

A HISTORY
OF THE SCHENECTADY SECTION
OF THE
AMERICAN INSTITUTE
OF ELECTRICAL
ENGINEERS

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Covering the period of 1898 to 1944; including the
By-Laws adopted in 1916; the amendments of 1927,
1928, and 1930; and appendix 1 to 8, inclusive.

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PREFACE

In writing a history of any sort, one of the major problems encountered is the question of authenticity. In many cases where nothing has been written about an incident until much later, there are abroad many different versions of the original event from as many different sources as there were witnesses.

Fortunately, however, those who were approached for information concerning the Schenectady Section of the American Institute of Electrical Engineers agreed, with but few exceptions, on the facts as they are herein presented. We were indeed fortunate to interview, either by letter or in person, almost all of the past chairmen. Those to whom we went for information willingly gave it and helped immeasurably in collecting facts about the Schenectady Section.

The purpose of this History is not to list all the activities of each and every year, such as every topic discussed at the meetings, but to give an over all broad, authentic record of the most important events and the general trends that led to the building of the Schenectady Section as it is today.

We wish to thank H. M. Hobart, H. H. Race, E. S. Lee, R. Treat, P. H. Light, and T. M. Linville who went out of their way to supply us with information in detail. We hope that this History gives to its readers the same enjoyable interest that we had in preparing it.

Robert C. Berger

Schenectady, New York
January, 1945

A HISTORY OF THE SCHENECTADY SECTION OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

In the beginning—"The General Electric Engineering Society"

The first spark of an organized engineering society in Schenectady, New York, was kindled in the parlor of the old Edison Hotel, Monday evening, May 23, 1898. It was here that Mr. N. A. Thompson swung the gavel for the first time, calling to order the group of twenty-seven men assembled. Mr. Thompson proposed the names of Mr. H. W. Buck and Mr. J. H. Jenkins as temporary chairman and secretary respectively. No objections were raised and Mr. Buck took the chair.

The object and purpose of the proposed society were explained by the chairman and it was decided that the society be strictly engineering in nature, as opposed to a social club. Membership was limited to technical men employed by the General Electric Company.

A committee was appointed to draw up a constitution and by-laws and report its findings at the next meeting. In all there were three preliminary meetings during which time a room in the Arcade Building was fitted with furniture and stocked with the latest publications for members' use. The room was lighted by electricity, heated by a stove and equipped with janitor service. A running budget of \$350 per year was set up which covered the expenses of rent, light, heat, janitor, and stenographic service, which was to be paid by the annual dues of \$5 per member. The furniture, including desks, chairs, reading tables, and bookcase, were to be written off by an initiation fee of \$2 per member. Thus the General Electric Engineering Society was born.

On June 7, 1898, Mr. Buck was officially elected president of the society, with M. Oudin, Vice President, J. H. Jenkins, Secretary; and R. D. McCarter, Treasurer. The first regular meeting was called to order in Yates Boat House by President Buck, June 14, 1898. It was here announced that the reading room in the Arcade Building had been given up for a similar room in Room 9 of the Fuller Building, which had been fitted up with magazines and other engineering publications. As there was no business, Mr. Buck introduced the first speaker to appear before the newly organized society. Mr. C. P. Steinmetz lectured on "The Rotary Converter."

For the remainder of the year 1898, meetings were held in Yates Boat House. An average attendance of 80 persons per meeting was attained and the discussion was centered around the central station, a subject of prime interest in that day.

Mr. Buck was again elected president at the first annual meeting, February 6, 1899, and he remained president until the end of the year 1900. During the year 1900 the first "Smoke Talk" was inaugurated. These were informal "smokers" held in the club room at the Fuller Building. The first "Smoke Talk" was held March 28, 1900, and the subject discussed was "The Switchboard of the Metropolitan Station recently developed for New York City." The "Smoke Talks" became very popular and were held once a month.

At the third annual meeting, held January 29, 1901, J. H. Jenkins was elected chairman of the General Electric Engineering Society. In April of this year

As an innovation special committees on Factory Co-operation, on Apparatus, and on Classes were appointed during 1914-1915. The Factory Co-operation Committee issued complimentary tickets for one or more meetings to the Factory Superintendents, Foremen, and others of the General Electric's Factory Organization with the hope that these men would be interested in securing the advantages of the Section by becoming active members.

The Apparatus Committee was assigned the duty of obtaining and installing apparatus needed by lecturers for experimental demonstrations. The Classes Committee was formed to determine whether the Section members desired to organize classes and study subjects of general interest to members. Two classes, one in geology and one in photography, began holding regular meetings during the 1914-1915 season. The Ninth Season under the chairmanship of H. M. Hobart enjoyed considerable success and at this time the section was in flourishing condition in every way.

Following Mr. H. M. Hobart's successful administration L. T. Robinson held the chairmanship of the Schenectady Section for the season 1915-1916 and was followed by C. E. Eveleth in 1916-1917. Under these two leaders the Section still flourished with ever increasing popularity.

In 1917-1918 war was in the minds and hearts of everyone. It was during this year that W. L. Upson was chairman and war was much in evidence in the programs. The largest meeting this year was held in the Union College Gymnasium with a record attendance of approximately 1100. Simon Lake was the speaker. This meeting occurred just after the German Submarine "Deutschland" had made a spectacular visit to Baltimore and the country was very conscious of the submarine menace. After Chairman Upson introduced Mr. Lake as the inventor of the submarine, he said he thought the audience would rather lynch him than listen to him. Lake showed slides that made a successful meeting.

Despite many protests by those who thought it necessary to conserve food, the annual dinner was held. It was decided that everyone would have to eat somewhere and there might be other gains that should not be missed. H. M. Hobart spoke on the "Urgency of Thinking Internationally".

In the year 1918-1919, K. A. Pauly was chairman and during this season the section held one special and 14 regular meetings. Six of these were on electrical subjects, seven on general topics, and one was a smoker. The special meeting held April 23, 1910, was for the purpose of discussing with the Section representative questions taken up by the Committee on Development. Very little interest was taken in the meeting by the membership at large, only about 10% being present. Those who did attend, however, freely discussed the questions brought up. A committee was appointed to confer with Section representatives from among the local membership of other Engineering Societies to consider and recommend some form of local federation. This committee consisted of C. S. VanDyke, Chairman; L. T. Robinson; and W. L. Upson. The average attendance at the meetings was 279 and the greatest was 635.

