

SIGMA XI, THE SCIENTIFIC RESEARCH SOCIETY

HISTORY OF THE OHIO STATE CHAPTER

by
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Updated by F. Carlin Weimer

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FOREWORD

Sigma Xi, The Scientific Research Society, now 106 years old, is a premier science organization. Constituted at present in a "network" of over 500 Chapters and Clubs with over 97,000 members (including 150 Nobel Prize winners), it has always promoted the creed of its founding fathers, "Companions in zealous research."

The Society publishes the acclaimed bimonthly journal, the *American Scientist* and, each year, selects prestigious scientists for the popular Sigma Xi National Lecturers program, recognizes outstanding scientists through prestigious awards, and supports research through small Grants-in-Aid to students and young faculty. More recently, the Society has provided a forum for the discussion of such contemporary topics as "Global Change and the Human Prospect: Issues in Population, Science, Technology, and Equity," "Ethical Problems in Academic Research," and "Research and Education in Environmental Sciences at Major Research Universities."

The Ohio State University Chapter is the eighth oldest and one of the largest in the Society. One cannot help but ponder upon its 96-year old history and the illustrious faculty members who have been associated with the Chapter. This document was prepared by the late Dr. Harold E. Burt, Professor *emeritus* of Psychology at The Ohio State University and included the years 1898-1970. Additions and update were prepared by Dr. F. Carlin Weimer, Professor *emeritus* of Electrical Engineering, and the 1964 Chapter President.¹ We have a video tape of Professor Burt addressing a faculty group and displaying his enthusiasm of belonging to Sigma Xi.

The Chapter is involved in many activities (e.g., lecture programs, graduate and undergraduate student awards, grants-in-aid for research, county science fairs, and encouragement of high school science teachers) and doing very well. For these and other activities for the year ending 1993, Sigma Xi awarded a "Certificate of Excellence" to our Chapter at the 1994 national meeting in Atlanta. Members of the Executive Board join me in wishing you an enjoyable reading.

Mohan K. Wali
President

¹I am most thankful to Drs. Frank C. Croxton, Fred P. Miller and Dana L. Wrensch for their most helpful editorial comments.

The Ohio State Chapter of Sigma Xi was founded in 1898, twelve years after the Society was first organized. Accordingly, it seems appropriate to precede the history of our Chapter with a brief account of the organization and early development of the Society.

ORGANIZATION OF THE SOCIETY

The first of the honorary fraternities, Phi Beta Kappa, was founded about one hundred years earlier. Traditionally, it honored students with a classical education to the neglect of students of science. In the early 1880's, there emerged a growing dissatisfaction with the classics as preparation for a scientific career. Charles Francis Adams, Jr., in 1883, addressed the Phi Beta Kappa chapter at Harvard on the topic, "A College Fetish," and described the classics as a millstone around the neck of those aspiring to a career in science. This pronouncement was viewed with alarm by the classicists and with satisfaction by some of the young scientists who heard about it.

Implicit in some of the subsequent discussions of the matter was the notion of an organization for students in science somewhat analogous to Phi Beta Kappa. This notion was brought into sharper focus by the following incident. In the spring of 1885 at Cornell University, two engineering students, William Riley and William Day with two of their friends in the classical field, were discussing the relative merits of classical and scientific training. This conversation led to specific mention of a possible scientific honorary. Subsequently, Riley and Day gave some further thought to the matter, but took no action. About a year later, Day was walking up the hill to the campus with Frank Van Vleck, a young instructor in mechanical engineering, and told him of the earlier conversation about a scientific honorary. Van Vleck was enthusiastic and they immediately went to his room, made some tentative plans, and got something down on paper.

In the fall of 1886, these tentative plans were refurbished by Van Vleck and six engineering students that he invited to work with him. Riley and Day meanwhile had graduated and gone elsewhere. Several meetings of the group resulted in a Constitution which in its preamble mentioned "friendship in science." It was signed by Van Vleck, the six engineers, and Riley and Day, who were contacted for this purpose. These nine constituted the charter members of the organization. They selected the Greek letters Sigma Xi and, with the help of some classical friends, invested them with meaning: "Companions in Zealous Research."

The Society came near having a rival. Professor Henry Williams of the geology department had just started a society for geology students with fourteen members. Presently, he learned about Sigma Xi and the two groups merged. Sigma Xi had been conceived originally as limited to engineers, but partly through Williams' influence, it was broadened to include all branches of science. When it came time to formally elect officers, Williams was chosen as President and Van Vleck as Vice President. In June, 1887, the Society held inauguration exercises and Williams gave the Presidential address.

