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## Charles Proteus Steinmetz Collection

### Letter Book 6 – 1 February 1911 to 15 March 1911

Page	Date	Description
1-3	1 Feb 1911	Am. M. Davis to C.W. Stone, GE. Incandescent Lamps vs. Arc Units in Street Lighting. Comments on paper by Dr. Sweet. "It is hard to make the public believe the brightest light does not necessarily mean the best illumination... The shade and reflector problem is one for the engineer..." Less bright lamps most promising for residential districts. Glare is very important. Present tungsten lamp could not be used because of "leg length" of filament.
4	1 Feb 1911	C.P. Steinmetz to D.D. Dickey, National Carbon Co. Returns check for trip expenses.
5	1 Feb 1911	C.P. Steinmetz to E. Weintraub, GE Lynn. Attached prints of drawings. [Not attached].
6 -13	1 Feb 1911	Report of Work of Dr. Steinmetz Laboratory During 11910. Topics. Heat conductivity of insulation. Bakelite as high temperature, high voltage insulation. ..."remarkable results...: Experiments on various solutions of resins, gums, rubber, etc. Lightning arresters. Exhaustion of tungsten lamps. Studies of material given off by tungsten lamps at high temperature. Possibilities of Moore lamp (Geissler tube) as illuminant. Improvements in electrode and use of reactance in Magnetite Lamp. Titanium lamp "has been practically abandoned as a failure" by others, but lab has built a simple lamp that "gives about twice the light and consumes half the power of the series enclosed alternating carbon lamp." Flame Carbons, aiming at a white flame carbon comparable in efficiency to the yellow flame carbon. Investigations of the alternating current arc. Investigation of corona losses on high voltage circuits. Study of the disruptive effects of transient high voltages. Leading to design changes. Plus (declining amount of) work for patent department and various trips and visits.
14	2 Feb 1911	David Barry, Amherst Gas Co., Amherst MA to C.P. Steinmetz. Arcs on high voltage lines during severe wind storm observed. Seeks information.
15	2 Feb 1911	Emil Guay, GE, to C.P. Steinmetz. Developments on carbon lamps.
16	2 Feb 1911	J.L.R. Hayden to H.L. Schermerhorn, GE. "Mr. Edison's product, called "Condensite" is very far advanced. " Wants to demonstrate samples.
17	2 Feb 1911	C.P. Steinmetz. to E.W. Pope, AIEE. Sending A.B. Hendricks' discussion of

		paper by Prof. H.J. Ryan.
18	2 Feb 1911	M. Abbot, Commonwealth Edison, Chicago, to C.P. Steinmetz. Sending annual load curve for company's output in 1910. C.P. Steinmetz shorthand.
19	3 Feb 1911	F.H. Gale, GE, to C.P. Steinmetz. Your membership in the National Electric Light Association has been paid by the company. C.P. Steinmetz. shorthand.
20-21	3 Feb 1911	A.Mc.K. Gifford, GE Pittsfield, to C.P. Steinmetz. Preparing to make comparative tests of Bakelite and Edison's Condensite as high voltage insulation. C.P. Steinmetz shorthand.
22-23	3 Feb 1911	A.J. Jones, GE, to F.P. Wilson, GE. Breakdowns in 40 amp mercury rectifiers used in garages.
24	3 Feb 1911	Telegram. Reactance losses on 1500 Kw turbo generators, Isthmian Canal Commission.
25	3 Feb 1911	C.P. Steinmetz to Kinum. Seeking contractor bids for addition to house and laboratory.
26	3 Feb 1911	C.P. Steinmetz to Thorpe. Seeking contractor bids for addition to house and laboratory.
27	4 Feb 1911	L.G. Banker, GE, to C.P. Steinmetz. Order for American Ingot Iron
28	4 Feb 1911	C.P. Steinmetz to E.R. Berry, GE Lynn. Explanation of payments.