The Section attended, by invitation, a meeting of the Society of Engineers of Eastern New York, held March 22, 1919. The subject: "War Aviation in Retrospect: Commercial Aviation in Prospect". The membership had been increased by 43 national members and 9 local members. The treasurer, by author-

ity of the Executive Committee, purchased a \$500 Victory Loan Bond, making a total of \$2,000 in Bonds held by the Section. The subjects of the speakers again fell among the war topics. Topics of outstanding interest included: "A Democracy at War", "Immigration After the War", "Electric Welding with Reference to Its Application to Shipbuilding," "The Sugar Industry," "Overseas Service with the 105th", and "Radio Apparatus for Aircraft and Ground Stations."

During 1920, H. R. Summerhayes was chairman and this year the Section was fortunate in having a number of interesting meetings with rather prominent speakers. Calvert Townley, at that time President of the National A.I.E.E., was among the more prominent and interesting speakers. It is interesting to note that his talk contained a prediction of the severe industrial depression which occurred in 1929, although Mr. Townley did not prophesy the exact date. During this year an understanding with the Pittsfield Section was inaugurated. It was decided to have meetings in Pittsfield and Schenectady on consecutive days at certain times during the year, so that when a prominent speaker came from some distance to address one of the sections he could also address the other section on the next day. Another matter of interest was a proposal by C. M. Ripley to start a movement to build a Schenectady Civic Center with a large hall in which conventions and meetings could be held. This received approval of our Executive Committee at the time but the Civic Center never became a reality. The average attendance at the 16 meetings during the season was 217, the lowest being 120 and the highest being 435.

THE STEINMETZ MEMORIAL LECTURE AND THE STEINMETZ MEMORIAL FELLOWSHIP

During the year 1922, when C. M. Davis was chairman of the Section, the outstanding meeting was one addressed by Dr. Millikan. At that time most of the physicists felt that they knew enough about electrons so that they could begin telling the engineering world something about their dimensions, weights, and so on, and Drs. Millikan and Compton were quite in demand as speakers before various engineering groups. Mr. Davis felt quite honored at the opportunity of introducing Dr. Millikan to the Schenectady Section and prepared what he thought were suitable introductory remarks. Everything went well and Dr. Millikan gave a very able and complete dissertation on electrons, explained in terms which most everyone thought he understood, concerning the structure of atoms, the weight, electric charge, size, and speed. In short he painted a very definite picture of the whole electron theory. During his presentation, and wishing to get the discussion that was to follow off to a good start, Mr. Davis was constantly on the lookout for an appropriate way to open the discussion. Just as Dr. Millikan closed his address Mr. Davis thought he had a brilliant idea and said somewhat as follows:

"Dr. Millikan has given us a very clear and comprehensive picture of electrons. He has told us their speed, their weight, and their number but he has neglected to tell us of their color."

Mr. Davis thought he had the doctor there and, in fact, was favored by a few smiles from the audience. Dr. Millikan however was more than equal to the situation and as he arose to reply he turned to Davis and said:

"Young man, I have just spent the last three-quarters of an hour describing the characteristics of electrons which would define their color if they were visible."

This comeback broke the ice for an otherwise formal discussion and got a laugh from the audience and the questions came thick and fast.

Probably the most important single project that got under way during the year 1923, when R. C. Muir was Chairman of the Schenectady Section, was the Steinmetz Memorial. The first thought was to establish a Steinmetz Memorial Fellowship, for which funds would be raised from external sources by the local Section, but which would be administered by the National A.I.E.E. The National Group appointed a committee of which Mr. Faccioli and Mr. Muir were members, but at the first and only meeting it developed that, in order for the National A.I.E.E. to sponsor such a scheme, local chapters would have to support Bell, Lamme, etc., memorials. This appeared too far reaching and the Schenectady Section decided to establish a memorial under its own administration. This was carried out in the following year, when Mr. Craighead was Chairman of the Local Section, in the form of the Steinmetz Memorial Lecture. However, the Section was able to interest Mr. E. W. Rice, Jr., in the fellowship idea and he in turn got the General Electric Company's support to establish the Steinmetz Scholarships. So two Steinmetz Memorials got under way in the year 1923: one sponsored by the General Electric Company in the form of Steinmetz Scholarships and the other sponsored entirely by the Schenectady Section of the American Institute of Electrical Engineers which carried through the following year under the leadership of Mr. Craighead, who was then Chairman of the Schenectady Section, in the form of the Steinmetz Memorial Lectures. They have been a tradition since their founding. Each lecture is delivered in Schenectady and is open to the public. Each is printed in bracket form for free distribution.

Another important contribution of the Schenectady Section in the year 1923 was the questioning of the then current method of nominating national officers for A.I.E.E. It was the custom for a few in New York, whom we chose to call the "Kitchen Cabinet," to act together and make these nominations for the President of the Institute. The Schenectady Section had a candidate whom we felt merited the position, but it was given little or no consideration. As a result, the officers of the Schenectady Section appointed John B. Taylor and R. C. Muir, a committee of two, to go to New York and argue the case. The result was that for that year neither the candidate that Schenectady wished to place for nomination, received the nomination. As a matter of fact, Mr. Taylor and Mr. Muir sat in with the "Kitchen Cabinet" and agreed to nominate Michael Pupin, but Taylor and Muir protested very violently against the method of nomination. Mr. Muir felt that this episode had a bearing on working out the present nominating system which followed shortly thereafter. As a matter of record therefore, the Schenectady Section was influential in changing the old system of nominating officers of the A.I.E.E. and in assisting to establish the present method.

During the year 1923 Schenectady had a very active branch, largely due to the fine work of the earlier administrations which had brought into the Institute a great many young members and had obtained their interest through offering a series of very fine meetings. Throughout the year the meetings were well at-

tended due to their fine character, and these proved of interest and assistance to its members.

In 1926, under the leadership of R. E. Doherty, the Schenectady Section sought to further interest the young members in the field of engineering work and activities of the Institute. During the season twelve meetings were held. Three of these were joint meetings with the American Society of Mechanical Engineers. The average attendance attained was 250 per meeting. It is interesting to note that the largest attendance was 500 and the subject was "Talking Motion Pictures", by C. W. Stone. A total of 400 attended C. E. Kettering's address on "Research Work in Automobile Building."

