

ORIGIN OF THE PHYSICAL SCIENCE SECTIONS OF THE OHIO ACADEMY OF SCIENCE^{1, 2}

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ABSTRACT

The physical sciences in the program of the Ohio Academy of Science were represented only sporadically from the time of founding in 1891 until 1912. Concern for physical science was largely represented by the study of physical phenomena observed by field naturalists. A Section of Physics was organized in 1912, renamed Section of Physical Science in 1924, and reorganized as the Section of Physics and Astronomy in 1934 when a Section of Chemistry met for the first time. A Section of Mathematics was founded in 1938, and following continual decline was dissolved in 1954, but it was revived in 1965.

The organization of the Ohio State Academy of Science, as it was first called, and the origin of the Natural Science Sections have been traced in a recent report (Dexter, 1966). Also, the historical development and accomplishments of the Section of Science Education and the Section of Conservation have already been published (Dexter, 1961, 1962). The physical sciences did not play a prominent part in the early days of the Ohio Academy of Science. Gradually, however, interest was developed and eventually a section was created for the physical sciences and mathematics. Later, separate sections for physics and astronomy, for chemistry, and for mathematics were organized. This paper will trace the origin and early history of these sections.

For the organizational meeting of the Academy held in Columbus 31 December 1891, a total of 26 papers had been submitted for the program. Ten of these were selected for reading to the group while the organizing committees were at work. Two had been submitted from the physical sciences. One was entitled "Comparison of Evaporative Powers of Certain Coals with their Ultimate Composition," by N. W. Lord, and another, "Magnetic Fields in Laboratories," by B. F. Thomas, both men of The Ohio State University. At the first regular annual meeting of the Academy, held 29-30 December 1892 at the Ohio State University, a total of 37 papers was listed on the program. The great majority of these were in the biological and geological sciences, but one was given in the field of physics. This was entitled "What is Gravitation?" presented by Reynold Janney, from the high school in Chillicothe. Another one was given in astronomy on "The Comet of 1892," by H. V. Egbert of Akron.

At the second annual meeting (1893), N. W. Lord gave a report on "Notes on Recent Discoveries in Astronomy." The following year Charles E. Albright of Columbus reported on "An Improved Method of Determining the Laws of Acceleration in a Moving Body." At the fourth field meeting (1895), W. H. Todd presented a lecture on "A Cyclone in Erie County." This was a joint meeting between the Ohio State Academy of Science and the Ohio Education Association. In 1897, during the seventh annual meeting held in Columbus, Prof. W. R. Lazenby of Ohio State University expressed the opinion that he "thought something should be done to interest physicists and chemists in the Academy." Nothing was accomplished in that direction, however, for some time to come. Although occasional papers were given bearing on physical science, for the most part such

¹This paper, prepared by the Academy Historian, is based upon his reports given to the Section of Physics and Astronomy on 23 April 1960 at Antloch College, and to the Section of Chemistry given 21 April 1961 at the University of Cincinnati.

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papers were concerned with physical phenomena in nature. For example, in 1898 J. J. Janney of Columbus reported on "A Curious Lightning Stroke," and, two years later, J. G. Sutton of Rushsylvania spoke on "Whirlwinds and Tornadoes Considered as Examples of Electro-Magnetic Rotations," and "Physical Conditions of the Earth Thought to be Favorable to the Production of Whirlwinds in Certain Localities." In 1902 E. L. Moseley of Sandusky reported on "Currents in Sandusky Bay." In 1908 J. W. Smith of Columbus described "Recent Evaporation Investigations." During the 1899 meeting, held in Cleveland, the Case School of Applied Science (now the Case Institute of Technology) held an open house for the physical scientists. The program read: "The Physical Laboratory of Case School, whose equipment is believed to be the best west of Cornell, will be open to members and their friends after the completion of the program."

At the 13th annual meeting held in Cleveland in 1904, it was proposed that a program committee be constituted with a representative from five fields of science—zoology, botany, geology, anthropology, and chemistry-physics-mathematics. Such a committee was established at that time with G. B. Halsted of Kenyon College representing physics, chemistry, and mathematics.

In the preliminary announcement for this meeting, F. L. Landacre, Secretary of the Academy, expressed the opinion that: "All members of the Academy, as well as the officers, are exceedingly anxious that sciences other than the biological shall be more actively represented in the Academy meeting than heretofore." An attempt to get the newly formed Mathematical Society to affiliate with the Academy failed. On the program, however, George B. Halstead of Kenyon College offered a paper on "Mathematics and Biology," and Dayton C. Miller of the Case School read a paper on "Radium." At least an attempt was made to bring physical science and mathematics into the program to a greater degree. The following year Prof. Halstead returned to the program with a report, entitled "An Application of Non-Euclidean Geometry," and Harris Handcock explained "The Present State in the Development of the Elliptic Functions."

A new constitution prepared in 1908 provided for the first time for the creation of sections within the Academy. It was not until 1912, however, that a section was organized for the physical sciences. The founders and early members of the Academy were largely field naturalists. Interest shown in physical science in the early days was essentially that of physical features of natural environments.

In the preliminary announcement for the 22nd annual meeting held in 1912, the secretary hopefully stated, "It is expected that there will be a program of physics papers. Several are already promised and it is hoped a separate Physics Section may be organized." A committee had been appointed to investigate the possibility of organizing a Section of Physics, and a meeting was arranged by F. C. Blake, The Ohio State University, to organize such a section. Some 35 delegates representing 12 colleges and universities assembled for this purpose. T. C. Mendenhall, retired founder of the Physics Department of the Ohio State University, was elected to preside. Eleven research papers were given before this group, which was meeting separately for the first time. The group was encouraged by Prof. Mendenhall to continue as a formal section of the Ohio Academy, so the Section of Physics was then organized.