29	4 Feb 1911	C.P. Steinmetz to A.McK. Gifford, GE Pittsfield. Insulation tests.
30	4 Feb 1911	J.A. Lighthipe, Southern California Edison Co. to C.P. Steinmetz. Invitation to Southern California and question about reactances.
31-32	4 Feb 1911	R.R. Owen, Franklin Institute, Philadelphia, to C.P. Steinmetz. Talk request.
33	4 Feb 1911	C.P. Steinmetz to James F. Burns. Request for bid on electrical work on house and laboratory.
34	4 Feb 1911	C.P. Steinmetz to Finch & Hahn. Request for bid on electrical work on house and laboratory.
35	4 Feb 1911	C.P. Steinmetz to E.W. Hollister. Request for bid on electrical work on house and laboratory.
36	4 Feb 1911	C.P. Steinmetz to C.F. Sauter. Request for bid on electrical work on house and laboratory.
37	4 Feb 1911	C.P. Steinmetz to D.H. Williams. Request for bid on plumbing work on house and laboratory.
38	6 Feb 1911	A.H. Armstong, GE Railway and Traction, to C.P. Steinmetz. Committee on Schenectady-Pittsfield AIEE meeting has "purposely ignored the railway engineers."
39-40	6 Feb 1911	A.H. Armstrong to D.C. Jackson, AIEE. Note to C.P. Steinmetz. "Do you agree?" Wants annual convention at a summer resort, not in Chicago.
41-42	6 Feb 1911	A.H. Armstrong to C.P. Steinmetz. Has heard from Dr. Hutchinson that "Schenectady, or in other words the General Electric Company, is opposing the election of R. D. Mershon for President [of AIEE] ..9out of) revenge on account of the activity of Mr. Mershon opposing the election of Mr. Rice for President of the Institute some years ago." ... "I assured Dr.

		Hutchinson that no political canvassing has been done in Schenectady...it would be extremely unwise for anyone connected with the company (to) openly advocate the nomination of either candidate”
43-45	6 Feb 1911	L.E. Barringer, GE Research Lab to C.P. Steinmetz. Comparison of standard linseed oil varnish and bakelite. Bakelite has higher voltage rating.
46	6 Feb 1911	Geo. Holtzmann, Superintendent of Water Works, Schenectady to C.P. Steinmetz. Advisability of a reservoir, in reply to query. C.P. Steinmetz shorthand.
47-48	6 Feb 1911	C.P. Steinmetz to David Barry, Amherst Gas Co. See 14. “it appears to me that the origin of the disturbance was entirely mechanical.” Details.
49	6 Feb 1911	C.P. Steinmetz to Engineers’ Club, NY City. Telegram. Room reservation.
50	6 Feb 1911	C.P. Steinmetz to F.H. Gale, GE. See 19 above. Prefers GE not pay his dues to National Electric Light Association, as he sees it “desirable” that his position in the association be “more independent.”
51-52	6 Feb 1911	C.P. Steinmetz to A. Mc.K. Gifford, GE Pittsfield. Suggestions for tests of Condensite.
53	6 Feb 1911	C.P. Steinmetz to George Holtzman, “Water Commissioner” [actually Superintendent, Water Works] Schenectady. Send last annual report. Wants to look into the advisability of a reservoir “as a taxpayer.”
54	6 Feb 1911	C.P. Steinmetz to Mohawk Gas Co. Check for bill.
55	6 Feb 1911	C.P. Steinmetz to W.S. Moody, GE Pittsfield. Telegram. “Isthmian Canal Commission current limiting reactances, is copper loss 1430 watts of 4260 watts per generator?”
56	6 Feb 1911	C.P. Steinmetz to R.R. Owen, Franklin Institute, Philadelphia. Agrees to lecture request.
57	6 Feb 1911	C.P. Steinmetz to Schenectady Illuminating Co. Check for bill.
