak in rather a boastful way of the great men who have gone out from Brookville. One day one of our citizens was telling a prominent Cincinnati banker the names of the prominent men who had gone out from Brookville. The banker said: "Well, Charlie, the great men all left Brookville, didn't they." In later years the people of Brookville and Franklin County began to minimize their importance; at least that is what the state tax board seemed to think when it added 30 per cent to the taxable property of the county.

So many names of prominent men have been attributed to Brookville, many of whom lived in Brookville for so short a time they could scarcely be called residents and others never lived there. But there are many who unquestionably lived in and were a part of the daily life of Brookville.

When Indiana became a state in 1816, there were three men living in Brookville who were destined to become governors of the state. They were James B. Ray, 1825 to 1831; Noah Noble, 1831 to 1837; David Wallace, 1837 to 1840; so Brookville furnished the state with governors for fifteen consecutive years. Abram A. Hammond, lieutenant governor was acting governor from 1860 to 1861. Will Cumback, born in Mt. Carmel, was lieutenant governor from 1867 to 1869. General Lew Wallace was at one time governor of the Territory of New Mexico. John P. St. John, Governor of Kansas; William Henson Wallace, Governor of Idaho; Steven S. Harding, Governor of Utah; James Noble, a brother of Governor Noble, became a United States Senator, he served in the Territorial Legislature, in the Constitutional Convention of 1816, and was elected to the first Legislature from Franklin County, he was elected at the first session of the legislature to a seat in the United States Senate, which he held until his death in 1831. Robert Hanna of Franklin County was appointed by Governor Ray to fill the vacancy in the Senate caused by the death of Noble. John Henderson was United States Senator from Mississippi.

James N. Tyner was Postmaster General under President Grant, and James Clarkson was selected as his assistant. Later Clarkson became the Collector of the Port of New York and Chairman of the Republican National Committee. Charles F. Jones was United States Attorney before the Spanish Treaty Claims Commission following the Spanish-American War, in which position he saved the United States many millions of dollars. He is now the first Assistant to the Attorney General of the United States. Dr. John R. Goodwin was Chief Disbursing Officer of the United States Treasury. George E. Downey, once editor of the Brookville Democrat, was Comptroller of the United States Treasury. General Lew Wallace was Minister to Turkey; Edwin Terrell Minister to Belgium, and George C. Hitt was Consul to London.

Franklin County furnished three judges on the Supreme Bench of

Indiana: Isaac Blackford, John T. McKinney and Steven C. Stevens. Rear Admiral Oliver S. Glisson spent his early life in Brookville until he was appointed midshipman in 1826. Captain William H. Herndon, father-in-law of President Chester A. Arthur, lived in Brookville. General Pleasant Hackleman born across the river a short distance below Brookville was the only general from Indiana who lost his life in the Civil War.

The Hermitage at Brookville has been for 25 years the home of John Ottis Adams, one of Indiana's leading artists. Mrs. Adams is also an artist of ability. T. C. Steele made Brookville his home for a time until after the death of his first wife. John Herron, who gave Indianapolis the John Herron Art Institute, spent most of his life in Franklin County where he made brick and tile and did general farming.

Brookville has furnished a number of prominent educators: Dr. John P. D. John, President of Brookville College, Moores Hill College and DePauw University; Charles N. Sims, Chancellor of Syracuse University; William M. Daily, President of Indiana University; Russell B. Abbot, President of Albert Lee College; J. H. Martin, President of Brookville College, and later of Moores Hill College; Charles W. Lewis, President of Moores Hill College and later President of Wyoming State University; L. D. Potter, President of Glendale College; George A. Chase, President of Brookville College; E. H. Barber, Educator in the University of Nebraska; William R. Goodwin, President of Brookville College, also a prominent minister; John W. Locke, President of Brookville College and minister. Many other prominent ministers have lived in the county, among them Joseph Tarkington, James Haven, Thomas H. Lynch, Thomas A. Goodwin and John G. Chafee, minister and poet.

