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OF THE

Indiana Academy of Science,

1891.

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## ON DIVIDING THE ACADEMY INTO SECTIONS.

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## FIELD MEETINGS.

It was fitting that the first "Field Meeting" of the Indiana Academy of Science should be held at Brookville. There the idea of such an organization originated. There the steps were taken, through the Brookville Society of Natural History, by which the scientific investigators of the state were brought together at Indianapolis, December 29th, 1885, to adopt articles of association and effect an organization.

This first Field Meeting began Thursday evening, May 20th, 1886. The Academy was welcomed by Mr. D. W. McKee, President of the Brookville Society of Natural History. President D. S. Jordan responded to his greetings. Dr. John C. Branner delivered an address on "The relations now existing between geologists and the people." The next day was devoted to visiting the localities of interest to the persons attending. Luncheon was served at "Templeton's ford," on the east fork of White Water river. In the deep, clear water of the pool above the ford the baptism took place and the first "Field Meeting" was declared by the president to be a success. Recollections of that day—the first of united scientific work in Indiana, a meeting more successful by far than had been dreamed of, and yet which bespoke the fuller fruition to which the child of our minds should come in later years—can never be effaced.

At night a public meeting was held in the Town Hall. Dr. Jordan delivered an address on "Charles Darwin." He also told "How to go fishing." Dr. Branner gave an account of methods of coral fishing. Dr. P. S. Baker spoke of recent progress in Toxicology. The number of persons attending that meeting, and strange so say, several others, was thirty-three.

The second "Field Meeting" of the Academy began its session at Waveland, Ind., May 19th, 1887. The meeting that evening was informal—thoroughly so. The recollections of it will remain with those who participated, and it would hardly be just to attempt to give an account of the proceedings for the benefit of others.

The following morning the members were driven to "Shades of Death," a delightful spot adjacent to Sugar creek. There the day was spent and luncheon served. Every one had heard of this beautiful spot, shaded, well watered, with its cañons, the cliffs of which were topped with pine and hemlock, and the walls draped with ferns and bedecked with mosses;

its "buzzard's roost;" its lack of snakes, its peaceful dells and shady glens — of all of which "the half has not been told."

At night a public meeting was held at the M. E. church in Waveland, when Dr. T. C. Mendenhall delivered an address upon "Weather Predictions." An informal discussion of the natural features of the region visited was held. C. R. Barnes, J. M. Coulter, W. S. Blatchley and Stanley Coulter spoke of its botanical interest, O. P. Jenkins of the fishes, B. W. Evermann of the birds, A. W. Butler of the reptiles and amphibians, T. C. Mendenhall of the southern limit of the white pine, P. S. Baker and W. W. Byers of the geology.

The following day the members were taken to "Pine Hills," in the valley of Indian creek, about a mile above the locality of the preceding day's explorations. The features of the country were somewhat different from those noticed the day before. A pleasant day was spent and luncheon was served at the club house. At this meeting also there were thirty-three persons.

The third "Field Meeting" was begun at Paoli, Orange county, May 2, 1888. The meeting was held in the public hall and was presided over by Vice President O. P. Hay.

Prof. James E. Humphrey delivered an address entitled "Asa Gray."

Prof. J. M. Coulter gave a lecture on "The Yellowstone Park."

The day following the persons present, thirty-three in number, drove to Wyandotte cave, in Crawford county, going, in the way they traveled, about forty miles. The evening and the early part of the night was spent exploring the cave. The next day the party returned to Paoli, stopping at Marengo cave. The journey was a hard one, but it had its pleasures and they were noteworthy. All will remember that meeting, some, in some respects, unpleasantly, others as a season of unusual brightness in their lives. The annals of that meeting are classic to Indiana's scientists. How unfortunate the chronicler cannot always write the whole truth!

At Greensburg, Ind., May 8th, 1889, the fourth "Field Meeting" began. The session was held at 8:30 o'clock P. M. in the rink. Vice President J. L. Campbell presided. Dr. J. P. D. John delivered an illustrated lecture on "Our Celestial Visitors."