58	6 Feb 1911	C. Chester Lane, Editor Annals of Mathematics, Harvard, to C.P. Steinmetz Your subscription remains unpaid. C.P. Steinmetz shorthand.
59-60	7 Feb 1911	R.R. Owen, Franklin Institute, Philadelphia, to C.P. Steinmetz. Suggests title for C.P. Steinmetz lecture as “Some Unexplored Electric Fields.”
61	7 Feb 1911	C.P. Steinmetz to A. Mc.K. Gifford. Letter to Mr. Alysworth and high dielectric strength of naphthalene oil.
62	7 Feb 1911	C.P. Steinmetz to G.E. Kirk, Toledo OH. Suggests, per 39-40 above, possibility of AIEE Convention in Put-in-Bay (OH?) instead of Chicago.
63-65	7 Feb 1911	C.P. Steinmetz to F.J. Seabolt, GE Patent Dept. Explanation of “attached invention.” Subject is “An electromagnetic device containing an air gap shunted by a magnetic short circuit.” “It seems to me, this invention embodies a principle which is new, as far as I know, and we should try to get some broad claims.”
66-66c	8 Feb 1911	E.E.F. Creighton to A.H. Moore, Chairman L.A. Stand. Committees. Report of work of Lightning Arrestor Laboratory.
67	8 Feb 1911	W.S. Moody, GE Pittsfield to C.P. Steinmetz. Failures of mercury arc rectifiers, See 22-23.
68-	8 Feb 1911	Report of Work Done During the year 1910. C.P. Steinmetz {?}ing first

73		half of year work was as in past. "Consultation and advice on questions of design and operation of systems and apparatus, and of troubles experienced with them; inventions and development of new thinks, and following new work.." In latter part of year, Consulting Department was organized under C.W. Stone. Consulting Department needs more assistant engineers. It has become "necessary for us to educate our own assistants." Needs include a "more effective method of following the work of the Research Laboratory." "Very desirable would be a general investigation of the thermodynamics of steam turbines." Return of Hobart should enable more effective contributions to apparatus design.
74	8 Feb 1911	C.P. Steinmetz to W.L. Abbott, Chief Consulting Engineer, Commonwealth Edison, Chicago. Thanks for load curve. "The greatest problem of central station work...(is to) take care of without additional machinery of the .3% of the load, which now requires 23% of station capacity", the "high peak of short duration."
75	8 Feb 1911	C.P. Steinmetz to A.H. Armstrong, GE. Counter to Armstrong's advice, see 41-42, Steinmetz will make out and distribute a slate, for Presidential election of AIEE. One candidate, Mershon is an opponent of GE's E.W. Rice, but the campaign manager of the other candidate, Mailloux, is a "probably still more vicious opponent", so C.P. Steinmetz fails to see how "any such interpretation" of revenge for past treatment of Rice can be placed on taking sides in the race.
76-77	8 Feb 1911	C.P. Steinmetz to A.H. Armstrong, GE. See 38 above. Lack of railway engineering papers for Schenectady-Pittsfield AIEE Meeting is due to Armstrong's negative view of meeting, and failure of railway engineers to submit papers.
78	8 Feb 1911	C.P. Steinmetz to A.G. Davis, GE Patent Dept. Enclosed find patent papers.
79-81	8 Feb 1911	C.P. Steinmetz to A.G. Davis, GE Patent Dept. Improvements in the Steadiness of Luminous Arcs and Flame Arcs. "Alternating titanium arc lamp is finally being developed, and method of steadying the arc probably will be of importance." CaF <sub>2</sub> in the other electrode as steadying material gives a very efficient and steady arc. Best results are with one electrode of as pure metallic titanium as possible, the other of carbon impregnated with potassium carbonate.
82-83	8 Feb 1911	C.P. Steinmetz to W.S. Moody, GE Pittsfield. Transformer reactances.