Under the leadership of E. S. Lee in 1928, in addition to holding regular meetings, it was found that officers represented the section in many affairs that ultimately were for the advancement of the Section. Among the extra curricular activities of the Section were the following:

A Committee was appointed from the Section on Symbols and Abbreviations and it was felt that the results would be of value to the electrical industry and a welcome contribution from the Schenectady Section.

The Schenectady Section acted as host to about 225 students in attendance at the Student Convention, District No. 1, held in Troy, New York, in May of 1929. The Local Section arranged for the entertainment of the students on the Saturday of the convention period.

The Local Section did what it could to help Radio Station WGY in its fight for recognition by sending a letter to Dr. J. H. Dellinger, Chief Engineer Federal Radio Commission, explaining the technical phases of the matter and bringing out the contribution of WGY to the art of radio broadcasting. The Schenectady Section was asked and did suggest the names of several engineers to act on the State Licensing Board to take the place of H. G. Reist who resigned.

The Local Section was also active in helping to prevent the passage of Senate Bill No. 1140 relative to the licensing of engineers. This would mean that every engineer and machinist in the State of New York would be required to be licensed before he could practice his profession. The Institute felt the provisions of the bill were much too far reaching. Incidentally the bill failed to pass.

Following the excellent administration of E. S. Lee, Robert Treat became chairman in 1929 and it was during his term of office that the Executive Committee decided upon a change in what might be termed the "policy and philosophy of section management". This change came as a suggestion from E. S. Lee the previous year. At the time the Section Constitution provided for one chairman and six vice chairmen. Apparently it had been the practice of the Nominating Committee to select for Chairman a prominent member of the Section which usually, although not inevitably, meant a prominent member of the General Electric Company and not much attention was paid to whether or not the nominee had taken any particular interest or activity in Section affairs theretofore. Vice Chairmen were also apparently selected on somewhat the same basis. Since the Constitution provided that the Chairman could not succeed himself, this meant each year the Section had a new Chairman who probably had not had much to do with running the Section and knew very little about it. Many prior Chairmen had taken the job as somewhat of an honor not requiring much effort on their part. Those who had conceived of the job as a responsibility as well as an honor became sufficiently familiar with their duties and with the

Section affairs to be reasonably proficient about the time their term of office expired.

The Executive Committee decided that this was not a very good policy and that the Section should strive for more continuity in Section management in the future. It was felt that it would be desirable that Secretaries should be chosen with the understanding that they would be willing to succeed themselves; in other words serve two years, although elected for one year at a time. The same for the Treasurer, and in addition a new Treasurer and a new Secretary should be chosen on alternate years so that the Treasurer would work with a Secretary who had had a year's prior experience and vice-versa. It was felt that there was no need for six Vice Chairmen, that there should really be one and that preferably the out-going Secretary or Treasurer, as the case may be, should be made Vice Chairman to serve for one year, the following year becoming Chairman. Thus, when a man became Chairman, he would have had three years' prior experience on the Executive Committee and thus be quite familiar with Section affairs. This also implied that each man nominated for Secretary or Treasurer should be selected on the basis that ultimately he expected to become Vice-Chairman and Chairman of the Schenectady Section.

It was also felt that it was desirable that the management of the Section should be placed on the shoulders of the younger members rather than the older members of the Institute, particularly in the case of the Chairman, since the older members of the Section, as mentioned above, had attained prominence usually in fields other than Section activities.

Obviously, the Executive Committee was not in a position to tie the hands of future Section Managements and Nominating Committees by legislation, but the above philosophy was evolved and was passed from one Section management to the next. The one thing which could be changed by legislation was the number of Vice Chairmen. At the time the Constitution provided for six Vice Chairmen and therefore had to be amended in order to change to one Vice Chairman. This amendment, which incidentally was passed, brought out a funny story which follows:

The Constitution provided that it could be amended by letter ballot. For an amendment to carry it was necessary that half the members of the Section vote and that, of the votes cast, two thirds must be favorable to the amendment. Thus, one third of the membership could amend the Constitution. When the letter ballot was sent out for the change in the number of vice chairmen only one third of the membership bothered to send in their ballots and all of those sent in were favorable. Thus, enough favorable ballots were received to pass the amendment, but because one sixth of the membership refrained from voting at all the amendment failed to pass. (Note: If one sixth of the membership had bothered to vote *against* the amendment it would have carried!) Since they didn't another ballot was sent out with urgent pleas to return same and then it was found that just enough votes came in to carry the amendment.

The Schenectady Section finances had always been in very good shape. Between receipts from local membership dues and what could be called from the National Institute there was always plenty of money for the Section's needs. In fact, it seemed to have been the custom during prior years to spend about \$200 less than income so that the Section had a very nice nest egg. To the Executive Committee this attitude toward finances did not seem right. While the Com-

mittee highly favored the principle of "saving up for a rainy day," on the part of an individual or commercial concern, it could not see any particular reason why the Schenectady Section should be interested in saving money for its old age or for posterity. It was decided that the Section would demand from National Headquarters, not the maximum to which it was entitled on the basis of membership, but only enough to keep the Section on an even keel and out of the "red".

The Founding of the Schenectady-Pittsfield Competitions

It was during the year 1929 that the younger members' competition with the Pittsfield Section was started. The reason for starting these competitions was the feeling that engineers, in general, did not do a very good job when it came to standing up in public and delivering a paper. These competitions proved very successful from the start and a great many young men in both the Pittsfield and the Schenectady Sections have profited from the experience that they received. The members of the Pittsfield Team won the first contest and cash prizes were awarded to the high ranking speakers.

In 1930, E. S. Henningsen was elevated to the chairmanship and, despite the economic depression with the resulting reduction in engineering personnel, the Schenectady Section had a very successful year. A total of eleven meetings was scheduled and became a reality. The best and most interesting meetings were the Pittsfield-Schenectady Papers Competitions for the younger members of the Institute. It was during this second year of competition between the two sections that the F. W. Peek Cup was placed in competition to be permanently retained by the team which first received two victories. Pittsfield's triumph of the previous year was counted as one contest for the cup. Schenectady won the next two successive years and won permanent possession of the trophy.