The day following was pleasantly spent visiting the Upper and Lower Silurian exposures along Cobb's Fork of Sand creek. After luncheon, which was kindly provided by the hospitable people of Greensburg, the

members went to the Harris City quarries, thence returned to Greensburg. In the evening another session was held in High School Hall. The following persons spoke of some of the observations made during the day:

J. L. Campbell, on Topography.

G. K. Greene and W. P. Shannon, on Geology.

J. M. Coulter, D. H. Campbell and J. C. Arthur, on Botany.

Hon. Will Cumback then gave his impressions of the meeting.

Edward Hughes gave an account of the Amphibians noted.

A. W. Butler spoke of the reptiles.

O. P. Jenkins spoke of the fishes of Cobb's Fork, and was followed by D. S. Jordan, who spoke of fishes also.

Rev. Mr. Torrence and J. P. D. John made appropriate remarks, the latter moving the adoption of a vote of thanks to the citizens of Greensburg for their hospitality, which was voted.

The roll showed twenty-seven persons present.

The next day the members divided, a part going to St. Paul and Waldron, others to Clifty creek. The former spent the day among the fossils of these famous localities, while the latter fished or lounged beside the quiet stream drinking inspiration and absorbing wisdom at the same time. Over a small fire the champion of "vegetable beefsteak" might have been seen, giving instruction in primitive culinary methods as applied to his favorite food, while sitting about were several individuals who discussed the governor's jokes, the *true* name of the stream explored yesterday, and the unaccommodating manner of the fishes who persisted in refusing to be caught, as with rapid flow alike of words and saliva they watched the slowly growing mushroom pile. And thus we remember Greensburg.

The next "Field Meeting" was appointed for Greencastle, where the meeting was called to order in Meharry Hall of DePauw University, at 8 o'clock P. M., May 8, 1890, by Prof. C. A. Waldo, acting president. Prof. C. Leo Mees delivered an address on "Inertia with reference to electricity." Dr. Daniel Kirkwood was elected the first honorary member of the Academy. President J. P. D. John, of DePauw University, extended to the members the courtesies of the university.

The following morning the members, according to previous arrangement, went to "Fern," an interesting spot, where the day was pleasantly spent. In the evening the party returned to Greencastle.

At 8 o'clock P. M. the Academy convened in Meharry Hall with ex-President John in the chair.

J. C. Arthur presented "Some observations on parasitic plants taken at Fern."

C. R. Dryer gave an account of the "Surface Geology of Putnam county." C. W. Hargitt spoke on "Some observations on Economic Entomology." Stanley Coulter gave some notes on the day's work. D. H. Campbell spoke of the ferns at "Fern." C. A. Waldo referred to the proposed meeting of the American Association for the Advancement of Science at Indianapolis in August next. A vote of appreciation of the kindness and courtesy shown the members of the Academy by the citizens of Greencastle and University authorities was passed. O. P. Jenkins, being called upon, spoke concerning the influence of associations such as the Indiana Academy of Science upon the individual worker. After discussing plans for welcoming and entertaining the American Association the Academy adjourned.

According to appointment, the sixth "Field Meeting" was convened at the Arlington Hotel, Lake Maxinkuckee, May 14, 1891, at 8 o'clock P. M. President Hay occupied the chair. Dr. P. S. Baker delivered an address upon "The Spirit of Scientific Work," for which the thanks of the Academy were tendered him. The Executive Committee was instructed to prepare an abstract of the new law for the protection of birds, and to have a copy of the same mailed to each newspaper in the state. It was recommended that special attention be called to the fact that the English sparrow is not protected by law. J. T. Scovell spoke of the desirability of an effort being made to determine the height of Mt. Orizaba, Mexico, and of the advantages to be derived from such work being undertaken by running a line of levels from some determined point to the summit and definitely fixing each thousand foot mark as a reference point for biological investigations. The Academy voted approval of the plan as presented and agreed to assist in any way in its power should such plan be undertaken.

The next day was spent in exploring the lake and its shores, and was very much enjoyed. Boating, fishing, turtle hunting and collecting in many lines represented the various ways in which the members were employed.