James B. Eads of Mississippi Jetties fame lived in Brookville where his father kept a store. Frank B. Wynn, President of the Indiana Medical Society, of the State Historical Commission and naturalist, was born in Franklin County.

Of writers Brookville claims a goodly number. General Lew Wallace, who wrote *Ben Hur*, is the best known; Maurice Thompson wrote *Alice of Old Vincennes*; Louisa Chitwood, who died before she was twenty-three, left more than a thousand poems; Sarah T. Bolton, Frances Conwell Wilson and her husband Forsythe Wilson, Ida Husted Harper, and there are many others who might be mentioned.

James Raridan, John Test, R. B. F. Pierce and Isaac Clements were congressmen who have lived in this county.

I have mentioned some of the prominent people who have lived in Franklin County. Their influence on the intellectual development of the state must be very great. Then there were thousands of hardy pioneers and their children who moved from Franklin County and have permeated almost every part of the state. There is no question of the sturdy manhood and intellectual character of these early pioneers nor that their lives left a strong imprint on the intellectual development of the state.

The Brookville College from 1853 to 1873 did a great educational work.

Far be it from us to admit that all of the great men left the county, they are here in countless numbers, but modesty prevents us from mentioning any names.

There is one name that I have not dwelt upon whom we are proud to honor. It is Amos W. Butler, naturalist, scientist, ornithologist, and for 25 years the most efficient Secretary of the Board of State Charities. Dr. Butler has an international reputation along the lines of his work. We are delighted to have him with us this evening.

WINTER MEETING.

PROGRAM OF THE THIRTY-NINTH ANNUAL MEETING

OF

THE INDIANA ACADEMY OF SCIENCE

HELD AT

DEPAUW UNIVERSITY, GREENCASTLE.

December 6 to 8, 1923.

PROGRAM COMMITTEE.

WM. M. BLANCHARD. C. M. SMITH.
CLYDE A. MALOTT.

THURSDAY, DECEMBER 6, 1923.

8:00 p. m. Meeting of the Executive Committee.
Reports of Committees.

FRIDAY, DECEMBER 7, 1923.

10:00 a. m. General Session.
General Business Session.
Presentation of Papers of General Interest.
A Study of Locomotive Whistles.....Arthur L. Foley
*The Southern Ute Indians of the Pine River
Valley, Colorado.....Albert B. Reagan
Geographic Variations in Indiana in Typhoid,
Tuberculosis, Cancer and in Total Deaths
.....S. S. Visher
A Plea Against Over-Standardization in Scientific
Education.....E. G. Mahin
President's Address: Bacteriology and Its Prac-
tical Significance.....Charles A. Behrens
2:00 p. m. Sectional Meetings.

BOTANY—ZOOLOGY.

Does *Allium vineale* L. Produce Seeds in Indiana?
..... A. A. Hansen
Recent Indiana Weeds..... A. A. Hansen
A Weed Survey of Indiana..... A. A. Hansen
Indiana Fungi—VII.....J. M. Van Hook
Plants New or Rare to Indiana—XII...Chas. C. Deam
Culture Methods in the Production of Polyembryony
in Certain Ferns (Polypodiaceae)..D. M. Mottier
*Behavior of Fern *Prothallia* under Prolonged Culti-
vation.....D. M. Mottier

* Papers starred not published in this Proceedings.