Another chapter of Sigma Xi was organized at Rensselaer in 1887 through the influence of some members of the Cornell group who were Rensselaer alumni. Union College in Schenectady organized a chapter in that same year. Kansas was next (1890), having received the word from professor E. L. Nichols of the Physics Department at Cornell who went to Kansas to head the Physics Department there. Then came Yale (1895), Minnesota (1896), Nebraska (1897), and Ohio State (1898).

At the outset, the Cornell Chapter was the controlling body and was responsible for the organization of new chapters. By 1890, they began to feel the need for a national body and in May, 1893, this materialized in the form of a national convention held at Ithaca with representatives from Cornell, Union, Rensselaer, and Kansas. The Cornell constitution with minor changes was adopted as the national constitution. At the second convention in 1895, the requirements for new chapters were stiffened and a Council was established to advise regarding the granting of charters to new chapters. So much for the beginnings of the Society.

ORGANIZATION OF THE OHIO STATE CHAPTER

Turning to the history of the Ohio State Chapter, the first six years are a trifle nebulous. On February 2, 1904, fire destroyed the Chemistry Building which housed the Office of Sigma Xi's secretary and the Chapter records. It was necessary to reconstruct these records from memory. Shortly after the fire, the Chapter president, Edward Orton, appointed a committee consisting of Miss Catherine Andrews and Messrs. Septimus Sisson and Charles W. Foulk to attempt reconstruction and to re-write the by-laws.

The initial impetus for the establishment of the Chapter came from James E. Boyd, Frank C. Caldwell, and William R. Lazenby, who had earlier been members of the Cornell Chapter. Soon, twenty-seven members of the faculty signed a petition to have a chapter. These charter members were Albert M. Bleile, Rosser D. Bohannon, John A. Bownocker, James E. Boyd, Joseph N. Bradford, Christopher N. Brown, Frank C. Caldwell, William D. Gibbs, Embury A. Hitchcock, Thomas F. Hunt, George B. Kauffman, William A. Kellerman, William R. Lazenby, Henry C. Lord, Nathaniel W. Lord, William T. Magruder, George W. McCord, William McPherson, Edward Orton, Jr., Franklin A. Ray, Christopher E. Sherman, Karl D. Swartzel, Benjamin F. Thomas, Henry A. Weber, David S. White, and Authur L. Williston.

The charter was granted June 1, 1898, and the actual installation of the chapter took place on December 10, 1898. Soon after the granting of the charter, thirty additional members of the teaching staff were elected to the organization.

At the outset, we were known officially as "Omega Chapter, Society of the Sigma Xi." There was also occasional reference to the "Ohio Chapter" and presently, the "Ohio State Chapter." Evidently, some thought had been given in the early years of the society to the possibility of designating the chapters by Greek letters rather than geographical names. Alpha Chapter seemed logical enough for Cornell, designating the first chapter by the first letter of the alphabet. However, the first round of letter assignments appeared to be random rather than chronological. Then Yale insisted on Upsilon, the Greek counterpart of Y. It was noted further that if future chapters wanted the Greek letter corresponding to the first letter of their geographical name, there would be conflicts like Minnesota, Michigan, and Missouri, all want Mu. So, at the national convention in 1897, the use of geographical names was authorized.

Meanwhile, the letter 'Omega' had been assigned to our chapter. There was some correspondence indicating our preference for Omicron rather than Omega, but Omicron was never used and Omega stuck. The first by-laws on record (1904) were ambivalent and stated that the chapter should be known as the Omega Chapter or the Ohio State University Chapter. However, the secretary's minutes and official correspondence used the Omega notation until 1930, when all the documents began using "Ohio State Chapter." But even as late as 1949, the secretary, in correspondence with the National Office (inadvertently?) referred to the chapter as Omega.

The first officers of the chapter (1898-1899) were President Edward Orton, Jr.; Vice President, Alfred D. Cole; Secretary, Charles W. Foulk; and Treasurer, Clair A. Dye.