In the evening the Academy met again at the Arlington Hotel. A

committee consisting of J. M. Coulter, P. S. Baker, A. J. Woolman, A. P. Carman and A. W. Butler was appointed to consider the relation that should be sustained by teachers in the High Schools to the Academy of Science. The natural characters of the region about Lake Maxinkuckee were then discussed until the close of the session.

Richmond was the place chosen for the "Field Meeting" of 1892. The kind and urgent invitation of the representatives of Earlham College made each one feel an assured welcome to Richmond and to Earlham. On the morning of May 12th the members met at the Arlington Hotel, and under the guidance of Professors Dennis and Moore proceeded to Thistlethwaite's Falls, above the city. The morning was agreeably spent along the several outcrops of the fossiliferous limestone. Before noon the party reached the college grounds. After examining the collections, dinner was served in the dormitory. In the afternoon, by the kindness of the people of Richmond, the members were driven in carriages to Elkhorn Falls, five miles down the Whitewater river. Upon their return they were driven about the city and given an opportunity to see its beauties, comforts and advantages.

Thursday evening the Academy met in Lindley Hall, Earlham College. President J. L. Campbell occupied the chair. J. M. Coulter spoke briefly of the objects and plan of the Academy. Dr. Alfred Springer then delivered an address upon "The Cell and Its Functions."

The thanks of the Academy were tendered Dr. Springer for his address.

The next morning the members visited the limestone outcrops below the city, going thence to the college where they again partook of dinner. Those who could remain spent the remainder of the day in the libraries, museums and laboratories. All regretted when leaving time came. The meeting was too short in time but was full of pleasures for which all will hold the Richmond friends in grateful remembrance.

AUTHOR LIST AND BIBLIOGRAPHY  
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Papers Presented to the Academy

FROM 1885 TO 1891 INCLUSIVE.

*Abbreviations explained on the page following the list.*

- 
- ADAMS, B. F.  
'85. [See Van Nuys, T. C.]
- ANDERSON, V. C.  
'89. Town geology—what it is and what it might be.
- ARTHUR, J. C.  
'87. Life history of the plum leaf fungus.  
'89. Variation of plants from unripe seeds.  
'90. A remarkable oscillating movement of protoplasm in a Mucor.  
'90. Accelerating germination by previous immersion of the seed in hot water.  
'91. Relation of available enzym in the seed to the growth of the plant.  
'91. The potato tuber as a means of transmitting energy.
- BAKER, P. S.  
'85. Indiana entomology.  
'86. The new alkaloid, cocaine. [Not published.]  
'89. Vapor densities of the volatile metallic "Halids." [Am. C. J., XI, 134.]  
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'90. Aberrant forms of *Juglans nigra*—structural changes.  
'91. Plant zones of Arizona. [Pr. V.]
- McNEILL, JEROME.  
'86. A remarkable case of longevity in the longicorn beetle, *Eburia quadrigeminata*, Say.  
'86. The teaching of entomology in the high schools.  
'86. Descriptions of four new species of myriapods from the United States.  
'90. A list of the Orthoptera of Illinois, with descriptions of new species and observations on the songs and habits of little known species.
- MARTIN, G. W.  
'91. Organogeny of *Aster* and *Solidago*. [B. G., XVII, No. 11, and Am. N., XXVI, No. 311.]
- MARTIN, MISS LILLIE J.  
'86. Outline of a course in science study based on evolution.  
'87. A chemical study of *Juglans nigra*.  
'87. The value of organized work in plant chemistry.
- MEANS, J. H.  
'86. [See Branner, J. C.]
- MEEK, S. E.  
'86. *Elegatis pinnulatis* at the east end of Long Island Sound.
- MEES, C. LEO.  
'88. Notes of the comparative value of several photometric methods.  
'88. Some curious phenomena in a four-plate Toepler-Holtz machine.  
'88. Simple device for measuring the coefficient of expansion of solids.  
'89. [See Gray, Thos.]