- *Plant Relations in Brazos County, Texas.....
 Elmer Grant Campbell
- *The Trees of Vanderburgh County.....A. J. Bigney
 Some Soil and Water Reactions in the Dunes
 Region of Porter County.....M. W. Lyon, Jr.
 Notes on Grasses.....Paul Weatherwax
 Indiana Plant Diseases, 1923.....Max W. Gardner
 Nitrate Studies on Purdue Rotation Field No. 6
I. L. Baldwin, W. J. Nichter, R. O. Lindsey
 Notes on Greenhouse Culture Methods Used in
 Rust Investigations.....E. B. Mains
 Plants of White County—VI.....Louis F. Heimlich
- *Notes on the Life History of the Snapdragon Rust,
Puccinia antirrhini.....E. B. Mains
- *An Ecological View of Wet Waste Land.....
Blanche McAvoy
- *Preliminary Notes on Comparative Growth in
 Grazed and Ungrazed Woodlots at Purdue
Burr N. Prentice
- *A New Station for *Tipularia discolor* (Pursh)
 Nutt.....Ray C. Friesner
- *The Relations of Vegetation to Bird Life in Texas
Harry C. Oberholser
 Notes on the Functions of the Forceps of Earwigs
W. P. Morgan
- *A Seven Somite Human Embryo.....F. Payne
 A Study of the Productivity and Breeding Habits
 of the Bluegill, *Lepomis pallidus* Mitchill
Lowell Thelwell Coggeshall
- The Relation of Size to Age in Some Common
 Freshwater Fishes.....Home R. Bolen
- The Diurnal Oxygen Pulse in Eagle (Winona)
 Lake Will Scott
- *An Analysis of the Contribution of Hyalella to
 the Economy of a Lake.....Will Scott
- *The Morphometry of Eagle (Winona) Lake. Will Scott
- New Records of Indiana Mammals...M. W. Lyon, Jr.
- *What is the Indiana State Normal School Doing to
 Promote Public Health?.....R. A. Gantz
 Reclamation of Soil by Vegetation....F. M. Andrews
 Midsummer Growth.....F. M. Andrews
 Studies on Pollen—IV.....F. M. Andrews
 Protoplasmic Streaming.....F. M. Andrews

CHEMISTRY—PHYSICS—MATHEMATICS.

- *A Rayleigh Disk of New Design and Increased
 Pitch Range.....Arthur L. Foley
- *A Proposed Phonometer Based on a New Prin-
 ciple.....Arthur L. Foley

- *Some Untenable Acoustic Theories. . . . Arthur L. Foley
 The Power Required to Drive Spoke and Disk
 Wheels and Pulleys.
 Arthur L. Foley and B. Eisenhour
 Why the Logarithm in Logarithmic Decrement?
 R. R. Ramsey
 The Silent Electric Discharge and Its Effects on
 Gases. R. H. George and K. A. Oplinger
 The Electrometric Titration of Boric Acid in the
 Presence of Polyphenols and of Organic Acids
 M. G. Mellon and V. N. Morris
 *Calculating the Results of a Volumetric Analysis
 M. G. Mellon
 *The Corrosion of Lead Cable Sheath by Indiana
 Soils F. O. Anderegg
 *Some Calculations of the Composition of Liquid
 Water. F. O. Anderegg
 *The Influence of Certain Factors on the Hydrogen
 Ion Concentration of Milk. Eli Duncombe
 *Some Farm Chemistry I Have Met. R. H. Carr
 *Electrometric Titration of the Vegetable Alkaloids
 E. G. Mahin and G. B. Wilson
 *Tests of New Alloys for Permanent Magnets
 C. M. Smith
 *On the Verification of Lommel's Theory of Dif-
 fraction. Mason E. Hufferd
 Familiarizing Chemistry Students with the Gram-
 Molecular Volume of Gases. W. M. Blanchard

GEOLOGY—GEOGRAPHY.

- *The Lost River Region and a Guide to Its Study
 Clyde A. Malott
 *The Deepening and Widening of Valleys.
 Clyde A. Malott
 *Notes on a Few Cretaceous Species of Western
 America, Most of Them New to Science
 Albert B. Reagan
 *Indian Funerals. Albert B. Reagan
 *Whaling off the Olympic Peninsula of Washington
 Albert B. Reagan
 *A West Coast Indian Honeymoon. Albert B. Reagan
 *Data on the Use of Indiana Dune Sand for Track
 Elevation in Chicago. S. S. Visser
 *Geology of the Coal Measures of Indiana. . . . W. N. Logan
 A Change of Drainage of Raccoon Creek, Parke
 County, Indiana. Glenn G. Bartle
 The Development of the Soil Survey. . . . T. M. Bushnell
 *A Groundwater Experiment at South Bend, Indiana
 W. M. Tucker

* Papers starred not published in this Proceedings.