84-86	8 Feb 1911	C.P. Steinmetz to M.A. Oudin, GE Foreign Department. "It is therefore extremely desirable in all turbo alternator stations to guard the machines by power limiting reactances." Explanation included.
87	8 Feb 1911	C.P. Steinmetz to E.W. Pope, AIEE. Please send advance copies of all papers to be presented at Schenectady-Pittsfield AIEE Meeting.
88	8 Feb 1911	C.P. Steinmetz to E.W. Rice, Jr. Exact title of paper they discussed is "Colloids and the Ultramicroscope" by Dr. Richard Zsigmondy. [This work won the 1925 Nobel Prize and helped verify Einstein's theory of

		Brownian Motion.]
89-90	9 Feb 1911	J.M. Weed, GE Pittsfield. Error in Steinmetz paper on "Magnetic Fields."
91-92	9 Feb 1911	A.McK. Gifford, GE Pittsfield, to C.P. Steinmetz. Use of naphthalene in insulating materials.
93	9 Feb 1911	J.H. Libbey, AIEE, Boston, to C.P. Steinmetz. Requests discussion on paper R.A. Phillip, "Economical Limitations to Aggregation of Power Stations."
94-95	9 Feb 1911	C.P. Steinmetz to C.W. Stone. Assessment of value of Boucherot patent. "... While the inventions are interesting they do not appear of any immediate use, and of very doubtful future use." However, "Boucherot is one of the most important and most prominent French engineers... I would far prefer to have him on our side.... if an arrangement can be made with him on any more or less nominal price., I believe you should do so."
96	10 Feb 1911	L.E. Barringer, GE Research lab to C.P. Steinmetz/ Wants to obtain 25 lbs. Condensite for tests comparing it to Bakelite. C.P. Steinmetz shorthand.
97	10 Feb 1911	Robert Stegg, Castings magazine, to C.P. Steinmetz. Wants to review C.P. Steinmetz book Engineering Mathematics.
98	10 Feb 1911	J.L.R. Hayden to A. McK. Gifford, GE Pittsfield. ?Sent sample of chlorinated wax.
99	10 Feb 1911	Ralph W. Pope, AIEE, to J.L.R. Hayden. Transferred you from grade of Associate to grade of member, AIEE. C.P. Steinmetz shorthand.
100	11 Feb 1911	W. A. Reece, Isthmian Canal Commission. Thanks for letter "treating very fully the subject of inserting external reactances in the leads of 25 cycle generators." See 84-86 above.
101	11 Feb 1911	A.M. Rossman, GE, to C.P. Steinmetz. Requests for further explanation about 84-86 above.
102	13 Feb 1911	L. E. Barringer, GE, to A. McK. Gifford, GE Pittsfield. Sending armatures for impregnation with Bakelite.
103	13 Feb 1911	D.C. Jackson, AIEE, to C.P. Steinmetz. Telegram. Scott will be opening session tomorrow.
104	13 Feb 1911	David B. Rushmore to C.P. Steinmetz. Presentation of badges to past presidents of AIEE. C.P. Steinmetz shorthand.
105	13 Feb 1911	C.P. Steinmetz to L.E. Barringer, GE. Will send you condensate.
106	13 Feb 1911	C.P. Steinmetz to C.M. Davis. Please pick out representative oscillograms showing short circuits.
107-108	13 Feb 1911	C.P. Steinmetz to J.J. Frank, GE Pittsfield. Reply to letter about "mysterious phenomena of 40 ampere multiple rectifier tubes." Probably high frequency disturbances produces by the arc.
109	13 Feb 1911	C.P. Steinmetz to DC Jackson, MIT. Telegram. "Message received with thanks." See 103.
110	13 Feb 1911	C.P. Steinmetz to J.E. Libbey, Boston, Impossible to participate in discussion. See 93.

111-113	13 Feb 1911	C.P. Steinmetz to J.A. Lighthipe, Southern California Edison. Must postpone trip to California for some future time. Details on use of reactances . See 30.