- '89. The use of two mirrors for the determination of the coefficient of expansion in solids.
- '89. Cause of periodicity in thermometers as discussed by Prof. W. A. Rodgers.
- '90. Description of a powerful electro-magnet with preliminary determination of its magnetic field.
- '90. Continuation of experiments in the change of density of metals under stress.
- MENDENHALL, T. C.
- '86. Recent progress in seismology.
- '88. Recent researches in atmospheric electricity. [Popular Address.]
- '90. The work of the United States Coast and Geodetic Survey. [President's Address.]
- MEYNCKE, O. M.
- '87. The late drouth and its effect on vegetation.
- '87. Companion plants.
- '87. Notes on the white-spored agarics of Franklin county, Ind.
- MIKELS, MRS. ROSA REDDING.
- '91. Preliminary paper on the flora of Henry county, Ind. [Not yet pub.]
- MOORE, D. R.
- '85. Our knowledge of Indiana conchology.
- MOORE, JOSEPH.
- '89. On the remains of a giant beaver found near Winchester, Indiana. [Not pub.]
- '90. A recent find of musk ox remains in Indiana. [Not pub.]
- '91. Variations in the dynamical conditions during the deposit of the rock beds at Richmond, Ind. [Not pub.]
- MOORE, J. E. and E. M. LINGLEY.
- '91. Hysteresis curves for mites and other cast irons.
- MORGAN, JOHN.
- '90. Circulation of sap.
- MOOREHEAD, WARREN K.
- '91. Recent archaeological discoveries in southern Ohio.
- '91. Methods observed in archaeological research.
- MOTTIER, DAVID M.
- '90. Notes on the apical growth of liverworts. [B. G., May, 1891.]
- '90. Notes on the germination of spores of Notothylas.
- '91. Notes on the development of the archegonium and fertilization in *Tsuga canadensis* and *Pinus sylvestris*. [B. G., May, 1892, and Pr. V.]
- NAYLOR, J. P.
- '85. The progress of physics in Indiana.
- '88. A new electrometer.

- '90. A set of resistance coils and Wheatstone's bridge.
- '91. An adjustment for the control magnet on a mirror galvanometer.
- '91. A combined Wheatstone's bridge and potentiometer.
- NEF, J. U.
- '87. On carboxylated derivatives of benzoquinone. [Journ. Lond. Chem. Soc., 1888, p. 428.]
- '87. On chloranil. [B. d. c. G., 1887, p. 2027.]
- '88. The constitution of the anilic acids. [Am. C. J., 1889, p. 17.]
- '88. On tautomeric compounds. [Am. C. J., 1889, p. 1.]
- NEWLIN, C. E.
- '90. Some new crustacean fossils.
- NEWSOM, J. F.
- '90. A review of the Niagara group in Bartholomew county, Ind.
- '90. Shelby county "Earthquake."
- NOYES, W. A.
- '87. Beta-nitro-para-toluic acid. [Am. C. J., X, p. 472.]
- '88. On the atomic weight of oxygen. [Am. C. J., XI, p. 155.]
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- '90. Detection and estimation of titanium. [J. of A. C., V, p. 39.]
- '91. Di-benzyl carbinamine. [Am. C. J., XIV, p. 225, and Pr. N.]
- '91. The character of well-waters in a thickly populated area. [Pr. V.]
- NOYES, W. A., and CHAS. WALKER.
- '86. On the oxidation of paraxylene-sulphamide by potassium ferri-cyanide. [Am. C. J., IX, p. 93.]
- NOYES, W. A., and W. B. WILEY.
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- OSBORN, H. L.
- '86. Osphradium in Crepidula. [Am. M. M., Apl., 1887, p. 6.]
- OWEN, D. A.
- '87. A geological section of Johnson county, Ind.
- '91. Strange development of stomata upon *Carya alba* caused by phylloxera. [Pr. V.]
- '91. Some observations upon *Heloderma suspecta*. [Pr. V.]
- OWEN, RICHARD.
- '85. Sketch of the work accomplished for natural and physical science in Indiana.
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- '89. On sulphophenyl-propionic acid.
- PHILLIPS, A. E.
- '89. The portable water supply of the City of New York.
- PHINNEY, A. J.
- '86. Natural gas and petroleum.