- *The Fall Creek-Bell Creek Valley, Indiana.....
 Fred J. Breeze
 *The Present Status of Geography.....Fred J. Breeze
 A Case of Stream Piracy near Greencastle, Indiana
Ernest R. Smith

- 6:00 p. m. Annual Indiana Academy of Science Dinner.
 Social Room of the Presbyterian Church.
- 7:30 p. m. Concert by DePauw University School of Music.
 Orchestra and University Choir.
 Courtesy of Dean R. G. McCutchan, Conductor.
- 8:00 p. m. Illustrated Lecture on the General Subject of Colloids.
 Martin H. Fisher, Professor of Physiological Chemistry.
 University of Cincinnati School of Medicine.
- 8:45 p. m. Science in the Government Service.
 Address by Harvey W. Wiley, Washington, D. C.

SATURDAY, DECEMBER 8, 1923.

- 9:00 a. m. Inspection of Buildings and Grounds of DePauw University.

* Papers starred not published in this Proceedings.

MINUTES OF THE BUSINESS SESSION.

DEPAUW UNIVERSITY, GREENCASTLE, INDIANA.

MINUTES OF THE EXECUTIVE COMMITTEE.

December 6, 1923.

The Executive Committee was called to order at 8:05 p. m. in the Physics Lecture Room by President C. A. Behrens. The following members were present: Flora Anderson, F. M. Andrews, C. A. Behrens, A. J. Bigney, W. M. Blanchard, A. W. Butler, W. A. Cogshall, J. J. Davis, H. F. Dietz, H. E. Enders, A. L. Foley, D. M. Mottier, J. P. Naylor, F. Payne, E. B. Williamson, J. S. Wright.

The minutes of last year's meetings were read and approved.

Report of Treasurer.—Treasurer Wm. M. Blanchard reported as follows:

Balance in Treasury, December 4, 1922.....	\$332 57
Dues collected from December 5, 1922, to December 3, 1923	448 05
	<hr/>
Total	\$780 62
Total Expenditures	257 55
	<hr/>
Balance in Treasury, December 3, 1923.....	\$523 07

The bill of the Fort Wayne Printing Company for printing done some time ago was presented. After some discussion, a motion was passed authorizing E. B. Williamson, as agent for the Academy, to reimburse the Fort Wayne Printing Company not to exceed 50 per cent of the original bill.

Report of Press Secretary.—Press Secretary Harry F. Dietz reported that press notices had been sent to all the Indianapolis papers and to the Associated Press.

A discussion of the value of publicity followed. Since the State Academy of Science should be the center of scientific activity and should be the most important influence in developing an appreciation of scientific work within the state, because it is the most representative body of workers, it was suggested by J. J. Davis that the Academy be brought to the notice of more people by securing members from all parts of the state, and by articles in as many of the newspapers of the state as possible. It was therefore recommended that authors be asked to write an information story of one double-space typewritten page to be handed in at the time the manuscript is handed in. The editor could then study the news story as he is editing the manuscript and arrange for their use when the Proceedings is published.

On motion and second the recommendation was adopted.

It was moved that the recommendation be mimeographed and sent to members. Motion passed.

Committee reports were considered as follows:

Relation of Academy to the State.—Wm. M. Blanchard read a letter from Chairman Robert W. McBride expressing regrets that he could not be present on account of a severe accident which deprived him of the use of his right hand. He reported in his letter that “everything is harmonious and no action necessary by the Academy”.

Publication of Proceedings.—Chairman J. J. Davis reported that the 38th annual Proceedings was printed and distributed the last of October. The delay was due to priority of legislative printing matter earlier in the year. It was thought that with the co-operation of authors the publication of the Proceedings may be completed not later than March.