By-laws

The by-laws that arose from the ashes were approved in May, 1904. They were designed primarily to implement the constitution of the national society. They provided for a President, Vice President, Recording Secretary, Corresponding Secretary, and a Treasurer plus a Councilor with a five-year term. The nominating committee for new members comprised the President, Vice President, Recording Secretary and two elected members. The initial by-laws were devoted for the most part to the qualifications of new members and the schedule for electing and initiating them. The nominating committee screened the candidates and the chapter elected them. It was possible at the outset to elect seniors of "rare ability and promise." Through the years, there have been numerous revisions of the by-laws such as making minor changes in the qualifications for membership, in the fees for initiates, in the actual election operation and in the time schedule for recommending, nominating, electing and initiating new members. The change from a semester to a quarter system upset things considerably. The by-laws have not been too sacred anyway, for on numerous occasions they were suspended in order to expedite some specific actions.

Officers

The Chapter officers for 1898-1899 were noted above. The names of the incumbents from 1899 to 1903 are not available in Chapter archives, although a later secretary made a futile effort to secure these names. Those for the years ending in 1900, 1902 and 1903 have been supplied recently by the National Office. The corresponding and recording secretaries were from the beginning combined in one person as permitted in the by-laws. In 1933, the offices of secretary and treasurer were merged. On a few occasions, an officer at the end of his term was given a present in appreciation of his service. It is not clear whether this was in response to outstanding accomplishment, a congenial personality, or merely temporary euphoria on the part of the Chapter. At any rate, this action did not establish a precedent.

The Secretary

One Chapter officer, the secretary, deserves special mention. As in most other professional organizations, our secretary does practically all of the work. The largest item is correspondence: with the National Office, with prospective initiates, with members who transfer to other chapters and with members who neglect to pay their dues. Scrutiny of a random sample of the secretary's files suggests the impossibility that so many people could change so many addresses. Other secretarial duties include keeping the books, paying the bills, and making arrangements for all meetings such as initiations or public lectures.

The secretaryship was a labor of love until 1929 when a stipend of \$100 per year was authorized. Stipends of various amounts have been in effect ever since. Presently, the secretary was authorized to hire someone to do the more routine clerical work. Sometimes the incumbent was the secretary's wife. This might be construed as a fringe benefit of the office, depending, of course, on intra-family financial policy.

In 1962, we were blessed with manna from Battelle in the form of an offer to keep our records and do the routine mailing without cost to the Chapter. Mrs. Betty Brunton, of the Institute staff, played a major role in this project. It forestalled secretarial ulcers and was greatly appreciated. However, the Chapter still kept a Secretary-Treasurer on the campus.

The job of secretary involves some occupational hazards. One of these is the illegible handwriting of some members. For example, in 1953, a member paid his dues by check but neither the Secretary nor any of his friends could decipher the signature. Thus it was impossible to give the member credit for payment. The matter was referred to the bank which fortunately had personnel more experienced in cryptography.

Another hazard involves irate members. In the earlier years, they performed at Chapter meetings, for example, when electing new members. Presently, however, the secretary bore the brunt of it alone usually on the telephone or in correspondence. There was the case where the Chapter was holding a dinner for a visiting lecturer and a member made a reservation but failed to attend. At that time the Faculty Club insisted on payment for every reservation. Accordingly, the secretary asked the member for his \$2.25. Suffice it that a pencilled notation on the margin of some correspondence indicated that "sparks flew." It did not help when the president of the Chapter offered to pay the bill himself.

In spite of the workload and the hazards, two of our secretaries nearly made a career of the office. One of them served for eight consecutive years and the other for seven. Continuity in the office contributes to efficiency and the dedication of these two incumbents was appreciated.

Selection of Members

A major concern of the Chapter has always been the selection of new members. The qualifications for membership were determined primarily by the national constitution but were amplified by the local by-laws. The Chapter began with only active members drawn from the teaching staff, the original 27 charter members plus the 30 elected immediately after the charter was received. However, there was almost immediate expansion to other types of membership. In 1898-1899 the Chapter elected as new members 21 faculty, five graduate students and four undergraduates. At that time everybody was considered an active or full member. As more chapters were formed elsewhere and as some members of these chapters joined our faculty, provision was made to accept them into our Chapter. This procedure was formalized in 1906. At first they were called "resident" members, but in all respects, were active members of the Chapter.

The qualifications for active membership involved from the outset the candidate's research competence and accomplishment. There was a tendency to extrapolate from his earlier record to his later career. Presently, it became apparent that this extrapolation was not always correct. Some members did a simple piece of research which was their last. This fell short of the "companions-in-zealous-research" criterion. There was vigorous discussion (1912) on whether a prospective member was likely to continue to do research. That sort of a prediction is obviously difficult, but nominating committees did their best. The Chapter did not go so far as to make the criterion retroactive and drop some of the present members, although conceivably this action might have been justified.