In the fourth year the Robert Treat Cup was offered. Pittsfield immediately won permanent possession of this cup with two successive victories. The sixth year the F. F. Brand Cup was donated with Pittsfield gaining the initial victory. Schenectady won the next year, giving each section one win for the third trophy with one trophy in possession by each Section. The following year Schenectady won permanent possession of the Brand Cup.

In 1938 a new cup was donated by E. S. Lee. Contests were won by Pittsfield in 1938, Schenectady in 1939, and the Cup was retired to Schenectady at the 11th competition in 1940. The two Sections then jointly donated a plaque which was placed in competition to cover 10 or 15 years and to be awarded to the winner each year. No definite plans were made for the retirement of this trophy. Pittsfield won in 1941, making a total of six contests won by each side. Pittsfield won in 1942, '43 and '44, making a total of 9 contests for Pittsfield and 6 for Schenectady.

In 1942 an additional papers competition was inaugurated to be held annually between the Schenectady, Pittsfield, and Lynn Sections. A plaque donated by P. L. Alger which is to be acquired after three victories by one team—not necessarily successive. This trophy was won by Schenectady, in 1942, by Pittsfield in 1943, and in 1944 a tie between Schenectady and Pittsfield, putting the trophy in the possession of each for one-half year. In 1943 and '44 the competition was held as part of the program of the District Technical Meeting.

and proved so successful that undoubtedly it will be a scheduled event on the program of future District Technical Meetings.

Preliminary papers competitions are held within each Section and are open to all members under 30 who have not presented an Institute paper. Teams of 6 are selected with 2 alternates and the written papers and oral presentation are judged by 6 judges, two from each Section.

In 1944, women engineers competed for the first time and both the Schenectady and Pittsfield teams had one feminine member (to the disappointment of the other as each lady was an asset for her team and credit for introducing women had to be shared with the other team). On merit and skill both women took honors.

Each contestant is awarded a book of his choice and there are prizes of \$15 and \$10 awarded for the best paper and best presentation. In the bi-sectional competition 3 members of each team compete before each Section. In tri-Sectional competition 2 members of each team compete at the tri-Sectional meeting. A revision of this plan that has been given consideration is to have 2 members of each team compete before each of the three Sections.

Coordination of the Engineering Societies in Schenectady

For several years there was criticism from the older members that there were many engineering meetings in Schenectady, with few of them well attended. To improve this situation in 1929 the Section attempted to plan a joint program with the A.S.M.E. but with very indifferent success. In 1930, as a result of several conference with the officers of the local A.S.M.E., the decision was reached that some form of joint engineering activity should be attempted. The problem was taken up with the national secretaries who commended the idea and who gave considerable detailed information regarding the Federated Engineering Societies of various cities. As a result of this discussion a meeting was called on June 9, 1931, of the Executive Committees of the two societies, together with Elected officers for the coming year, at which the following resolution was adopted:

"Resolved, that the Local Section of the A.S.M.E. and A.I.E.E. form a Coordinating Committee consisting of three members from each Section who shall be the Chairman, Secretary, and Treasurer of the Program Committee. The function of the committee shall be to coordinate the activities of the two societies and bring them into closer relationship on such matters at joint meetings and to serve as a medium of exchange of views on matters of general interest to all engineers or any other matter that may advance the general welfare of the Sections. This committee shall be considered as constituted upon the approval of the Executive Committees of the two Sections."

This, then, was the first definite move in Schenectady to coordinate all the engineering societies.

Mr. R. A. Beekman took office as chairman in 1931 and the coordination of the A.S.M.E. and the A.I.E.E. became a reality. Thus the policy of coordinated meetings was definitely established and meetings were held in accordance with the policy set up in previous years by Mr. Henningsen and Mr. Treat. There were three objects in carrying out this arrangement:

- (1) An effort to increase the attendance at the meetings;
- (2) To reduce the number of meetings of this nature in Schenectady, arising from the independent action of the various societies; and
- (3) To broaden the choice of subjects and speakers to make an appeal to a larger group.

The committee consisted of Mr. P. H. Knowlton (A.S.M.E.), chairman, and Mr. E. P. Nelson (A.I.E.E.), secretary. Expenses were divided between the two societies equally. The announcements bore the insignia of both societies and the publicity was handled by Mr. Chart who was a member of both societies. The secretaries of both sections divided the work and all in all the first year of coordination between the two sections proved very successful.

In 1933 Mr. D. W. McLenegan became Chairman of the Section and it was the objective during this year to make the local meetings of interest to the younger engineers whose engineering viewpoint might otherwise be limited rather closely to their jobs, whereas the most of the older members had wide engineering contacts outside their immediate work. Therefore, most of the program were on matters of general engineering interest rather than on specific electrical engineering subjects. No particular attempt was made to change the constitution and by-laws, although there was talk of coordinating all the engineering societies into one council.

In 1934, during F. A. Hamilton's administration, definite steps were taken to coordinate all the engineering societies of Schenectady. Letters of invitation were sent to the following men to attend a dinner meeting at the Mohawk Club on Monday, October 22, 1934:

Prof. Warren C. Taylor, Union College—President Civil Engineers
 W. E. Johnson—Chairman, Schenectady Section A.S.M.E.
 W. K. Kellogg—President, Schenectady Chapter A.S. of M.
 V. T. Chapman—Executive Committee A.W.S.
 F. A. Vernon—Executive Committee N.Y.S.S.P.E.
 E. Glidden—President Society of Engineers of Eastern N. Y.
 F. A. Hamilton—Chairman Schenectady Section A.I.E.E.

Among the several subjects discussed were:

1. There would be considerable advantage in coordinating the programs of the several societies.
2. It should be possible to schedule the meetings of the several societies on successive Thursday evenings, thus preventing the scheduling of more than one meeting on the same night and thus promoting the general reservation of Thursday as Engineering Night.
3. Each society when sending out its own announcements could list subsequent meetings of other societies.
4. More meetings could be held under joint sponsorship, thereby increasing attendance and making it possible to attract better speakers.

The American Welding Society and the N. Y. State Society of Professional Engineers joined in the coordination and the Committee was enlarged.