Five of the longer papers were not published because the cost of printing would exceed the appropriation. It was suggested that these papers be included in the next Proceedings. Approved.

A list of 27 recommendations made by the editorial committee was read.

It was moved that these recommendations be recognized by the Academy as the “Editor’s Code”, and that copies of these be sent to all members. Motion carried.

It was moved that the editor have the “Code” mimeographed and sent to all Academy members. Motion carried.

It was recommended that authors desiring reprints be charged at the rate of:

- \$2.75 per 100 for separates of four pages or less.
- \$4.10 per 100 for separates of five to eight pages.
- \$5.50 per 100 for separates of nine to sixteen pages.

The money thus collected to be used to enlarge the Proceedings if found feasible.

After much discussion, it was moved that if it was found legally permissible, a charge be made for reprints as outlined. Motion carried.

PUBLICATION FUND.

By balance from 1921 appropriation.....	\$119 83
By appropriation for 1922 Proceedings.....	1,200 00
	<hr/>
Total	\$1,319 83
To disbursements—Publication of 1922 Proceedings.....	1,282 18
	<hr/>
Balance	\$37 65

Program Committee.—Chairman Blanchard stated that preliminary announcements and final programs had been sent to members; that papers which seemed of more general interest had been placed on the morning program; that Prof. Martin H. Fischer of Cincinnati and Dr. Harvey W. Wiley of Washington, D. C., had been secured for the evening program; and that after the annual dinner which would be served in the Presbyterian Church, Dean R. G. McCutchan would direct a half hour concert by the orchestra and choir of the DePauw Uni-

versity School of Music. The sectional meetings would be held as previously, except that on account of the large number of papers, Botany and Zoölogy would hold their sessions separately.

It was moved that the treasurer be authorized to pay the expenses of Professor Fischer of Cincinnati and one-half of the expenses of Doctor Wiley of Washington, D. C. Motion carried.

Biological Survey.—No report.

State Library.—Chairman Amos W. Butler stated that publications are coming in regularly and are being catalogued and placed on the shelves. Foreign ones are coming in again. No binding has been done within the last year because of lack of funds and the incompleteness of volumes.

It is urged that members make use of the valuable collections—many of which are not found elsewhere.

Distribution of Proceedings.—Acting Chairman Harry F. Dietz reported that the 1922 Proceedings were mailed the last of October and that, so far, only 15 had come back on account of wrong address.

He stated that there are 250 on the exchange list in this country and some foreign countries, so only a comparatively few copies are left out of the 900 printed.

Membership.—Acting Chairman Paul Weatherwax reported there were 45 names to be presented tomorrow.

Auditing.—Chairman H. E. Enders reported that the treasurer's report had been audited and found correct.

Advisory Council.—No report.

Research Committee.—Secretary John S. Wright reported that on March 23, 1923, at the call of the Chairman, A. L. Foley, all members of the committee met in Indianapolis. After full discussion of the work that might be accomplished, the following resolutions were passed:

Whereas, several colleges in Indiana have lately organized graduate departments and have provided first class facilities for research work in certain fields of science, and

Whereas, recognition from research committees and councils outside the state would be a very potent factor in inaugurating this work on the increased scale for which the institutions have planned and prepared, therefore be it

Resolved, that we, the Research Committee of the Indiana Academy of Science, in behalf of the Academy and the future of the State of Indiana in the field of investigation, respectfully petition the Charles A. Coffin Fellowship and Research Committee to take cognizance of the facts as above set forth, by granting a few research fellowships to Indiana institutions in case worthy candidates make application for them.

The above resolutions were transmitted to Dr. Frank B. Jewett, care of The American Institute of Electrical Engineering, 33 W. 39th St., New York City, and duly acknowledged.