- '86. *Loantharia rugosa*.
- PEDDLE, J. B.
- '88. [See Waters, E. G.]
- POTTER, THEODORE.
- '91. The contest against infection. [Cincinnati Lancet-Clinic, August 6, '92.]
- QUICK, E. R.
- '85. The progress of the study of mammalogy in Indiana.
- '86. Our blind mice.
- RAGAN, W. H.
- '85. Meteorology in Indiana.
- REDDING, T. B.
- '87. Man an evolution — biological proofs. [Souvenir of Western Writers' Asso., 1890, pp. 173-184, and Pulpit and Pew.]
- '91. The prehistoric earthworks of Henry county, Ind. [New Castle Courier, Dec. 20, '89, and Pr. V.]
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- '89. [See Drew, Frank M.]
- '89. Morphology of the siphonophores. [Not pub.]
- ROSE, J. N.
- '86. The mildews of Indiana. [B. G., XI, pp. 60-63.]
- '87. Characters in Umbelliferae. [B. G., XII, pp. 237-243, and Coulter and Rose's Revision of Umbelliferae, pp. 9-16.]
- '90. Distribution of Umbelliferae in North America. [Not yet pub.]
- '90. Plants collected by Dr. Palmer in Arizona in 1890. [Cont. fr. U. S. Nat'l Herb., I, pp. 117-127.]
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- '89. Soap analysis. [J. of A. C., IV, p. 157.]
- SCOVELL, J. T.
- '85. Geographical studies in Indiana. [Not pub.]
- '86. The geology of Vigo county, Ind. [Not pub.]
- '86. The Niagara river. [Not pub.]
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- '90. Sections of drift in Vigo county, Ind. [Not pub.]
- '91. Exploration of Mt. Orizaba. [Not pub.]
- SEATON, HENRY E.
- '88. The epidermal cells of *Tillandsia*.
- '89. Some stem characters in *Compositae*.
- '90. Notes on *Gautemalan Compositae*.
- '91. The flora of Mt. Orizaba. [Pr. V.]
- SELBY, AUG. D.
- '91. On the occurrence of certain western plants near Columbus, Ohio. [Partially B. G., 1891, p. 155, and Pr. V.]
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- '86. The physical geography of Decatur county, Indiana, during the Niagara period. [Not pub.]

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- '90. The occurrence of *Veratrum woodii* in Decatur county, Ind.
- SMITH, ALEX.
- '91. Condensation of acetophenone with ketols by means of dilute potassium cyanide. [Pr. V.]
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- '89. A comparison of the life histories of different forms of plants.
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- '90. A refraction rainbow.
- '90. Geological section at Vincennes.
- '90. Preliminary list of Knox county plants.
- '90. Introduction of noxious weeds.
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- '89. The carbohydrates of the sweet potato. [Ag. S., IV, p. 31 and B. d. c. G., XXIII, p. 1406.]
- '89. Specific reaction for the penta glucoses. [Not pub.]
- '90. Notes on xylose. [Not pub.]
- '90. On qualitative and quantitative reactions for fufirol. [Journal of Analytical and Applied Chem. V. No. 8, and B. d. c. G., XXIV, p. 3019.]
- '91. The digestibility of the pentose carbo-hydrates. [Am. C. J., XIV, No. 1 and B. d. c. G., XXV, p. 563.]
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- '88. An objection to the contraction hypothesis as accounting for mountains.
- '88. The sun's light.
- '90. The highest old shoreline on Mackinac Island.
- '90. The effect of the Great Lakes on the ice sheet.
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- '88. A new kind of phosphorescent organ in *Porichthys*. [Bulletin Essex Institute, XXI, pp. 43-52.]
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- '91. An apparatus for determining the periodicity of root pressure. [B. G., 1892, p. 212, and Pr. V.]