Early in 1943 the coordinating committee was transformed into a formal organization known as the Schenectady Engineering Council, operating under a

ratified constitution, and T. M. Linville, chairman A.I.E.E., was elected first chairman. This transformation was done in order to put the program of coordination on a firmly established basis and to bring the engineering societies of Schenectady together as a recognizable group under leadership having constitutional responsibilities. It was also intended to give the Engineering Societies recognized standing in the community as a group and, through a Public Affairs Committee, to keep the engineers informed of community affairs and to be helpful wherever possible. Other purposes were to provide economies through joint publicity, to put the finances on a sounder basis, and to provide means for joint action by the Engineering Societies, especially on matters relating to student guidance, engineering education, vocational training, and professional recognition. The Section was responsible for the establishment of this Council and in the future will be largely responsible for its success. In its first year membership was enlarged to include, in addition to the original four societies, the Am. Chemical Society, the Soc. Automotive Engrs., and the Am. Society of Tool Engrs. Each society has two representatives serving overlapping terms of 2 years each. Four of the societies participate in coordinated programs, expenses are prorated in proportion to membership, announcements and publicity by each society are forwarded to the others, and recognition of each individual society for the activity which it initiates or sponsors is sought.

THE LAST EIGHT YEARS

In the year 1935, when Dr. H. H. Race was Chairman, Harold E. White of Wilkinsburgh, Pennsylvania, located and turned over to E. S. Lee the first books containing the minutes of the old General Electric Engineering Society and the information concerning the merger with the Schenectady Section in 1903. It was from these records that the material for the early part of this thesis was extracted.

Dr. Race was directly responsible this year in promoting and installing the student branch at Union College. The students at the time were very much interested and enthusiastic over the formation of a branch at Union College.

On March 20, 1936, the observance of the fiftieth anniversary of the Transformer was observed. The object of the meeting was to honor William Stanley, the inventor of the Transformer, and to show the social significance of the vast electrical system of which the transformer is the "heart". The program consisted of the following:

1. Resume of the paper by Scott and Chesney on the "Historical Development of the Transformer to 1895".
2. "Development of the Transformer Since 1895" by L. A. Hawkins.
3. "Transmission and distribution systems made possible by the Transformer" by D. K. Blake and Robert Treat.

In 1936 the finances of the Section were at a low ebb due in part to the strain of the depression years. Since then the Executive Committee each year has made a special effort to build up reserve funds so that a similar low ebb will not occur again. It is interesting to note the difference in attitude between interested in "saving money for its old age or for posterity." These funds have this year and the year 1929 when the Schenectady Section seemingly was not

accumulated and at the annual meeting in June 1943 the treasurer was directed to buy a United States War Bond at the purchase price of \$750. This was approximately 50% of the accumulated reserve fund.

In 1939 the General Electric Engineers Association was established, not by the Section, but worthy of note because many of the members were also members of the Association. Its object is to promote better understanding between engineers and management. It has held meetings and dinners somewhat similar to those held by the Section. The good service that such an association can render has been the subject of much discussion amongst members of the Section and many members have joined to work out the worth of its existence for themselves and to help determine its objectives.

The Section was host to the North Eastern District Technical Meeting, April 29 to May 1 inclusive, 1942. The meeting was one of the first District Meetings to follow the outbreak of the war and turned out to be the best attended and one of the most generally successful conventions ever held in the District. A full program of technical and social events was scheduled at a total expense of \$1700. A profit of \$72 was turned over to the Section Treasurer, although customarily such excess funds go to the District Treasury. The convention closed with the Annual Schenectady Engineers Spring Dinner Dance at the Mohawk Golf Club which turned out to be a beautiful and memorable occasion.

On April 15, 1943, the Section was host, with other engineering societies, at the North Eastern New York State War Production Conference. This was initiated by the Section and organized with the help of other engineering societies so that the industries in the region could talk over and solve together their war production problems. Ten separate discussion meetings were organized, including a dinner attended by 200 persons and addressed by the National President of the American Society of Mechanical Engineers. About 60 industrial companies, represented by over 336 employees, participated.

The membership of the Section was reviewed in the early part of 1943 for the purpose of determining those members eligible for transfer to higher grades and to list those persons in the community who were outside of the Section but were eligible for Institute membership.

Although advancement or election to the member grade is considered to be the individual responsibility of the candidate, the Section is considered directly responsible for calling to the attention of its members their eligibility for transfer and for placing application blanks at their disposal.

In spite of war time difficulties attendance jumped up markedly. The program was carefully scheduled so that one A.I.E.E. function took place each month with regularity. At two technical meetings and at one general meeting the attendance was close to 200. At the five customary discussion meetings the attendance averaged 141, while an average of 35 attended the dinners that preceded these discussion meetings. During the administration of T. M. Linville, 1942-43, in addition to the foregoing activities, the facts connected with the inception and development of the Section were gathered together along with authentic documents, records, policies, and customs.

During the administration of O. C. Rutledge (1943-44) despite the drain of younger members to the armed forces and the pressure of work the Schenec-

tady Section had 630 national members and held 9 regular meetings with an average attendance of 159. An outstanding meeting was held with members of the Student Branch at Union College. The students were guests at dinner and at a lecture on electronics. Everyone present heartily recommended that this be repeated each year and also be done for the members of the student branch at R. P. I.

Mr. L. A. Umansky, chairman for 1944-45, with the approval of the Executive Committee, has organized two technical groups, on Aviation and on Industrial Electronics.

These groups are to hold a series of informal meetings or conferences, open to all members of the Section, for a round-table-discussion of their respective fields of applied electricity. In this manner, it is expected that a greater number of members will be drawn into Institute activities. These conferences will not interfere with the regular meetings of the Section. Additional technical groups will be formed to suit the demand.

It is interesting to note the various changes in attitude from year to year, how history vividly repeats itself during the eras of the two world wars, and how the Section has ever strived for bigger and better things. The Schenectady Section has a truly remarkable record, as evidenced by its achievements. Many great men have had a hand in its development and others will follow to keep its standard high.

APPENDIX 1

The By-Laws of the Schenectady Section of the American Institute of Electrical Engineers

Adopted August 2, 1916
Amended 1927, 1928, 1930



ARTICLE I

Name—This organization shall be known as the Schenectady Section of the American Institute of Electrical Engineers.