Similar resolutions were adopted and forwarded to the National

Research Fellowship, care of Dr. W. E. Tisdale, Executive Secretary of the Research Fellowship Board, 1701 Massachusetts Ave., Washington, and duly acknowledged. Up to date nothing more has been done than to canvass the field and its possibilities.

Academy Foundation.—Chairman Amos W. Butler gave the following report:

ENDOWMENT FUND FOR RESEARCH.

1922		
December	8—Balance on hand.....	\$33 31
December	15—Interest Victory Loan Bonds.....	7 14
1923		
January	1—Interest R. R. Building and Loan Association....	3 00
July	1—Interest R. R. Building and Loan Association....	3 00
July	1—Interest Victory Loan Bond.....	2 04
July	1—Interest, \$200 U. S. Treasury note, 4½% to December 15, 1923	9 00
		<hr/>
		\$57 49

OTHER ASSETS.

Received Victory Loan Bond, \$100.00.

December	1—Invested in 6% R. R. Building and Loan Stock..	\$100 00
December	1—Invested in 6% R. R. Building and Loan Stock..	\$100 00
December	1—U. S. Treasury notes, 4½%.....	200 00
		<hr/>
		\$400 00
December	1—Balance, cash on hand.....	57 49
		<hr/>
Total balance on hand.....		\$457 49

Archeological Survey.—Chairman W. N. Logan reported that a survey of the coal resources had been conducted in Gibson, Knox, Pike and Posey counties; and in some of these counties archaic deposits were found. Section maps of more than one-half of the counties of the state had been prepared for use by county historical clubs and others for location of archeological points of interest in various counties.

There is urgent need of a law in Indiana which will prevent the destruction of the few remaining archeological objects of interest.

Special Committee.—Chairman D. M. Mottier reported for the committee appointed to investigate and propose methods best feasible for the protection of the wild flowers of the state, that it is the sense of the committee that certain wild plants be protected and conserved. The report points out ways by which this may be done, quotes laws protecting wild plants in Illinois and Vermont, and proposes a law for Indiana. It was decided that this report should be read at the business session tomorrow.

Old Business.—It was moved that the treasurer be empowered to turn over to the research fund such an amount as can in his judgment be spared. Motion carried.

New Business.—The question of the Indiana Academy of Science affiliating with the A. A. A. S. was brought up and discussed.

It was moved that a committee consisting of the president, secretary and treasurer be authorized to take steps to affiliate the Academy with the A. A. A. S. at the Christmas meeting of the A. A. A. S., if, on investigation, nothing was found to be disadvantageous to the Academy. Motion passed.

It was announced that those in the state interested in entomology who met at Lafayette October 26, 1923, decided to meet annually the day before the Academy meetings and at the same place as the Academy. The Academy was asked to announce these meetings in their regular announcement. Anyone interested in insects is invited to attend.

It was recommended that the following be presented to the Academy for election to fellowship: Flora Anderson, M. W. Gardner, W. N. Hess; W. M. Tucker and T. G. Yuncker. Recommendation adopted.

It was moved that the Secretary be instructed to write Judge R. W. McBride expressing for the Academy their thanks, sympathy and hopes for a speedy recovery. Motion passed.

A letter from Dean Stanley Coulter inviting the Academy to meet at Purdue University next fall was read. The invitation was accepted by consent.

Meeting adjourned at 11:30 p. m.

MINUTES OF GENERAL SESSION.

10:00 a. m., December 7, 1923.

BUSINESS SESSION.

The meeting was called to order by President Behrens.

The minutes of the Executive Committee were read and with the exception of those pertaining to affiliation with the A. A. A. S. were approved.

After some discussion on the question of affiliation, it was moved that the action of the committee last night in regard to the affiliation of the Academy with the A. A. A. S. be approved. Motion carried.

The report of the committee on Preservation of Wild Flowers in the state was read, and after discussion of the report it was moved that the committee on Preservation of Wild Flowers be continued and be empowered to call in such aid as it saw fit. Motion carried.