At the 34th annual meeting held in 1924, the name of the Section of Physics was changed to the Section of Physical Sciences. Two years later, the Section began to meet jointly with the Central Ohio Physics Club. These joint meetings continued through 1933. At that time a separate section was created for chemistry. An earlier attempt had been made in 1917, but was not successful largely because of disruption caused by World War I. In 1934, when the new Section of Chemistry met for the first time, the name of the Section of Physical Science was changed to that of Section of Physics and Astronomy. The name of the

co-sponsor was also changed at that time to the Ohio Physics Club, and the two continued to meet jointly as in the past. In 1941 the name of the co-sponsor was changed to the Ohio Section of the American Physical Society. Since 1945, these two groups have conducted annual meetings jointly.

Before the Section of Chemistry was organized in 1933, participation in the Academy Program by chemists or by those making chemical studies was sporadic. When Dr. Herbert Osborn of The Ohio State University gave his presidential address to the Academy in 1905, he stated that

the chemical problems connected with our water supply, coals, soils, etc. have certainly local interests, and reports upon such problems would be particularly welcome in our meetings. The only suggestion in this connection I would offer now would be that our members as individuals exert their influence with their associates and friends in other branches of science, urge them to take part in our proceedings, and in any way possible encourage their affiliation with our Society.

At the quarter-centennial meeting held in 1915, Dr. William McPherson, also of The Ohio State University, presented his review of "The Progress of Chemistry during the Last Quarter of a Century." Two years later Prof. James R. Withrow of The Ohio State University spoke on "The Relation of War to Chemistry in America." It was at this time that preliminary steps were taken to form a Section for Chemistry, but no action resulted at that time.

In 1920 Prof. Withrow, after presenting papers on the use and abuse of platinum and potassium, introduced resolutions concerning the "Conservation of Platinum and Potassium." His resolutions were adopted by the Academy, and he and the secretary of the Academy were appointed as a special committee to publicize the resolutions. At the same meeting Dr. H. C. Sampson read a paper, "Progress in Plant Microchemistry," and F. C. Vilbrandt gave a report on "Gas Combustion Investigations."

As noted earlier, the Section of Physics changed its name to the Section of Physical Sciences in 1924 in order to include chemistry. Participation by chemists increased, and in 1933 a separate section for chemistry was created. Dr. William H. Alexander, secretary of the Academy, wrote in his annual report for that year, that "Under the inspiration and able leadership of Dr. William Lloyd Evans of The Ohio State University, the efforts of the new Section of Chemistry to put on an attractive program, were notably successful and the response of the chemists of the state enthusiastic, there being an attendance of more than 100 at the first meeting of the section." Sixteen papers were read, and the petition requesting formation of the section was filed by 68 chemists from 21 colleges and universities. The petition was acted upon favorably, and Dr. Evans was appointed Acting Vice-President in charge of this new section. The group was invited to visit the Battelle Memorial Institute to see exhibits in the Department of Chemical Engineering, and to visit the heavy-water installation at The Ohio State University. In 1935 the Chemistry Section sponsored a "Symposium on Chemistry in Biology." Two years later, a symposium was held on the teaching of chemistry.

At the 50 anniversary meeting, held in 1940, Dr. W. L. Evans gave the presidential address, which was entitled, "A Present Day Examination of the Postulates of John Dalton." This was subsequently published in *The Ohio Journal of Science* (41: 105-116. 1941). A special program of invited papers in the field of chemistry was given, and special exhibits were on display. In 1943 the Section of Physics met with the national meeting of the American Physical Society, which was held in Columbus at the same time as the Academy meeting.

In recent years the Chemistry Section has sponsored a number of symposia. One of the most important was given in 1952 on "The Trapping of Solar Energy," which was subsequently published as a unit in *The Ohio Journal of Science* (53:

257-319. 1953). The following year another symposium was devoted to "Pre-biological Chemistry." Charles F. Kettering served as honorary chairman for both programs.

The presidential address in 1956 was given by Dr. Paul Rothemund on "Hemin and Chlorophyl—the two most important pigments for life on earth." Also, in recent years, members at a number of the institutions serving as hosts for the annual meetings have outlined the history of the Chemistry Department at their college or university.

A Section for Mathematics was founded in 1938 at the 48th annual meeting held at the College of Wooster. This was done upon petition by 17 members of the Academy. Carl Ver Steeg of the College of Wooster served as vice-president for 1938-39. Eight papers were read; this initial meeting proved to be the best one ever held. No sectional meetings were held in 1940 because of the 50th anniversary celebration, but in 1941 the section met again with presentation of six papers. The following year formal papers were not given, and the group met for informal discussion only. No program was scheduled for 1943. In 1944 Dean R. E. Manchester, of Kent State University, revived the section, but only a single paper was offered for the program. The Academy did not meet in 1945, and the mathematics section did not meet again until 1947, but again only with a single paper being read to the section. For the next three years, no formal program was arranged and those few who attended simply engaged in informal discussion. For the years 1951-53, two papers were given each year. In 1954 no sectional meeting was scheduled, and the Section of Mathematics was dissolved at that time. It was revived, however, in 1965 with Jack J. Bulloff, Battelle Memorial Institute, in charge. With the current emphasis being given to mathematics, the reconstituted section in that field should meet with success.

LITERATURE CITED

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As part of the big 75th anniversary celebration of The Ohio Academy of Science, Historian Ralph W. Dexter has prepared a number of articles on the history of the Academy and of groups of the sections. The first two of these articles are in this issue; the others will appear in the July and September issues of the *Journal*.

EDITOR