ARTICLE II

Objects—The Section is organized, in accordance with the Constitution and By-Laws of the Institute, for the purpose of more effectually carrying out the aims of the Institute in and around Schenectady.

ARTICLE III

Membership—There shall be three grades of membership, namely: National Members, Student Members, and Local Members.

Any Fellow, Member, or Associate of the A.I.E.E. residing in the territory of the Section becomes a National Member of the Section by virtue of his membership in the Institute.

Any enrolled student of the A. I. E. E. residing, or attending a technical school or college, in the territory of the Section may become a Student Member of the Section.

Any person residing in the territory of the Section and interested in the study or in the application of electricity is eligible to become a Local Member.

Student and Local Members shall be entitled to all the privileges of the Section except those of voting and holding office.

ARTICLE IV

Officers—The officers of the Section shall be: Chairman, Vice-Chairman, Treasurer, and Secretary, who shall hold office for one year.

Their terms of office shall begin on the first of August.

Any officer except the Chairman shall be eligible for re-election.

Past Chairmen are eligible to office.

THE CHAIRMAN, or, in his absence, the Vice-Chairman, shall preside at meetings of the Section. The Chairman shall represent the Section as official delegate at the annual Convention of the Institute, or, if unable to attend the Convention, he shall appoint the Vice-Chairman as official delegate.

THE TREASURER shall collect and, under the direction of the Executive Committee, disburse the funds of the Section, and keep regular accounts thereof, which shall at all times be subject to the examination of the Executive Committee.

ARTICLE VII

Place of Meeting—Unless otherwise provided by the Executive Committee, Section meetings shall be held in the Edison Club Hall, 60 Washington Avenue, Schenectady.

Admission to Meetings shall be by membership cards, countersigned by the Secretary.

ARTICLE VIII

Dues—Since a portion of the dues paid to the Institute by National Members of the Section is available to the Section in case of need, National Members are exempt from dues to the Section. The dues for Student Members shall be \$1 per annum.

The dues for Local Members shall be \$2 per annum.

Any member dropped for delinquency in dues shall not be restored to membership except upon payment in full of the amount due at the time he was dropped from membership.

Dues are payable in advance.

On the first day of each year, or within one week thereafter, the Secretary shall send out notices that dues for that year are payable. If said dues are not paid on or before the first day of February, a second notice shall be sent out. If said dues are not paid on or before the first day of March, the names of the members in arrears shall, thereupon, be posted. If any member shall be still in arrears after his name has been posted one month the Secretary shall bring his delinquency to the attention of the Executive Committee for appropriate action.

Membership cards shall expire on December 31st of each year.

ARTICLE IX

Election of Officers—A Nominating Committee consisting of five (5) National Members shall be appointed by the Chairman each year not later than February 1 to formulate a list of one or more nominees for each of all offices to be filled at the annual election. Two (2) members of the Nominating Committee shall be the two (2) available Junior Past-Chairmen and the remaining three (3) shall be selected at large. The senior of the Past-Chairmen serving as members of the Nominating Committee shall be its chairman. As soon as the appointments have been made, the Secretary shall make known to the members of the personnel of the Nominating Committee and at the same time extend to them an opportunity to recommend candidates for the offices to be filled. Such recommendations are to be addressed to the Chairman of the Nominating Committee. All written recommendations received not later than February 20 shall be considered by the Nominating Committee before the selection of its nominees is made. The Secretary shall make known to the members, not later than March 15, the Nominating Committee's nominees.

Other nominations may be made by petition and the names of all persons so nominated, qualified and willing to serve, shall be added to the ballot. Each petition must be signed by not fewer than twenty-five (25) National Members and received by the Secretary not later than April 1.

The Secretary shall send to each National Member, before April 10, a ballot bearing the names of the nominees proposed by the Nominating Committee and by petition, duly identified. Also, there shall be provided on each ballot a

blank space for each office to be filled. In these spaces a voter may write the names of any persons, qualified to hold office, whose names are not printed on the ballot and for whom he wishes to vote. A ballot prepared in this manner and duly marked shall constitute a valid vote for the persons designated on the ballot.

Ballots, to be counted, must be received by the Secretary not later than April 20. The Secretary shall promptly, after that date, deliver the ballots to three (3) tellers, appointed by the Chairman, who shall report the results of the election to the Secretary for announcement at the Annual Meetings of the Section.

ARTICLE X

Vacancies—If the Chairmanship becomes vacant, the Executive Committee shall select a Vice-Chairman to fill the vacancy. In case of vacancy in any of the other offices, the Chairman, with the approval of the Executive Committee, shall appoint the necessary person or persons to serve the remainder of the term.

ARTICLE XI

Amendments—These By-Laws are subject to the Constitution and By-Laws of the American Institute of Electrical Engineers and any amendment of the Constitution and By-Laws, shall, ipso facto, amend these By-Laws to the extent necessary to eliminate the conflict.

Amendments to these By-Laws may be proposed by letter to the Secretary, signed by not fewer than twenty-five (25) National Members. Upon such proposal the Secretary shall, within thirty days, take a letter ballot of the National Members. To carry the proposed amendment, two-thirds of the votes cast must be favorable and the total number of votes cast must be not less than one-half the National membership.

The Secretary shall include (at the expense of the Section) with any amendment submitted, when requested, a statement in support of the amendment by those who have proposed it and an expression of opinion by the Executive Committee regarding it, provided they do not exceed 200 words apiece.)

APPENDIX 2

RECORD OF STEINMETZ LECTURES

First Lecture, May 8, 1925

Michael I. Pupin, Ph.D., Sc.D., LL.D.

"Law, Description and Hypothesis in the Electrical Science"

Second Lecture, April 23, 1926

Ernst J. Berg, Sc.D., M.E.

"The Solution of Transient Phenomena by Elementary Mathematics"

Third Lecture, April 20, 1927

Robert A. Millikan, Ph.D., Sc.D., LL.D.

"Spectroscopic Prediction"

Fourth Lecture, April 14, 1928

Max Mason, B.Litt., Ph.D.