Initially, both graduate and undergraduate students were elected as full members. Evaluation of their qualifications was difficult and none too reliable because of the frequent absence of objective evidence

such as publications. This was especially the case with undergraduates. The nominating committee was supposed to evaluate "promise." At times, some committees tried to spell out such promise in terms of the judgment of teachers rather than grades. The recommender was asked to "vouch for his ability to do independent thinking" (1913).

A partial solution of this difficulty was the establishment of associate memberships. In 1913, the Chapter discussed a proposed amendment to the constitution creating such membership. We approved the proposal and instructed our delegates accordingly. However, it was not until 1923 that the Chapter minutes actually listed associate members.

A difficult problem in the selection of students (associates) was the different standards used by different departments in making their recommendations. For instance, at one extreme is the case (1906) where the Chapter secretary was instructed to advise the head of a certain department of the "grave disapproval" of the department's failure to nominate its deserving students. At the other extreme is a department chairman (ca. 1939) who nominated practically all his seniors year after year. This involved the secretary in voluminous and protracted correspondence. Some years it required ten letters to quiet the chairman for another year.

In the earlier years, such matters were fought out orally rather than with a typewriter. In 1931, a department recommended a student for full membership but the nominating committee decided on associate membership. Thereupon, the department chairman read at the meeting a "lengthy protest" which was followed by a "heated discussion" and finally, the student was accepted as a full member.

We were still having trouble along these lines as late as 1966. A student was recommended by his sponsor for full membership but the Board of Electors recommended associate membership. The sponsor did not argue the matter, but simply withdrew his nomination altogether.

Then there was the department (1941) that recommended six seniors and included statements regarding qualifications that were *identical* on all six blanks. The Board rejected the recommendations temporarily. The department took the matter seriously and, after appropriate committee meetings, came back to the Board with some substantial individual differences on the part of the candidates.

From time to time the Board of Electors has attempted to formulate some "ground rules" which it usually followed for a few sessions until it lost and forgot them. One such set of rules (1965) may be cited. Associate members were to be evaluated on the extent to which they had progressed in research rather than on research potential. This class of membership was for undergraduates, or graduates over six months from the Ph.D. Exceptions were to be made in the case of a publication in a scientific journal that had manuscripts "reviewed" prior to acceptance provided further that the student was the senior or main author in the case of joint authorship. Full members were to be within less than six months of the Ph.D. and with demonstrated research potential. A Ph.D. who had been out several years and had not shown continued activity in research was to be considered unfavorably. The foregoing illustrates the detail and complexity involved in the Board's deliberations.

A problem arose during the war years and, subsequently, with reference to the evaluation of a candidate's research. Some research was subsidized by the government and was "classified." This was admittedly justified on the basis of national security. However, the Board had no access to the methods or results of the research and often was provided merely with an ambiguous title that was designed to

conceal the nature of the project. Some Board members were disposed to take the word of the adviser, but others disliked the pig-in-a-poke aspect. Eventually, the latter group prevailed. In 1957, the Board decided that "only research that is published or publishable in the open literature shall be accepted as fulfilling requirements for membership."

Interest in electing members from the University Alumni developed quite early and a committee was set up to canvass the alumni for this purpose. The canvass proved to be a larger task than had been anticipated. In June 1904, the committee recommended 24 alumni for membership and listed another 28 that were still under investigation. The committee wished to be continued into the next academic year in order to complete the job although a new nominating committee was supposed to take over in the fall. In evaluation of alumni members, effort was made to distinguish actual research contributions from distinction achieved in business or "the commercial aspects of engineering or manufacturing." This has always been a tricky problem for nominating committees.

The actual procedure for selecting new members began with transmission of the names of candidates to the nominating committee. This committee screened the candidates and reported to the Chapter which did the actual electing. In many instances, the list of nominees was sent to the Chapter members along with the announcement of the meeting. This procedure was followed until 1933. By that time, the attendance at these meetings was so small that the Chapter created a Board of Electors which was empowered to do the whole job without any Chapter vote. Eventually, with the increase in the number of candidates, even this method became prohibitively time consuming. Accordingly, in 1960, the Board of Electors adopted the practice of distributing the recommendation blanks to subcommittees of the Board. In clear-cut cases, the decision of the subcommittee was final, but difficult or doubtful cases were discussed by the entire Board. The morale of these hardworking Board members was sustained by giving them a free dinner.