114	13 Feb 1911	C.P. Steinmetz to R.B. Owen, Franklin Institute, Philadelphia. Will speak on "Some Unexplored Electric Fields," as suggested.
115	13 Feb 1911	C.P. Steinmetz to E.W. Rice, Jr. last fall engineers of New York Edison requested motor designed specifically for the Edison battery. One idea appeared very promising, but "got tangled up in red tape... Can nothing be done to start the matter up again?"
116	13 Feb 1911	C.P. Steinmetz to M.P. Rice, GE. Request for copy of paper.
117-118	13 Feb 1911	C.P. Steinmetz to J.M. Weed, GE Pittsfield. Acknowledges error in "Magnetic Fields" paper. See 89-90.
119-120	13 Feb 1911	C.W. Stone to C.P. Steinmetz. Forwards letter from C.A.B. Halvorson, GE Arc Light Dept. Use of Bakelite on lamps installed at Boston. Gives a brief history of how GE found out about, ca/ 1909, and came to apply Bakelite as insulation on coils for arc lamps. This is perhaps the beginning of the use of synthetic polymers in GE.
121-124	14 Feb 1911	E.F.W. Alexanderson to W.F. Potter, GE. Development of Large Mercury Arc Rectifiers for Railroad Work.
125	16 Feb 1911	J.S. Ames, Johns Hopkins, to C.P. Steinmetz. Seeks reprint orders. C.P. Steinmetz shorthand.
126	16 Feb 1911	A.McK. Gifford to J.L.R. Hayden. Request for field coils for impregnation with condensite.
127	16 Feb 1911	D. McFarlane Moore, Moore Light Co., Newark NJ, to C.P. Steinmetz. Will send you one Moore Light window for you to study. Steinmetz shorthand.
128	17 Feb 1911	Joseph B. Baker, NY City to J.L.R. Hayden. Baker has delivered an article on Steinmetz to Scientific American. Wants picture.
129	17 Feb 1911	Thaddeus Cahill to C.P. Steinmetz. Cahill, an inventor of "electrical music machinery", wants to meet with C.P. Steinmetz.
130	17 Feb 1911	N.E. Church, Pittsfield MA, to C.P. Steinmetz. Bill for improvements to Stratford Ave.
131-132	17 Feb 1911	Dugald C. Jackson, Boston, to C.P. Steinmetz. service on committee of past AIEE presidents to consider methods of electing officer.
133	17 Feb 1911	J.L.R. Hayden to M.W. Allen, National Carbon Co., Cleveland. Telegram. "It will be alright for you to come Monday."
134-136	17 Feb 1911	C.P. Steinmetz to Horace F. Parshall, London. Thanks for photo of nitrogen spectrum. "Does it not appear to you that this spectrum rather challenges the correctness of the atomic theory of matter? The wildest speculation of the ionists, attributing a constitution of several thousand corpuscles to the atom, cannot explain such a multiplicity of simultaneous motions produced by the atom. While we may attribute to each particle a complete harmonious series of vibrations, there would remain such an incredibly large number of particles of different but definite sizes, and all of them essential in the constitution of the nitrogen

		atom that it is difficult to imagine such a constitution." Further speculation about biological activity and the "poisonous effect" between the nitrogen group and other groups, leading to C.P. Steinmetz conclusion that it is nitrogen, not carbon, that is essential to life.
137-139	17 Feb 1911	C.P. Steinmetz to W.A. Reese, GE Foreign Dept. Mechanical forces under short circuit conditions of turbo alternators. Details.
140	17 Feb 1911	C.P. Steinmetz to M.P. Rice GE. Please have attached spectrophotograph mounted on cardboard.
141	17 Feb 1911	George A. Thornton, Canadian GE, to J.L.R. Hayden. Requests information about constant current transformer.