"Substitutes for Experience"

- Fifth Lecture, March 8, 1929
Dexter Simpson Kimball, A.B., M.E., LL.D.
"Modern Engineering Economics"
- Sixth Lecture, March 7, 1930
William E. Wickenden, D.Eng., D.Sc.
"Discipline or Discipleship"
- Seventh Lecture, November 18, 1932
Karl T. Compton, Ph.D., Sc.D., D.Eng., LL.D.
"The Battle of the Alchemists"
- Eighth Lecture, January 10, 1934
C. E. Kenneth Mees, D.Sc.
"Scientific Thought and Social Reconstruction"
- Ninth Lecture, March 14, 1935
Robert E. Doherty, M.M.
"An Undeveloped Phase of Engineering Education"
- Tenth Lecture, April 20, 1936
Gerard Swope, D.Sc., LL.D.
"An Engineering View of and from Steinmetz"
- Eleventh Lecture, April 6, 1937
Harold G. Moulton, Ph.D., LL.D.
"Engineering Progress and Economic Progress"
- Twelfth Lecture, March 3, 1938
Igor I. Sikorsky
"Science and the Future of Aviation"
- Thirteenth Lecture, November 2, 1939
Frank B. Jewett, Ph.D., Sc.D., LL.D.
"The Technical Significance of the First Transcontinental Telephone Line"
- Fourteenth Lecture, March 13, 1941
Frank Howard Lahey, D.M., Sc.D.
"Modern Medicine and Surgery—Its Progress and Place in a Community"
- Fifteen Lecture, April 30, 1942
Comfort A. Adam
"Cooperation Versus War"
- Sixteenth Lecture, June 17, 1943
H. W. Dodds
"The Post War World and the American Tradition"
- Seventeenth Lecture
Stephen S. Wise
"Man Moves Forward"

APPENDIX 3

The Chairmen of the Schenectady Section of A.I.E.E.

1903 —C. P. Steinmetz	1924-25—J. R. Craighead
1904 —C. P. Steinmetz	1925-26—W. J. Davis
1905 —C. P. Steinmetz	1926-27—R. E. Doherty
1906-07—D. B. Rushmore	1927-28—T. A. Worcester
1907-08—D. B. Rushmore	1928-29—E. S. Lee
1908-09—E. J. Berg	1929-30—R. Treat
1909-10—M. O. Troy	1930-31—E. S. Henningsen
1910-11—E. A. Baldwin	1931—R. A. Beekman
1911-12—E. B. Merriam	1932-33—E. E. Johnson
1912-13—J. B. Taylor	1933-34—D. W. McLenegan
1913-14—G. H. Hill	1934-35—F. A. Hamilton
1914-15—H. M. Hobart	1935-36—H. H. Race
1915-16—L. T. Robinson	1936-37—C. M. Foust
1916-17—C. E. Eveleth	1937-38—S. A. Holme
1917-18—W. L. Upson	1938-39—C. E. Kilbourne
1918-19—K. A. Pauly	1939-40—C. W. LaPierre
1919-20—C. S. VanDyke	1940-41—E. M. Hunter
1920-21—H. R. Summerhayes	1941-42—D. E. Chambers
1921-22—S. H. Blake	1942-43—T. M. Linville
1922-23—C. M. Davis	1943-44—O. C. Rutledge
1923-24—R. C. Muir	1944-45—L. A. Umansky

APPENDIX 4

TRUST AGREEMENT

Steinmetz Memorial Lecture Endowment

Agreement and Declaration of Trust made this 13th day of April, 1927, by and between the Schenectady Trust Company, of Schenectady, New York, and the Schenectady Section of the American Institute of Electrical Engineers, hereinafter called the Institute, as follows:

1. This Institute has solicited and collected by public subscription and otherwise a fund amounting to \$10,000 which it has paid to the Schenectady Trust Company as Trustee hereunder for the purpose of establishing and maintaining in perpetuity, a fund to be known as the Steinmetz Memorial Lecture Endowment, the income of which shall be applied from time to time, to pay the expenses of a public lecture in the City of Schenectady to be arranged by the Institute on a subject suitable to commemorate the services of the late Dr. Charles Proteus Steinmetz.

2. The Trust Company, herein called the Trustee, hereby accepts said trust and covenants with the Institute that it will receive and hold said money so received or at any time hereafter received for such purpose, in trust to invest, reinvest and manage the same and to apply the net income therefrom in perpetuity to the payment of the expense of said lectures to be known as the Steinmetz Memorial Lectures, either by direct payment or said expense or by paying the amount thereof to the Institute as hereinafter provided.

3. The Trustee shall, in no event, be obligated by any act of the Institute or any other person or corporation within the prior written consent of the Trustee, and the Institute covenants with the Trustee that it will apply all moneys received from the Trustee to the carrying out of the purposes of the Trust.

4. Should the Institute at any time cease to exist, or fail for a time deemed by the Trustee unreasonable, to arrange for lectures, its functions under this instrument may be exercised by the President of Union College, or by the Trustees, as the Trustee may elect.

5. The Trustee shall be entitled to reasonable compensation for its services and may employ in the execution of the trust such agents and attorneys as may be necessary. It shall not be responsible except for its own willful misconduct nor for the acts of agents or attorneys selected by it with reasonable care. All responsibility on the part of the Trustee for the application of the income from this trust shall cease when it shall have paid income to the Institute or deposited the same to its account in a bank or trust company designated by the Institute on the Certificate of the Institute that the money is to be used for the purpose of paying the expenses of lectures given pursuant to this Declaration of Trust.

This agreement shall inure to the benefit of and be binding upon the respective heirs, executors, administrators, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above written.

SCHENECTADY TRUST COMPANY

By (Signed) *Edward T. Rice,*
Vice President

Attest: (Signed)

W. M. Wemple,
Asst. Sec'y.

SCHENECTADY SECTION OF THE
AMERICAN INSTITUTE OF ELECTRICAL
ENGINEERS

By (Signed) *R. E. Doherty,*
Chairman.

COUNTY OF SCHENECTADY)
STATE OF NEW YORK) SS:

On the 13th day of April in the year 1927 before me personally came (signed) Edward T. Rice to me known, who, being by me duly sworn, did depose and say that he resides in Schenectady; that he is the Vice President of the Schenectady Trust Company, the corporation described in and which executed the above instrument; that he knows the seal is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order.

