TWENTY-FIVE YEARS OF THE ILLINOIS STATE ACADEMY OF SCIENCE

BY

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INTRODUCTION

Twenty-five years ago a representative and distinguished group of scientists, teachers, and laymen met in the Senate Chamber of our Capitol at Springfield and organized the Illinois State Academy of Science. To be exact the date of this notable event was December 7, 1907. The present annual meeting, therefore, rounds out twenty-five years of history and it is fitting to take note of the Academy's development and success achieved.

The present Academy was preceded by two state natural history societies. The first was founded in 1858 at a meeting of the State Teacher's Association at Bloomington, upon the proposal of Dr. Cyrus Thomas, an entomologist. It was formed primarily as a natural history survey in the old sense of an accumulation of museum specimens and a descriptive record of the state's zoology, botany, and paleontology. It held ten annual meetings and then dissolved, due to financial difficulties, transferring its museum collection to the State. It did much to stimulate interest in natural history and research, and hastened the introduction of the sciences into the public schools.

The second society was formed eleven years later, in 1879, as an outgrowth of a summer school of natural history at the State Normal School. Its first president was A. H. Worthen, State Geologist, and its first secretary, S. A. Forbes. This was a period of the return to nature in the study of science, and field meetings were held annually as well as program meetings in different parts of the State. The physical and mathematical sciences were not included on the ground that their interests were considerably removed from the natural sciences. The Society also had no publication. Six years after its founding, with decline in membership and interest, and no election of officers, the society passed out of existence.

The Chicago Academy of Sciences was founded in 1857, fifty years before the State Academy was organized. It held its seventy-fifth annual meeting less than one month ago, on April 11th.

THE ORGANIZATION MEETING

It is apparent from the published record that the birth of the Academy was of a distinguished character. Among the men participating in its organization or who served as charter members, were Hopkins from Agriculture; Starr from Anthropology; Burrill, Coulter (John

M.) and Cowles from Botany; Bartow, Noyes, Parr, and Smith (Alexander) from Chemistry; Chamberlin, Bain, Bayley, Grant, Udden, Weller, and Williston from Geology; Townsend from Mathematics; Bain (Walter G.) from Medicine; Michelson and Carman from Physics; and Forbes and F. C. Baker from Zoology.

H. Foster Bain, then State Geologist, and A. R. Crook, Curator of the State Museum, were, it appears, most active in bringing about the organization. Crook called the organization meeting to order, U. S. Grant was elected temporary chairman, and Secretary of State James A. Rose, gave the address of welcome. It is an interesting sidelight to know that H. F. Bain had arranged for Governor Deneen to welcome the prospective members but he was called away and Rose took on the job. He had known nothing about the matter until Bain appeared in his office and asked him to substitute for the Governor. He promptly accepted, and after asking Bain a few questions on the way over to the meeting, he made a very appropriate address concerning the desirability of effecting an organization of scientific men along lines already followed by men of many professions and callings in the State.

Professor T. C. Chamberlin was made the first president and was re-elected the following year. He is the only man to whom this distinction has been given. We appropriately do him honor by holding our twenty-fifth meeting at the University of Chicago, where he made his great contributions to the earth sciences.

The first Vice-President was Henry Crew of Northwestern University; Secretary, A. R. Crook, State Museum, who served for five terms and later became Librarian; Treasurer, J. C. Hessler, James Millikin University; Third member of Publication Committee, H. F. Bain, State Geological Survey.

The Constitution of the Academy

The Constitution of the Academy was shaped by a committee composed of men from various lines of science and from various institutions: S. W. Williston, University of Chicago, Chairman; W. A. Noyes, University of Illinois; C. B. Atwell, Northwestern University; T. C. Chamberlin, University of Chicago; S. A. Forbes, University of Illinois; A. R. Crook, State Museum; F. L. Charles, Northern Illinois State Normal; H. V. Neal, Knox College; and B. B. James, Millikin University.

From this broad representation, it will be seen that in the very beginning there was established the principle of statewide organization and participation, which principle has been followed down to the present.

The Constitution was made simple, broad, and definite. In its fundamental provisions it has remained intact, only minor amendments being made during the past twenty-five years.