142-143	19 Feb 1911	Boys of the Steinmetz Club, University of Missouri, to C.P. Steinmetz. Invites him to visit on 17 Mar, and requests use of his photo on club letterhead.
144-145	20 Feb 1911	G.N. Chamberlin, GE Lynn, to C.P. Steinmetz. Possible improvements in luminous arc lamp.
146	20 Feb 1911	Emil J. Guay, GE, to C.P. Steinmetz. Magnetite arc lamp materials.
147	20 Feb 1911	J.L.R. Hayden to George Edmund Parsons, Boston. Wants specifications for "the cases for the museum."
148	20 Feb 1911	C.P. Steinmetz to J.S. Ames, Johns Hopkins. Orders 50 reprints of his illuminating engineering lectures.
149	20 Feb 1911	C.P. Steinmetz to L.E. Barringer, GE Research Laboratory. Sends sample of purified asbestos.
150	20 Feb 1911	C.P. Steinmetz to John Bolan, City Clerk, Schenectady. Orders a copy of report of consulting engineers on the water supply system of Schenectady.
151	20 Feb 1911	C.P. Steinmetz to Thaddeus Cahill, Holyoke MA. Invites Cahill to visit his laboratory. See 129.
152	20 Feb 1911	C.P. Steinmetz to R.I.C. Clegg, Cleveland OH. McGraw Hill Book Co. is publisher of C.P. Steinmetz Engineering Mathematics.
153	20 Feb 1911	C.P. Steinmetz to Editor, Electrical World. Use of term reactive power.
154	20 Feb 1911	C.P. Steinmetz to Mr. Foss, McGraw Hill Book Co. Forwards request for information on Engineering mathematics.
155	20 Feb 1911	C.P. Steinmetz to A. McK. Gifford. Impregnation of coils with Bakelite.
156	20 Feb 1911	C.P. Steinmetz to John M. Green, Betterton MD. Received and forwarded sample of purified asbestos.
157	20 Feb 1911	C.P. Steinmetz to Dugald C. Jackson, Boston MA. Glad to serve on committee of past presidents of AIEE. See 131-132.
158	20 Feb 1911	C.P. Steinmetz to C. Chester Lane, Harvard. Sends check to continue subscription of Annals of Mathematics. See 58.
159	20 Feb 1911	C.P. Steinmetz to D. McFarlan Moore. Thanks for willingness to send Moore Light Window for study.
160	20 Feb 1911	C.P. Steinmetz to R.W. Pope, AIEE. Wants speaker list from recently completed joint Pittsfield-Schenectady Meeting of AIEE. which C.P. Steinmetz describes as "a great success."

161	20 Feb 1911	C.P. Steinmetz to R.W. Pope, AIEE. Sends copy of discussion by Professor Karpetoff and C.P. Steinmetz of C.P. Steinmetz paper on "Mechanical Forces in Magnetic Fields."
162	20 Feb 1911	C.P. Steinmetz to D.B. Rushmore, GE. Will be glad to attend reunion of past presidents of AIEE.
163	21 Feb 1911	J.S. Ames, Johns Hopkins, to C.P. Steinmetz. Offer of reduced price copies of books from illuminating engineering course. C.P. Steinmetz shorthand.
164	21 Feb 1911	John H. Bolan, City Clerk, Schenectady, to C.P. Steinmetz. Enclosed consultant's report on Schenectady water system, as requested. C.P. Steinmetz shorthand.
165	21 Feb 1911	J.L.R. Hayden to E.R. Berry, GE Lynn. Requests clear Boston flame lamp globes.
166	21 Feb 1911	J.L.R. Hayden to R.W. Pope, AIEE. Check for transfer to full membership of AIEE.
167-168	21 Feb 1911	J.L.R. Hayden to G.A. Thornton, Canadian GE. Information on constant current transformer, as requested.