The letter of invitation from Stanley Coulter to hold the next winter meeting at Purdue University was read. It was moved that the invitation to hold the winter meeting at Purdue University be accepted. Motion carried.

Amos W. Butler read the following resolution:

In view of the fact that many of the mounds, earthworks and other valuable and interesting remains of the Indians have been destroyed and most of the others are in danger of destruction, and

In view of the further fact that a large part of the objects representing the life of the Indians have passed into the hands of commercial collectors and many of them have passed out of the state to other states and countries and are therefore probably lost to us forever,

Therefore, be it resolved, that the Committee on Relation of Academy to the State be authorized and directed to attempt to secure legislation for the protection and preservation of such sites and objects. Passed.

The Membership Committee proposed the following named persons for membership. On motion they were duly elected:

- Adams, Esther, 5244 Burgess St., Indianapolis.
 Anthony, Harvey M., Anthony Bldg., Muncie.
 Ayres, Agnes W., 1003 State St., West Lafayette.
 Bartle, Glenn Gardner, 218 W. Market St., New Albany.
 Beck, Carol Harriet, R. R. J, Lafayette.
 Blaydes, Glenn W., Roachdale.
 Bloye, Amy Irene, 115 E. Columbia St., West Lafayette.
 Brandt, Helen Rowan, 2234 High St., Logansport.
 Christie, George Irving, 607 University St., West Lafayette.
 Cummins, John A., Indiana Central College, Indianapolis.
 Davis, Harold Thayer, 613 S. Henderson St., Bloomington.
 Elliott, Edward Charles, 515 S. Seventh St., Lafayette.
 Finley, George W., 18 E. National Ave., Brazil.
 Flemon, Florence D., 301 E. Kirkwood Ave., Bloomington.
 Frey, Franklin E., 222 Ohmer Ave., Indianapolis.
 Friesner, Mrs. Gladys M., 5360 Julian Ave., Indianapolis.
 Gage, George R., 112 Bloomington St., Greencastle.
 Gamble, Mary Edith, 120 Chauncey Ave., West Lafayette.
 Garrard, Herbert L., 216 Waldron St., West Lafayette.
 Goodale, Charles DeLoss, 221 Waldron St., West Lafayette.
 Hammond, Alyce L., Glendale Park, Hammond.
 Harding, Wilbur R., 128 Andrew Place, West Lafayette.
 Harger, Rolla Neil, 3913 Kenwood Ave., Indianapolis.
 Hargitt, Thomas F., 412 Smith Ave., Bloomington.
 Harvin, Glenn Beckham, 108 Waldron St., West Lafayette.
 Hayner, Clark Ross, 277½ Littleton St., West Lafayette.
 Hunt, Raymond S., 508 E. Third St., Bloomington.
 Johnston, Harriet D., 76 Layman Ave., Indianapolis.
 Kaley, Leona M., 523 N. Beville St., Indianapolis.
 Kellogg, Mary, 124 Marstellar St., West Lafayette.
 Kennedy, Glenn DeFore, 266 Littleton St., West Lafayette.
 Kinnet, Russell, Milroy.
 Leaming, Eleanor Patton, 825 S. Ninth St., West Lafayette.
 Loew, Fred A., Huntington College, Huntington.
 Loughridge, Gasper A., 407 S. Grant St., Bloomington.
 McWilliams, Thelma, 126 Lutz Ave., West Lafayette.
 March, Verna Louise, 124 Pierce St., West Lafayette.
 Mount, Harry W., 1012 Lexington Ave., Indianapolis.
 Neff, Joseph Edgar, 132 S. Scott St., South Bend.
 Nester, Henry George, 2832 N. Capitol Ave., Indianapolis.