An interesting proposal regarding selection of members was discussed in 1918. It was essentially an effort to determine the validity of the selection process. For members elected as undergraduates, their subsequent research performance was to be scrutinized with a view to vindicating the original judgment of the nominating committee. This proposal for a scientific organization to evaluate its own operation scientifically was most commendable. A committee did some work on the matter, but nothing further developed.

Toward the end of the First World War, there was considerable publicity about the use of group intelligence tests in Army personnel problems. At one Chapter meeting, some of the results with the Army Alpha test were discussed by a psychologist who was a Chapter member. At a later meeting, the President of the Chapter (a chemist, not a psychologist) suggested the possible use of "certain psychological tests" in selecting undergraduate members. The matter went no further, which is just as well because the then available tests would have predicted academic achievement rather than research competence.

Emeritus membership emerged eventually. This presumably was patterned after the practice of various professional organizations with reference to their older members. At a certain age, one became a life member or an honorary member without further payment of dues. Our Chapter was following this policy as early as 1953. Incumbents were informed that Emeritus members of the Chapter were carried as active members without payment of dues and that the assessment to National Headquarters (\$1.50 per member) would be paid by the local Chapter. By 1961, this assessment evidently became a burden on the treasury and it was decided to continue the policy for the present emeritus but not to pay the

assessment for any new ones. In 1963, the practice was liberalized to include any faculty member reaching emeritus status who had been an active member of the Chapter for 25 years and who was on the active roll at the time of his retirement. In most instances, this represented a grandfather clause for grandfathers.

Meanwhile, the National Society officially recognized emeritus membership and included it in the Constitution. Our delegate to the national convention in 1966 was instructed to raise the question of the assessment for emeritus members. At any rate, the Chapter Secretary was authorized to pay the assessments if the Society could not be persuaded to abandon them. The persuasion at that time was ineffective. In 1970, our Chapter had 42 emeritus members.

Membership Statistics

Statistics as to the number of initiates per year reveal little except a gradual increase which parallels the growth of the University. Taking a sample from 1913 to 1927, the number of full members elected per year averages 24 while associates average 23. From 1940 to 1946, the corresponding averages are 59 and 51. A sample from 1955 to 1965 yields averages of 85 and 86.

The increase in the averages is obvious and understandable. No trend is apparent with reference to the comparative number of full and associate members elected. In the 1940 to 1946 sample, the full members were slightly more numerous than the associates, but in the other samples, full and associate members were practically identical in numbers.

Initiation

The initiation of new members had always followed essentially the same pattern. The marshall or marshalls presented the candidates, the president of the Chapter said a few words of explanation and welcome, and the neophytes pledged collectively to uphold the principles of the Society. Occasionally, someone told them about the history of Sigma Xi. Prospective members with a good alibi could be initiated *in absentia*. Occasionally (in 1933 for example), the secretary mailed the prospective member a copy of the pledge and asked him if he agreed to it. Usually, the secretary did not take this precaution.

At the outset, one marshall handled all the initiates. In 1912, however, the student initiates were presented by CollegesCAgriculture, Arts, EngineeringCwith a different marshall for each college. This procedure was repeated in 1921. Presently, the initiation settled into the routine of having one marshall present the candidates for full membership and a second marshall present those for associate membership.

On a few occasions when faculty members were initiated, each of them gave a brief discussion of his current research. Short of that, the publications of the initiates were occasionally spread upon the minutesCsometimes pages and pages of them.

Initiates had the privilege of purchasing the insignia (key) upon authorization by the secretary. It is surprising how many keys were lost and had to be re-authorized by the secretary. One wife (1939) used a key replacement as a Christmas present. Perhaps some of this loss of keys was due to the obsolescence of the watch fob. A replacement for this method of display was noted in some official correspondence as a "dingle-dangle" and was exhibited at the national convention in 1955.

Beginning in 1906, the initiations were supplemented with food. This practice will be discussed in a later section. In 1951, the secretary referred to the "Initiation Service," obviously an unwarranted implication of religious overtones.

Sponsored Lectures

Another major function of the Chapter has been the promotion of lectures on scientific subjects. Many of these have been given by Chapter members, sometimes at a Chapter meeting and sometimes on a public occasion. Other lectures have been by scientists from outside the University and practically all of these have been open to the public. In the earlier years, the public evidently was quite receptive. At least, an entry in the secretary's report for 1913 regarding such lectures stated that "be the topic ever so specialized, a capacity audience is assured." This was not always the case in later years. At one lecture, catastrophe was averted by the presence of a delegation of students from Ohio Wesleyan. After such experiences, the Chapter gave more attention to the probable appeal of the lecture topic to the campus community. For example, a proposal (1953) for a lecture on 'pre-stressed concrete' was turned down because of its limited appeal.