- '91. The scales of Lepidoptera. [Not pub.]
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- '85. Mineralogical investigation in Indiana.
- '87. The secondary functions of the hyoid cornua in *Picus* and *Colaptes*.  
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- TINGLEY, E. M.
- '91. [See Moore, J. E.]
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- '90. Some features of the occurrence of *Viola pedata* var. *bicolor*. [Not  
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- '91. The distribution of tropical ferns in peninsular Florida. Pr. V.]
- '91. Some additions to the state flora from Putnam county.
- '91. Connecting forms among the polyporoid fungi. [*Zoe*, III, pp.  
91-95.]
- VAN NUYS, T. C.
- '88. Estimation of water in oils. [Not pub.]
- '91. Some suggestions to teachers of science or mathematics in high  
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- '86. The estimation of carbonic acid in the air. [Am. C. J., IX.]
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- WALDO, C. A.
- '87. The problem of the earthquake center. [P. A. A. S., 1888.]
- '88. A note on maxima and minima. [Not pub.]
- '89. Probable future of petroleum in southwest Indiana. [Indianapolis  
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- '91. Some geometrical propositions.
- '91. Notes on numerical radices.
- WALKER, CHAS.
- '86. [See Noyes, W. A.]
- WARDER, R. B.
- '85. Chemical work in Indiana.
- WATERS, E. G. and J. B. PEDDLE.
- '88. A new automatic repeater.

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[Entomologica Americana, V, pp. 11-16.]

'87. An unusual appearance of *Apatura celtis* along the St. Francis  
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streams of the adjacent country. [U. S. Dep. Agr. Bureau An.  
Industry, 4th and 5th reports '87-'88, pp. 156-65.]

'91. Contributions to a knowledge of the grain Toxoptera (Toxoptera  
graminum.) [Insect Life, IV, pp. 245-8.]

'91. Buffalo gnats (*Simulium*) in Indiana and Illinois. [Pr. V.]

'91. Some insects of Tasmania. [Pr. V.]

'91. Early published references to injurious insects. [Insect Life IV,  
pp. 262-5.]

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'86. The scientific study of psychic phenomena. [Not pub.]

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Bulletin 18, Chem. Div. U. S. Dept. Agl. p. 114.]

'88. The value of the refractive index in determining the adulterations  
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'88. The present condition of the sorghum sugar industry in the United  
States. [Proc. of 8th Ann. Meeting of Soc. for Promotion of Agl.  
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'88. [See Noyes, W. A.]

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'87. The skull of *Necturus lateralis*.

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'86. The nation—the subject matter of political science.

WOOLMAN, A. J.

'89. Notes on Indiana butterflies. [Not pub.]

'90. The fishes of the interior of Kentucky. [Bulletin U. S. Fish Com.]

ABBREVIATIONS IN THE PRECEDING AUTHORS'  
INDEX.

- A. N. Y. A. S.—Annals of the New York Academy of Sciences.  
 Ag. S.—Agricultural Science.  
 Am. C. J.—American Chemical Journal.  
 Am. G.—American Geologist.  
 Am. J. S.—American Journal of Science.  
 Am. M. M.—American Monthly Microscopical Journal.  
 Am. N.—American Naturalist.  
 B. d. c. G.—Berichte der deutschen chem. Gesellschaft.  
 B. G.—Botanical Gazette.  
 B. I. E. S.—Bulletin Indiana Agl. Experiment Station.  
 C. E.—Canadian Entomologist.  
 I. F.—Indiana Farmer.  
 J. C. S. of N. H.—Journal of the Cincinnati Society of Natural History.  
 J. of A. C.—Journal of Analytical Chemistry.  
 J. of M.—Journal of Morphology.  
 N. A. J. of H.—North Amer. Journal of Homeopathy.  
 O. & O.—Ornithologist and Oologist.  
 P. A. A. S.—Proceedings of the American Association for the Advancement of Science.  
 P. C. A. S.—Proceedings California Academy of Science.  
 P. S. M.—Popular Science Monthly.  
 Pr. U. S. N. M.—Proceedings U. S. National Museum.  
 Pr. V.—Current volume of Proceedings of the Indiana Academy of Science.