(Signed) *Laurence S. Magner,*
Notary Public.

COUNTY OF SCHENECTADY)
STATE OF NEW YORK) SS:

On the 13th day of April in the year 1927 before me personally came (signed) R. E. Doherty to me known, who being by me duly sworn, did depose and say that he resides in Schenectady; that he is the Chairman of the Schenectady Section of the American Institute of Electrical Engineers, the Association described in and which executed the above instrument; that said Association has no seal and that he signed his name thereto by order of the Board of Directors of the Association.

(Signed) Laurence S. Magner,
Notary Public.

APPENDIX 5

*Locations of District (Technical) Meetings
or Summer Conventions* Held in District No. 1*

DATE	LOCATION
1924	Worcester
1925	Swampscott (Boston & Lynn)
1926	Niagara Falls
1927	Pittsfield
1928	New Haven
*1929	Swampscott (Boston & Lynn)
1930	Springfield
1931	Rochester
1932	Providence
1933	Schenectady
1934	Worcester
*1935	Ithaca
1936	New Haven
1937	Buffalo
1938	Pittsfield
1939	Springfield
*1940	Swampscott (Boston & Lynn)
1941	Rochester
1942	Schenectady
1943	Pittsfield
1944	Boston

APPENDIX 6

Holders of National Offices—Schenectady Section

P. L. Alger.....	Director
A. H. Armstrong.....	Manager and Vice President
F. F. Barton.....	Vice President and Director
W. L. R. Emmet.....	Vice President
S. D. Greene.....	Manager
H. M. Hobart.....	Manager and Vice President

E. S. Lee.....	Director and Vice President
C. S. Ruffner.....	Manager and Vice President
L. T. Robinson.....	Manager and Vice President
E. W. Rice, Jr.....	President
D. C. Prince.....	Director and President
C. P. Steinmetz.....	Manager, Vice President and President
A. C. Stevens.....	Director and Vice President
C. W. Stone.....	Manager and Vice President
J. B. Taylor.....	Manager and Vice President

APPENDIX 7

RECORD OF

Pittsfield-Schenectady Papers Competition

	<i>Trophy</i>	<i>Pittsfield</i>	<i>Schenectady</i>
1930	F. W. Peek Cup	x	
1931			x
1932	(Retired to Schenectady)		x
1933	Robert Treat Cup	x	
1934	(Retired to Pittsfield)	x	
1935	F. F. Brand Cup	x	
1936			x
1937	(Retired to Schenectady)		x
1938	E. S. Lee Cup	x	
1939			x
1940	(Retired to Schenectady)		x
1941	Plaque*	x	
1942		x	
1943		x	
1944		x	

*No plans for retirement.

Pittsfield-Schenectady-Lynn Papers Competition

	<i>Trophy</i>	<i>Pittsfield</i>	<i>Schenectady</i>	<i>Lynn</i>
1942	P. L. Alger Plaque*		x	
1943		x		
1944		0	0	

*To be retired after three victories by one team (successively or not).

0Tie: each section holds trophy 6 months.

APPENDIX 8

The Administration and Practices of the Schenectady Section

The affairs of the Section are directed by the Executive Committee consisting of the elected officers and the two junior past chairmen. Customarily all committee chairmen are also invited to meetings of the Executive Committee and their votes counted in making decisions. The affairs of the Section are executed by the chairman, vice-chairman, secretary and treasurer, who carry out the direction of the Executive Committee in addition to their constitutional responsibilities. Standing committees are executive, program, entertainment, and membership. Special committees are appointed as needed, by the chairman, with the approval of the executive committee. Customarily there is a special

committee for technical discussion meetings, one for the Schenectady-Pittsfield papers competition, one for the Steinmetz Lecture, and one for the Steinmetz Trust. In addition there are two representatives to the Schenectady Engineering Council. In cooperation with the other engineering societies in the Council all meetings and functions are scheduled for Thursday night, as far as possible. Thursday night has become established and recognized in the city as the night when engineering meetings are held, and thereby conflicts with other activities in the city are avoided.

It is required by the local by-laws and by the rules of the National Organization that an annual business meeting of the Section be held. A report of this meeting must be sent to the National Secretary. Customarily it is held at the first meeting in the fall, as a part of the annual smoker. It must be held then unless otherwise specified by the Executive Committee, as was done in 1942-43. The fiscal year of the Section runs from August 1 to July 31 to coincide with the method for appropriating Institute funds for the support of the Section. The Institute appropriates \$175 for each Section plus \$1 for each Institute member who shall reside within the territory of the Section at the beginning of the Administrative year—namely August 1. The remittance is received in October from the National Treasurer in an amount equal to one half of the total appropriation. When these funds have been expended an accounting must be made through the National Secretary whereupon a remittance of the balance of the appropriation for that year will be received. Expenses must be reported to the National Secretary equal to the total appropriation to which the section is entitled or else the full appropriation will not be received. Customarily all regular expenses of the Section are reported to the National Secretary equal to or exceeding the total appropriation.

By skillful management, securing income from other sources a number of executive committees have caused the total income to exceed the total expenses in order to build up reserve funds for the purpose of tiding the Section over lean years which in the past have forced some Sections to call upon the Institute for more than the regular financial assistance or to operate in arrears.

Customarily the Section holds meetings under its sponsorship at least at regular monthly intervals, from October to May inclusive, with additional meetings and functions scheduled as is appropriate. Custom has established the holding of a smoker to initiate the year's program, and a banquet or dinner dance to conclude it. A dance at the beginning of the year has proved to be in demand and is to be recommended.

A brief report mailed annually to the members of the Section, in conjunction with the announcement of the Annual Meeting, has been found good practice.

The District Executive committee meets one or more times a year and the Section sends three men once each, or the equivalent thereto, to such meetings at Institute expense. The Chairman of the Section, or person appointed by the Executive Committee of the Section, functions as a member of the District Executive Committee. A delegate (customarily the incoming chairman) is sent to each national summer convention at Institute expense.

The Section Chairman must appoint, not later than February 1 each year, a nominating committee in accordance with Article IX of the By-Laws (Appendix 1). Election of officers is held in accordance with the provisions of Article IX and the term of office begins August 1.