Objects and Activities of the Academy

The objects of the Academy were made to embrace three points: (1) the promotion of scientific research; (2) the diffusion of scientific knowledge, (3) the unification of the scientific interests of the State. The extent to which these objects have been attained and the development of new trends will be apparent from the following:

The Promotion of Scientific Research and Diffusion of Scientific Knowledge

Growth in membership.—The membership of the organization the first year numbered 114. With the exception of a few years there has been a steady growth, the membership tripling in the first five years, not increasing the second five, decreasing during the World War but nearly doubling again by the close of the third five-year period, and nearly doubling again during the last ten years, until now the total membership is past the 1100 mark. Nearly ten per cent of these are life members. This record, it would seem, definitely records an increased interest in scientific research, credit for which the Academy is warranted in claiming its share, along with other organizations and institutions. This is also borne out by the increased number of papers presented.

Presentation of papers.—At the first meeting nine papers were presented; at the second meeting this number was doubled. During the first five years a total of 81 were given; the second five years, 128; the third five years, 174; the fourth five years, 314; and the last five years, 466.

In addition to individual papers, symposia have been held on the following general subjects: The outlook for young men in the various sciences; the scientific activities of the State; the relation of pure and applied sciences to the progress of knowledge and of practical affairs; the rôle of science in modern civilization; science and reconstruction. Symposia have also been held on the following specific subjects: The atmosphere; radioactivity; colloids; conservation; science of sanitation; water supply; public health problems; the present status of evolution; and archaeology in Illinois.

Increased scope of activities.—Although the constitution of the Academy as first drawn recognized the possible division into sections, the general concensus of opinion at that time was that too minute subdivision would be at the expense of the broader influences of the Academy. Until 1915 all papers were presented and discussed before the entire assembly.

The increasing length of the program and specialization of interest finally overcame other arguments and in 1915, in addition to the general sessions, two sectional meetings were held simultaneously, one covering botany, bacteriology, and chemistry, and the other zoology,

entomology, and geology. In 1916, five sections were organized: botany and bacteriology; zoology and medicine; physics and engineering; chemistry and agriculture; geology and geography.

In 1920, the following six sections supplemented the former five: medicine and public health; biology and agriculture; geology and geography; chemistry and physics; mathematics and allied sciences; education and psychology.

In 1929, geology and geography organized separate sections, and in 1930, biology and agriculture divided into sections in botany and zoology, and a new section in agriculture is being organized. A new field, that of economics, was adopted in 1931 and a section organized. This year, a section in anthropology is being organized.

Promotion of research by State scientific surveys.—The Academy has lent its moral support to the research work of the State scientific surveys on the development and conservation of the natural resources of Illinois. This research work is placed by legislative enactment under a Board composed primarily of scientists—experts in the fields of geology, chemistry, botany, forestry, and engineering—and also including the President of the University of Illinois as ex-officio member and the Director of the Department of Registration and Education as ex-officio Chairman. The majority of the members of this board and of the Surveys' scientific staffs are members of this Academy, they have been called into the counsels of the Academy, and a number of them have served as President. The aims of the surveys are in line with those of the Academy, and some of their work has been furthered by appropriate endorsements.

Other activities of the Academy in behalf of science and human welfare have included (1) the endorsing of legislation, in 1913, to enforce the registration of births and deaths in Illinois; (2) urging suitable provision in 1915 for housing the State Museum; (3) recommending the adoption of the centigrade scale in government publications, 1916; (4) urging duty-free importation of scientific apparatus for use in educational institutions, 1922; (5) advocating the adoption of the metric system of weights and measures, 1926; (6) urging the favorable consideration of bills for state parks and forests, 1923; (7) recommending repeatedly reformatory action by the State Legislature concerning the practice of polluting the streams and rivers of Illinois, 1924, 1925, 1926, 1927-29; (7) endorsing the proposed establishment of a Department of Conservation, 1925; (9) endorsing the proposed organization of a National Forest in Illinois; (10) recommending the establishment by Congress of financial awards for most noteworthy and valuable inventions and discoveries; and other worthy actions.

Publications.—Annual volumes have been issued containing most of the papers presented at the meetings, totaling more than 1100. Naturally not all of these papers are of equal quality, but many of them

have served not only the interests of so-called pure science in this State and the world at large, but applied science as well.

The expense of publishing was at once a large item of expense, and because the Academy was devoted to the promotion of the scientific interests of the State, a request was made for a State appropriation for publication of the proceedings at the second annual meeting. The response of the legislature for a time was uncertain from year to year, but in 1919 the Academy became officially affiliated with the State Museum, and an appropriation for printing became an item in the Museum's budget. This has continued to the present time.

For many years the editing of the Transactions was included with the duties of the Secretary, but in 1929 the burden became too great and the office of Editor was established. During the past year the efforts to provide prompt publication have been satisfactorily met.