169	21 Feb 1911	C.P. Steinmetz to E.E. Church, Pittsfield MA. Enclosed \$250.00 check for street improvements.
170	21 Feb 1911	C.P. Steinmetz to G. Faccioli, GE Pittsfield. What is the maximum current density we are now using in the design of the larger 25 cycle transformers?
171	22 Feb 1911	W.C. Fish, GE Lynn, to C.P. Steinmetz. What are your recommendations for Vice Presidents and Managers of AIEE for the coming year?
172	23 Feb 1911	E.R. Berry, GE Lynn, to G.N. Chamberlin, GE, copy to C.P. Steinmetz. "...on account of reasons which I am not at this time at liberty to make known, I would strongly suggest that you expend no money whatever on Bakelite or Bakelizers."
173-174	23 Feb 1911	E.R. Berry, GE Lynn, to C.P. Steinmetz. Bakelite. Coils in arc lamp magnets using Bakelite insulation have been breaking down and releasing unpleasant odors, with subsequent customer complaints.
175	23 Feb 1911	E.R. Berry, GE Lynn, to C.P. Steinmetz. "The very beautiful results which you are getting with this "Condensite" makes it appear to the writer that it is not advantageous at this time to spend much money or time on Bakelite. May we have your comments?"
176	23 Feb 1911	E.J. Guay, GE, to C.P. Steinmetz. Have you received the carbide lamp I sent you?
177	23 Feb 1911	George R. Parsons, Architect, Boston MA, to J.L.R. Hayden. Information needed for specifications on improvements to Steinmetz laboratory.
178	23 Feb 1911	C.P. Steinmetz to W.C. Fish, GE Lynn. Enclosed is list of recommendations for Institute officers. [List not attached].
179	23 Feb 1911	C.P. Steinmetz to C.W. Stone, GE. Idea for new form of arc light with tungsten anode and mercury cathode.
180	24 Feb 1911	L.E. Barringer, GE Research Lab, to John F. Green, Betterton MD. GE is interested in Green's ideas about asbestos free from iron and metallic



		oxides, and seeks further information.
181	24 Feb 1911	J.L.R. Hayden to A. McK. Gifford, GE Pittsfield. Idea for using mixed fiber lengths in asbestos.
182	24 Feb 1911	J.L.R. Hayden to E.J. Guay, GE Lynn. We have received carbide lamp and are making tests.
183	24 Feb 1911	Moore Light Co. to C.P. Steinmetz. \$200 invoice for Moore Light Window. C.P. Steinmetz shorthand.
184	25 Feb 1911	Frederick [?] Bedell, Physics Dept, Cornell, to C.P. Steinmetz. "Mrs. Bedell and I will be very much pleased to have you stay with us when you are in Ithaca. "
185-186	25 Feb 1911	A.McK. Gifford, GE Pittsfield, to E.R. Berry, GE Lynn. Insulating of coils with bakelite and condensate.
187-188	25 Feb 1911	A.McK. Gifford, GE Pittsfield, to J.L.R. Hayden. Possible use of asbestos as an insulator.
189	25 Feb 1911	J.L.R. Hayden to R.W. Pope, AIEE. "I would like my name to appear as Joseph LeRoy Hayden.
190	25 Feb 1911	T.L. Kennedy, Harvard to C.P. Steinmetz. Announcement of next meeting of Association of Harvard Engineers. C.P. Steinmetz handwriting; "Greatly regret my inability to be present."
191-192	25 Feb 1911	C.P. Steinmetz to F.E. Collins, GE. Seeks assignment of " a number of the better ones of your students" [test engineers] for assignment to the [Consulting] Department for "a considerable amount of calculating and some general work."
193	25 Feb 1911	C.P. Steinmetz to Engineers Club, NY City. Telegram. Room reservation.