Newton, Roy C., 434 N. Grant St., West Lafayette.
 Otten, Ralph Edward, R. R. No. 2, Rossville.
 Parfitt, Elliott H., 318 N. Grant St., West Lafayette.
 Phillips, George R., 234 E. Pratt St., Indianapolis.
 Poe, Doris J., 1726 E. Washington St., Indianapolis.
 Porter, Bennet A., 10 W. Sycamore St., Vincennes.
 Priest, Bernice, W. Sixth St., Marion.
 Reed, Harry J., Purdue Exp. Sta., West Lafayette.
 Reed, Dr. William C., 728 E. Third St., Bloomington.
 Rogers, Ruth Anna, 533 N. Grant St., West Lafayette.
 Shlensky, Morris Ralph, 450 E. Sibley St., Hammond.
 Shrock, Robert R., Bennett's Switch.
 Smith, Elmer Gillam, 101 E. Columbia St., West Lafayette.
 Smith, Geraldine Frances, 421 University St., West Lafayette.
 Switzer, J. Elmer, 1001 Atwater Ave., Bloomington.
 Vernon, Sarah Evelyn, Royal Center.
 Wagener, Edward F., 1138 Oxford St., Indianapolis.
 Watson, Ivan Dale, 417 Waldron St., West Lafayette.
 Wilson, Judson D., 429 E. Seventh St., Bloomington.
 Zumstein, Reginald B., 810 N. Sixth St., Lafayette.

The Executive Committee recommended the following named persons for election to fellowship. They were elected:

Flora Anderson.	W. N. Hess.	T. G. Yuncker.
W. M. Tucker.	M. W. Gardner.	

Chairman Andrews announced the following nominations for officers for 1924:

President, Charles C. Deam, Bluffton.
 Vice-President, C. M. Smith, West Lafayette.
 Secretary, Flora Anderson, Bloomington.
 Assistant Secretary, Marie Bell, Bloomington.
 Treasurer, William M. Blanchard, Greencastle.
 Editor, J. J. Davis, West Lafayette.
 Press Secretary, Harry F. Dietz, Indianapolis.

Chairman Foley reported the recommendations formulated by the Research Committee at their meeting in Greencastle, December 7. It is recommended that the attention of manufacturers who may have technical problems and others who may be interested in financing research be informed of the plans of the committee to aid and advise in the solution of such problems, also of the resources at the command of the members of the Academy that might be utilized in investigation and research.

It is also recommended that a list be made of the members of the Academy who are in a position to co-operate in research work with a statement of their facilities.

It is further recommended that the Academy members be asked to co-operate with the Research Committee in compiling a list of the addresses of the manufacturers of the state and all others who might be interested in the work of the committee.

On motion the report was accepted and the committee continued.

It was moved by A. C. Kinsey that the Secretary address the National Research Council as follows:

(1) That it is the opinion of the Indiana Academy of Science that an annual index of new generic names is a vital necessity to every scientist who in any way wishes to refer to an animal by name; and

(2) That we urge the National Research Council, in view of the threatened failure of *Zoological Record*, to take steps to guarantee the perpetuation of such an index by any means which may seem wise to that council.

Motion carried.

It was moved that a committee consisting of the present and future presidents, secretary and treasurer have a meeting to plan for commemorating the 40th birthday of the Academy. Motion carried.

Business session adjourned at 10:50 a. m.

With two exceptions the papers were given as printed on the morning program. The second paper was omitted due to the absence of the author. Due to the lateness of the hour the last paper—Presidential Address—was postponed till the afternoon session.

The meeting adjourned at 12:30.

The Academy convened at 2:00 p. m. to hear the Presidential Address, after which the sectional meetings were held in the respective rooms.

Ninety-five members and guests enjoyed the dinner prepared by the ladies of the Presbyterian Church at 6:00 p. m.

A vote of thanks was extended to the ladies of the Presbyterian Church for the excellent dinner they had served.

A vote of thanks was extended also to the Program Committee for the successful and enjoyable meeting they had planned.

The evening session was held in Meharry Hall and followed the order outlined on the program.

At 10:00 p. m. the 39th annual meeting of the Indiana Academy of Science closed.

CHARLES A. BEHRENS,
President.

FLORA ANDERSON,
Secretary.