

perior business or commercial intelligence but because of the knowledge and technical skill of her chemists.

Whatever we may think of the outcome it can not be denied that it is *applied science* that has enabled the German Empire to suddenly convert itself into a huge engine of destruction, all parts of which seem to have been so delicately adjusted to each other that the awful strain to which the whole is now subjected is distributed among the several members in exact proportion to their ability to bear. Other nations are learning this lesson in the hard school of experience and they are paying tuition in blood and treasure.

Fortunately for us it may be learned by observation as well as by experiment.

T. C. MENDENHALL

November 9, 1915

HISTORICAL SKETCH OF THE OHIO ACADEMY OF SCIENCE

TWENTY-FIVE years ago the first decisive steps were taken looking toward the organization of an Ohio Academy of Science. At the annual meeting of the Biological Club of the State University held November 3, 1891, the retiring president made a short address in which he said substantially: There is need of one institution in Ohio to the organization of which our club should direct its combined energy and influence. This is a state academy of science. If local clubs and societies of science are beneficial, the reasons that make them so apply with greater force to a state organization. Who can estimate the inspiration, the stimulus to research and investigation, that such an institution would provoke? In a great agricultural state like Ohio, a deep, abiding and constantly growing interest will ever be taken in the sciences of geology, botany and chemistry, for these constitute the very foundation, the body and bones, of any ra-

tional basis of practical knowledge regarding soils and the various crops that grow thereon. But our State Academy would not be confined to the sciences that relate so directly to soils and crops. All branches of biology, as well as physics, chemistry, mathematics, anthropology, meteorology, economics, sociology, etc., everything that contributes to the sum total of scientific knowledge, should find a place. The initial steps toward the founding of such an academy should be taken by this club, and to-night. This can be done by the appointment of a committee, which should energetically push the matter by preparing a program for a meeting, and issuing a call to all interested, to assist in the organization. In pursuance with this declaration the club appointed a committee consisting of D. S. Kellicott, W. A. Kellerman and the speaker to take such measures as in their judgment were deemed best to carry into effect the wishes of the Biological Club.

The committee soon secured the promise of hearty cooperation from many of the most prominent scientists in Ohio, and issued a call for a meeting to be held in Columbus, December 31, 1891.

The meeting took place at the date named, and appointed a committee on organization consisting of W. A. Kellerman, of the Ohio State University; E. W. Claypole, of Buchtel College; and Henry Snyder, of Miami University.

While the committee just named were preparing a constitution and by-laws, papers were read by Dr. A. M. Bleilie, E. E. Bogue, J. M. Bradford, H. E. Chapin, H. J. Detmers, W. A. Kellerman, D. S. Kellicott, H. A. Weber, W. C. Warner and A. A. Wright.

After the adoption of a brief but comprehensive constitution and a few simple by-laws, the organization was completed by the election of the following officers to serve the

first year: President, E. W. Claypole, Buchtel College, Akron; Vice-presidents, A. A. Wright, Oberlin, and Ellen E. Smith, Lake Erie Seminary, Painesville; Secretary, William R. Lazenby, Ohio State University, Columbus; and A. D. Selby, Treasurer, Columbus, Ohio. Elected as members of the Executive Committee were E. T. Nelson, Ohio Wesleyan, Delaware, and A. D. Cole, then of Denison University, Granville. It should be noted that of the seven elected officers only two, the secretary and treasurer, were residents of Columbus, and connected with the state university. I mention this to show that from the very outset, the academy has been a state-wide institution and in no way restricted or limited to any one section of the state. Attention is also called to the fact that the charter members of the academy, fifty-nine in number, included mathematicians, chemists, physicists in generous proportions.

It was also quite representative of the educational institutions of the state that were interested in science. Besides the state university which naturally had the largest number, the following universities and colleges were represented: Buchtel, Cincinnati, Denison, Miami, Mount Union, Oberlin, Ohio, Ohio Wesleyan, Otterbein, Starling Medical, Western Reserve and Wilmington. Lake Erie Seminary and the State Experiment Station, as well as the high schools of Alliance, Cincinnati, Cleveland, Columbus, Chillicothe, Dayton, Defiance, Geneva, Kent, Portsmouth, Sandusky, and Tiffin were likewise represented.

At the first meeting the secretary was instructed to secure articles of incorporation, and to publish the constitution and by-laws, together with a list of the officers and members.

In accordance with the above instructions, a certificate of incorporation was duly filed with the Secretary of State on March

12, 1892. This certificate bore the following names as incorporators of the Ohio State Academy of Science: W. A. Kellerman, F. M. Webster, A. D. Selby, W. C. Werner, E. E. Bogue and W. R. Lazenby. Of these incorporators Professors Kellerman and Bogue have passed away.

The academy held its first field meeting in Summit County on June 3 and 4, 1892, the headquarters being at what was then Buchtel College, in the city of Akron.

The program for the field-day included an excursion by steamer to Long Lake, and the day was spent in and about the attractive "Lake District" of Summit County. The botanists observed the rich and varied plant societies of the swamps, and the geologists were interested in the great moraines to which, in part at least, the swamps, ponds and lakes owe their origin. In the evening a reception was held in the gymnasium of Buchtel College, at which the visitors were welcomed by the mayor of Akron, the president of the college, Dr. O. Cone, and the president of the Akron Scientific Club.

The next day at an early hour the members and visitors set out for Cuyahoga Falls, where they were cordially welcomed. They were conducted some three miles through the post-glacial gorge of the Cuyahoga River.

This excursion was equally interesting and profitable. The geologists and botanists and entomologists improved the opportunity and added to their stores of scientific facts.

After the passing of a quarter of a century, I can look back upon this as one of the red-letter days of my life.