The first Sigma Xi lecture noted in the records was by Professor Rutherford in 1904. It is scarcely worthwhile to list all the lectures sponsored by the Chapter through the years and a selection of the most important would reflect the bias of the "historian." Suffice it that there were several each year for the most part. However, the promotional efforts of the Chapter were reduced now and then. In 1916, some public lectures were being provided by the Engineering Lecture Course Committee and by the University Lecture Course committee both funded by the University. Sigma Xi felt that it was duplicating these other efforts and acted accordingly. Again in the early thirties, correspondence with the national office noted that our function of sponsoring lectures was being "usurped" by the Graduate School. Presently, Graduate School funds were curtailed and Sigma Xi was in business again. In fact, it sponsored three rather comprehensive symposia: Metabolism 1933, Nucleus of the Atom 1935 and Hormones 1937. These symposia were published in cooperation with the Ohio Journal of Science. Some lectures were sponsored and financed jointly with some other organization such as the American Chemical Society, the Ohio Plant Breeders Association, or The Institute for Nutrition.

Financing the various lectures was sometimes a major problem. When Professor Rutherford was secured for the first lecture in 1904, the program committee offered him \$100. It developed that the treasurer had only \$45, so the remainder was raised by assessing members \$1.00 each. Evidently, this assessment procedure was regarded with ill favor, for a year later when the Chapter wished to offer \$100 to Professor Ostwald of Leipzig, it was decided to raise the money by subscription. A member was appointed for each university building to solicit subscriptions there.

In 1908, the executive committee was successful in securing a fund of \$300 from Mr. J. C. Campbell of Columbus to finance lectures during the current year. Presently, the donor became still more generous and some lectures were given on the 'J. C. Campbell Foundation.' Resolutions of gratitude appeared in the minutes. Then in 1912, Mr. Campbell discontinued his support. The word was received when the Chapter was already obligated for fees for two lectures and it was "hoped that the Chapter can provide some way to relieve the committee of this obligation." Later an "unknown person" loaned us \$200 and presently changed this loan to a gift. As the Chapter grew and became more solvent, it was able to finance lectures without recourse to benefactors.

The advent of the National Lecture Tours reduced somewhat the burden of providing local lectures. The National Society secured speakers, submitted appropriate information to local chapters and then arranged itineraries to meet the interest and convenience of the chapters. The local group paid expenses and an honorarium. Our Chapter has participated extensively in this project through the years. We even contributed \$500 to the Society on one occasion for general promotion of the National Lecture Tours.

We were approached by the Kentucky Chapter in 1961 regarding a possible exchange of lecturers between the two chapters. We decided that if we were to go outside, it would be more important to arrange lectures for smaller Ohio colleges rather than collaborate with Kentucky.

Other Chapter Meetings

In the early years, the Chapter held occasional business meetings usually poorly attended. When the agenda included voting on the admission of new chapters to the Society, there were seldom enough members present to make the vote legal, so absent members had to be canvassed until the requisite number of favorable votes was obtained. As noted above, the creation of the Board of Electors for selection of new members stemmed from the meager attendance at the meetings where the whole Chapter voted on the neophytes.

The policy committee in 1916 viewed with some alarm the decreasing interest and poor attendance at various meetings of the Chapter. They were disposed to blame it on the Graduate School for funding lectures and promoting research and, thereby, relieving Sigma Xi members of responsibilities that might have brought them together.

At about this time, the chapter decided to try meetings at which members presented results of their own research. The motion to do this was amended to the effect that the speaker should also disclose his methodology. Somebody was alert. A few such meetings were held.

Another project in the thirties was for a department to have an "open house" for Sigma Xi members. This took the form of exhibits of apparatus, charts, photographs and, usually, a discussion period in which some members described their research. The departments of Physics, Chemistry, and Psychology held such open house programs.

Subsequently, efforts were made from time to time (as in 1955) to arrange informal meetings with a local speaker and with refreshments as a lure. These efforts were seldom successful. Apparently, it was difficult to promote much camaraderie among the "companions in research." It took an initiation banquet or a dinner honoring a visiting lecturer to get a group together. One possible explanation is that university personnel simply have too many irons in the fire. Another is that the members of this fraternity are selected on the basis of scientific performance rather than social sensitivity. These two variables are orthogonal.