Unification of Scientific Interests in the State

Affiliations with other scientific organizations.—At the organization meeting, C. E. M. Fischer of the College of Physicians and Surgeons called attention to the desirability of affiliating with various existing organizations and this was provided for in the Constitution. In 1919, the Academy became affiliated with the American Association for the Advancement of Science, in 1923 with the Normal Science Club of Illinois State Normal University and the Rockford Nature Study Society; in 1924 with the Illinois Nature Study Society of Elgin; in 1925 with the Chicago Academy of Science, and the University of Chicago chapter and the University of Illinois chapter of Sigma Xi; in 1926 with the Southern Illinois Science Club of Southern Illinois State Teachers College; in 1927 with the Chicago Nature Study Club; in 1928 with the Illinois Association of Biology Teachers and the Illinois Association of Chemistry Teachers; in 1929 with the Sigma Zeta Society of Shurtleff College and the Alpha Eta chapter of Theta Chi Delta of Carthage College; in 1930 with the Peoria Academy of Science. The Academy is also affiliated with the Botany Club of Joliet, but the writer does not have information as to the date.

Organization of the Junior Academy of Science.—The sentiment was expressed at the organization meeting that the high schools should be in touch with the Academy. In 1910, a committee on assistance of the Academy to high schools in science teaching was appointed, in 1911 a committee to investigate the status of high schools as to science teaching, in 1912 a committee on publication of State Academy leaflets on high school science, in 1917 a committee on junior membership for high school students, in 1918 a committee to study the question of improvement of high school courses in botany, zoology, biology, and physiology and in 1919 a committee on high school science and clubs, which has been made a standing committee.

In 1928, this committee, acting under the chairmanship of Miss Aleta McEvoy of Rockford High School and with the active assistance of Mr. Louis Astell of West Chicago High School, organized the Junior Academy of Science with its own constitution but sponsored by the Senior Academy. Under this plan the Junior Section is composed of high school science clubs which undertake project studies in science by the student members under the direction of science instructors. This plan is proving to be highly successful, as shown by the fact that the high school clubs increased from 11 in 1929 to 31 in 1930 and to 55 in 1931, with a total of more than 2,000 students. This splendid record was made under the chairmanship of Miss McEvoy during 1929 and 1930 and then under Miss Mabel Spencer of the Granite City high school, during 1931.

The state officers of the Junior Section are chosen from the student members of the affiliated high school clubs. The annual meetings are held in part in conjunction with the Senior Academy and in part independently. In this way they have opportunity to hear scientists of note, also compete for state awards in exhibits, posters, and project work, and to become informed regarding the most effective club programs. A special insignia has been designed for the Junior Section members by Miss Gretchen Court of West Chicago. The prizes have been generously donated by the Illinois Association of Chemistry Teachers and various industrial firms and individuals.

This science club movement on a state-wide basis is pioneer work on the part of the Senior Academy, and it appears to have very large possibilities. May the excellent start already made continue until all of the standard high schools of the State organize science clubs and their members become members of the Junior Section.

Coördination of ecological work.—In a paper presented at the first annual meeting, Frank C. Baker, whose untiring work in ecology has continued to the present day and who is our first Vice-President for the current year, called attention to the need of "a complete biological survey of the State, of such an exhaustive character as to leave no part of the area unknown."

Six months later, at a Council meeting held in Chicago, a committee on ecological survey was appointed, consisting of S. A. Forbes, Chairman, F. C. Baker, H. C. Cowles, H. A. Gleason and F. T. L. Haukinson. This committee, with changes in personnel, has been active throughout most of the life of the Academy. Space does not afford an adequate statement of its work, but this committee has sought to stimulate ecological projects in various parts of the State, to promote methods of ecological study, to encourage conferences among the workers, to relate the work to that which is being carried on by the Natural History Survey, and to report the results at the annual meetings. In 1927 the Committee undertook also the preparation of a bibliography of ecological literature on Illinois flora and fauna, which is now complete.

General Observations

The period through which the Academy has passed has been marked by perhaps the greatest advances made in science during the world's history and by a corresponding change in our industrial and social life. The one has produced the other. In this great advancement the Illinois State Academy of Science has participated and contributed its share. But its work has only started. We are entering a new order which calls for the Academy to bear its portion of responsibility—an order which will demand a change from extreme specialization in science to combined specialization and unified effort to solve problems which one science alone cannot solve, a change also which will demand a greater influence on the part of the scientific group of the nation on the solution of its great social, political and ethical problems.

In the words of our distinguished discoverer of Illinium, "Hats off to the accomplishments of the past; coats off to the accomplishments of the future".