What was called on the program the first annual meeting, although in reality the second, was held in Columbus, December 29 and 30, 1892. At this meeting twenty-five papers were read. The papers were for the most part on some phase of botany, geology

and entomology. Perhaps the most significant action at this meeting was a brief report of the Committee on Publications, which announced that it had selected the *Journal* of the Cincinnati Society of Natural History and the technical series of *Bulletins* of the Ohio Experiment Station, as the official organs of the academy, until better arrangements can be made.

At the close of this second annual meeting, although in reality the end of the first year of the existence of the academy, the total membership was as follows: Annual members 116—of which number 59 were charter members, and one life member, Mr. Emerson McMillin, who at this early day became a generous patron.

Having dwelt in some detail upon the founding and early history of the academy, I shall treat its subsequent career and accomplishments more briefly.

Statistics are usually wearisome, but in the interests of history they can not be wholly avoided.

What may be termed the annual membership of the academy has increased from 59 charter members in 1891 to 234 members in 1915. About one fifth of the membership reside outside of Ohio, and are found in 15 different states, besides the District of Columbia, Hawaii and Canada. The Ohio residents are found in more than 50 counties of the state.

To illustrate the regularity of growth in numbers, the fifth year the membership was 157; tenth, 173; fifteenth, 179; twentieth, 196; twenty-fifth, 234.

As to attendance, one can not speak confidently, for no records have been kept. On the average I should say that one third of the resident membership have attended the annual meetings. As to place, fourteen of the twenty-five annual meetings have been held in Columbus, two in Granville, two in Cincinnati, two in Cleveland, one each in Oxford, Delaware, Akron and Oberlin.

Summer meetings have been held in well-selected places in the following counties: Summit, Hocking, Licking, Erie, Butler, Knox, Montgomery, Franklin, Ottawa and Wayne. Several of these were joint meetings with other organizations. For instance, in Butler County with the Indiana Academy of Science; in Franklin County with the American Association for the Advancement of Science (the summer meeting of 1899); at Put-in-Bay with the Ohio Teachers Association, and in Sandusky County with the same organization. These delightful meetings were held each year for the first ten years in the life of the academy. For some reason, unknown to me, they then ceased. Would it not be well to renew them? As summer schools are now held at many points in Ohio, it might be advisable to arrange a meeting of a day or two with the scientific departments of some one of these schools.

The papers presented during the twenty-five years number 1,124, or an average of 45 for each meeting. The range in number is from 10, read at the first meeting, to 64, read at the fifteenth. At the twenty-fourth meeting the number was 61, and at the twenty-fifth it was 58.

Cloud and sunshine, joy and grief, are common contrasts in our life. We experienced these contrasts at the eighth annual meeting. The first serious break in the ranks of our membership had then occurred. Two of our ablest members were missing. We grieved that Dr. Kellicott had been stricken by death, and that Dr. Claypole had left Ohio to spend the remainder of his days in the more genial climate of California.

At the same time we rejoiced that one who had already proven himself a friend should modestly announce that he had given the academy \$250, to be expended in ways best suited to promote scientific research; with the further statement that such a sum

might be given annually, provided the use made of the money was satisfactory and it proved convenient for the donor to spare it. We may assume that these conditions have been fulfilled, for from that day to this, or for eighteen successive years, this generous gift has been received. It has come to us quietly, promptly and without solicitation during all this time.

It has been administered in the same quiet way, and not one penny has been used for anything except to aid in research, or the publication of its results.

The influence of this gift has been as gentle and persuasive as the spring sunshine or summer shower. Nearly a score of special papers have been prepared and published by the academy through its aid. As many more have been published elsewhere. All honor to this scholarly, efficient, large-hearted, high-spirited man. I trust he believes that "the reward of a good deed is to have done it," if not, I don't know how he is to be paid.

We are here to-day in a spirit of congratulation. We congratulate our academy upon what it has accomplished. We congratulate Emerson McMillin on what he has done for the academy.

We congratulate the universities, colleges and high schools of Ohio that so large a number of their instructional force are active workers in our academy. Our annual meetings have confirmed and strengthened a spirit of good will between the educational institutions of the state. They have cultivated the amenities, and developed a feeling of brotherhood among our members. Our academy since its inception has stood for good scholarship, good fellowship and good citizenship. The essentials of a great landscape are unity and variety. These are likewise the great attributes of an association for the promotion of science. Unity in the spirit and ideals of the work to

be accomplished, and variety, infinite variety, in the means by which these ideals may be developed. We come together on the basis of commanding interests and diverse experiences. This devotion to the varied phases of science detracts nothing from the pursuit of the older humanities, but adds materially to the effectiveness of any study that puts the student in closer touch with his environment—in closer touch with nature—and nature's law. This spirit was in Orton and Kellicott and Claypole, who were among the founders of the academy. What a fine influence these men exerted! What fine lives they led! It was a happy blending of the strenuous, the simple and the abundant life.

Strenuous, because in addition to the enforced and exacting labors of a teacher were added the self-imposed tasks of the investigator; simple, because they lived close to nature and her laws were the rule and guide of their daily conduct. They had neither time nor means for luxury. And most of all their lives were abundant; abundant in opportunity, abundant in accomplishment, abundant in honors, abundant in friendship. Demanding little, they received much. They are of those who, losing their lives, save them.

We are together to celebrate an epoch, not alone in the promotion of science, but in the attainment of the ideals of education; ideals for which the academy will stand in the future as in the past.

WILLIAM R. LAZENBY

OHIO STATE UNIVERSITY

THE NAVAL CONSULTING BOARD OF THE UNITED STATES¹

THE so-called "five-million laboratory," proposed by the Naval Consulting Board,

¹ From an address made before the joint meeting of the New York Section of the American Chemical, the American Electrochemical Society, and the Society of Chemical Industry, by Dr. L. H.