Research of Members

Implicit in some of the foregoing activities of the Chapter was the hope that they might have side effects in the way of encouraging research by members. There was also considerable interest in making such research more widely known. In 1906, we sent the President of the University a request that he publish

in his annual report or elsewhere a list of all the publications of the teaching staff. The magnitude of such a project at that time might not have been prohibitive.

In 1911, we surveyed our own membership with reference to their research activity using the questionnaire technique. Of the 80 blanks sent out, 33 were returned. The committee concluded that 25 to 30 percent of the active membership "is in some ways engaged in or associated with research work." The implication was that this percentage was too small.

By 1914, note was taken of the heavy teaching loads which restricted research and the general lack of 'support' for research. A committee was appointed to consider the matter but presented "no report" for several meetings. Eventually, however, a committee of Sigma Xi met with a Graduate School committee and formulated a letter to the Board of Trustees. In 1918, a similar committee worked with the Graduate School in gathering information about funds available nationally for the support of research.

When the question of Sigma Xi fellowships arose at the national level, our delegate to the convention was instructed to suggest that funds should not be obtained by subscription but should be provided by the National Research Council (rather naive from the N.R.C.'s standpoint). However, the subscription method was approved. Some years later, one of our female members protested to the national office that she was not subscribing to the fellowship fund because no woman had ever received a fellowship. She was wrong and, after being furnished the appropriate details, came though with \$3.00.

Recognition of research by Chapter members took tangible form in 1969-1970. A Research Award was established for Chapter members less than 35 years of age based on their research accomplishments. A goodly number of nominations were received and the winner was presented with \$500 at the spring initiation in 1970.

Senior Prize

A prize was established in 1962 for a senior who had done some creditable research. The hope was to encourage undergraduate research other than that required for a degree. Announcement of the project was routed through Chapter members in the various department as well as department chairmen and college honors program committees. Categories used by the Committee on Awards in evaluating applications were: problem, method, conduct of the experiment, results, interpretation and conclusions. The first award (\$300) was made in 1964 but there were only two applicants. In 1966, there was only one applicant and the award was not made because the research "was not of sufficient merit." The future of the project appeared somewhat uncertain.

Relation to the National Society

The chapter secretary has maintained extensive contacts with the national office in the way of supplying and revising membership lists, paying assessments and securing insignia. We have been quite faithful in sending delegates to the National Convention. Sometimes, we have been able to afford two delegates.

On occasion, we have instructed our delegates meticulously, for example with reference to revision in the Constitution. We were also unequivocal in instructions on the matter of the proposed amalgamation of Sigma Xi and RESA. Our delegate in 1953 was instructed to "stand watch" against favorable action on

amalgamation. In subsequent years, the Chapter's attitude toward this rapprochement has been tempered somewhat.

Our delegates have differed considerably in official performance. One participated vigorously in all the discussions and submitted a ten-page report to the Chapter on his return. Another devoted himself to crossing every "t" and dotting every "i" in the documents that passed through his hands. Incidentally, he exercised this same facility at local faculty meetings.

Three national conventions have been held in Columbus, all in conjunction with national meetings of the American Association for the Advancement of Science.

The first was in August, 1899, the year after our chapter was formed and when there were still only seven other chapters in existence. Meetings were held at the Normandie Hotel and in Townshend Hall. Frank C. Caldwell, of the Omega (Ohio State) Chapter was secretary for that meeting. Most of the time was devoted to amending the Constitution. Chapters also reported on their "successful condition."

The second was in December, 1915. Members who had not been on campus since the 1899 meeting "were surprised and delighted at the enormous growth of the institution and at the character of the many new buildings which had been built since that day." Edward Orton, Jr., was a member of the Executive Committee as also was Fredric E. Kester of the University of Kansas, who had been Vice President of the Ohio State Chapter, 1909-10.

The third national convention held in Columbus, designated the 40th Annual Convention, was convened at the time of the AAAS meeting in December, 1939. Fifty-nine chapters and 14 clubs were represented by delegates, W. Conard Fernelius being the delegate from our Chapter. Kirtley Mather gave the Eighteenth Annual Sigma Xi Lecture on "The Future of Man as an Inhabitant of the Earth." In general, he was rather optimistic.

Financial Aspects

There is no point in listing annual balances in the treasury, but it may be noted that in the early years, the Chapter was far from affluent. In 1905, for example, the year ended with a deficit which was made up by an assessment. At about that time, as mentioned earlier, the Chapter offered an honorarium to an outside speaker when the treasury did not have that much money. In 1911, the initiation fee was reduced from \$5.00 to \$1.00 possibly reflecting the fact that many of the initiates now were students rather than faculty. At the same time, dues were raised from \$1.50 to \$2.00. Then in 1923, the initiation fee went up again to \$2.00. In 1925, a motion to raise the dues to \$3.00 was defeated. In 1958, by way of contrast, initiation fees were \$15 for full members and \$10 for associates.

The first mention of auditing the treasurer's books was in 1911. It was not until 1951 that the treasurer was bonded. In 1942, we began paying taxes on the insignia furnished to new members. In the war years, the Chapter invested some of its surplus in government bonds.

As in most organizations, an occasional member has been careless or otherwise delinquent in the matter of paying dues. In 1911, the Chapter passed a resolution that when a member had been in arrears for two consecutive years, "he shall be appropriately punished." Evidently, this resolution did not take care of the matter, for in 1916, teeth were added to the policy by adding a provision to the by-laws

that a member in arrears for over one year shall be dropped from the roster, but may be reinstated upon payment of his obligation. This led to at least one sour note, when in 1923, a dispute arose as to whether or not a certain worthy professor was delinquent and he resigned. Eventually, it was discovered that the treasurer was in error. An apology was made and the worthy professor became again one of us.

It-Would-Have-Been-Fun-To-Be-There Department

A few mildly amusing bits of behavior appearing the minutes of the Chapter may be noted:

The committee on selection of alumni members (1910) reported "no progress." The report was accepted, the committee was discharged and the president was ordered to appoint a new committee. This appears a promising method for expediting committee activity.

On at least one occasion (1915) parliamentary procedure ran wild. In connection with election of new members, D moved that the entire list be voted on as a whole. Motion carried. It was pointed out that according to the by-laws, the recommendations must be read. D then moved to suspend the bi-laws. Motion carried. G objected that he did not know some of the candidates. K then moved that the suspension of the by-laws be reconsidered. K was ruled out of order because he had voted for suspension. Thereupon, C, who had voted against suspension, moved to reconsider and his motion was recognized. It lost. Then information regarding certain candidates was read upon request and the election proceeded without further parliamentary contingencies.

Meetings began promptly in 1904. At the appointed hour, both the president and vice president were missing and the secretary called for nominations of a temporary chairman. The meeting proceeded forthwith and eventually the president arrived and took the chair.

On one occasion (1911) the members passed a motion by a "rising vote." This vote expressed appreciation to Mr. Campbell for financing some lectures. However, Mr. Campbell was not present to see the members rise. Perhaps they needed the exercise.

The president of the Chapter in 1915 could speak concisely and to the point. "While the tellers were counting the votes (for officers), the president made an address on the future of the society." What professional organizations need is more presidential addresses like this.

Food

It will be appropriate to conclude this historical sketch with an item that concluded many meetings of the Chapter, viz. food.

Two of the early presidents of the Chapter were affluent, or at least generous. After the election of officers and committee reports (1904), the members adjourned to another room in Orton Hall "as guests of President Orton and partook of a most delightful lunch." A year later, the members adjourned to an adjoining room (again in Orton Hall) "where a most enjoyable lunch had been provided by the thoughtful generosity of the retiring president" (Bownocker).

The foregoing occasions involved only the regular members and not the initiates. The first mention of food for the latter was in 1906 when a "luncheon was prepared in the laboratory rooms (Physics) and a

pleasant hour was spent in welcoming new members in an informal way." This evidently established a precedent and subsequent entries in the minutes refer to "lunch in an adjoining room," "simple luncheon on the third floor," and "luncheon and social hour."

It was in 1915 that the Chapter graduated from luncheon to dinner. On that occasion, the Chapter (which picked up the tab for the initiates) voted to pay 75 cents for the dinner. A year later, the function became a "banquet" (price unspecified). By 1927, the cost had climbed to \$1.00.

Except for the early luncheons in some classroom or laboratory building, the Chapter has utilized regular campus facilities such as the Old Ohio Union, Pomerene, Home Economics, Faculty Club and New Ohio Union.

Source of Materials

1. "Sigma Xi Half Century Record and History" by Henry Baldwin Ward and Edward Ellery, Union College, Schenectady, Published in Burlington, VT. 1936.
2. Minutes of The Ohio State Chapter 1904 to 1969.
3. Correspondence in the Secretary's files.