194	25 Feb 1911	C.P. Steinmetz to D.C. Jackson, MIT/AIEE. Enclosed is copy of report on Pittsfield-Schenectady AIEE Meeting. "As you know, we older members of the Institute have frequently regretted that in papers and discussions largely the same names reappear, and that it is difficult to bring the younger members into intellectual activity in the institute.... this Convention has been successful in this regard."
195	25 Feb 1911	C.P. Steinmetz to R. W. Pope. Same letter as 194 above.
196	27 Feb 1911	C.P. Steinmetz to E.W. Rice, Jr. Enclosed report on Schenectady-Pittsfield meeting. "If we consider, that the national reputation of its engineers is a valuable asset to the Company, the convention has been very successful, as it has brought forward 9 of our engineers as authors of [first] papers, and 12 as participants in discussions, and thereby started them on a path to an engineering reputation. "
197-205	27 Feb 1911	A.McK. Gifford, GE Pittsfield, to C.P. Steinmetz. Results of tests on use of asbestos in insulation.
206-207	27 Feb 1911	J.L.R. Hayden to E.R. Berry, GE Lynn. Arc light magnet coils insulated with Bakelite. Believes problems encountered (see 174-175) may be due to changes in processing of coils.
208	27 Feb 1911	C.P. Steinmetz to J.S. Ames, Johns Hopkins. Orders 8 sets of illuminating engineering course books.
209	27 Feb 1911	C.P. Steinmetz to Dr. W. Bedell, Cornell. Have already accepted an

		invitation to stay at the Telluride Club.
210	28 Feb 1911	J.L.R. Hayden to E.R. Berry, GE Lynn. Do not agree with you about stopping use of Bakelite (see 174-175). "Bakelite and condensate as you know have good properties, and we want to keep them going as much as possible."
211	28 Feb 1911	J.L.R. Hayden to G.N. Chambelin, GE Lynn. "Glad to learn... that you are going into the cast magenetite situation...[and] that the titanium carbide lamp is going along."
212	28 Feb 1911	J.L.R. Hayden to Geo. L. Parsons, Boston. Size of boilers for lab improvements.
213	28 Feb 1911	R.W. Pope, AIEE, to C.P. Steinmetz. Appointment to AIEE committee on election of officers.
214	28 Feb 1911	C.P. Steinmetz to Prof. R.B. Owen, Franklin Institute, Philadelphia PA. Will arrive Philadelphia Mar 2.
215	1 Mar 1911	McGraw Hill Book Co. to C.P. Steinmetz. Will reprint Transient Electrical Phenomena. Any corrections? C.P. Steinmetz shorthand.
216	1 Mar 1911	C.P. Steinmetz to F.C. Phoenix, Troy, NY. Will be impossible to speak next Sunday "because some very important engineering tests make my presence in Chicago absolutely necessary." [F.C. Phoenix appears connected with the People's Forum of Troy NY, which hosted speakers from the Socialist Labor party, among others.]
217	1 Mar 1911	H.H. Barnes, GE, NY City, to C.P. Steinmetz. Telegram. Talk request. C.P. Steinmetz shorthand.
218	2 Mar 1911	G.N. Chamberlin, GE Lynn, to C.P. Steinmetz et.al. Translation of a French article on a mercury lamp giving white light "resembling sunlight" C.P. Steinmetz shorthand.
219-224	2 Mar 1911	E.E. F. Creighton. Report on Protection of United Electric Light Co., Springfield MA. Includes recommendations.
225	2 Mar 1911	J.L.R. Hayden to John Kingsbury, Automobile Bodies and Tops, Albany NY. Wants samples of mohair suitable for top for a 1911 Marmon Touring Car.
226	2 Mar 1911	C.P. Steinmetz to E.J. Berg, U. Illinois. "the Chicago Engineers want me to come out to be present at the short circuiting tests next Monday" and hopes to visit U. Illinois on the trip.
227	2 Mar 1911	C.P. Steinmetz to A. McK. Gifford, GE Pittsfield. Investigation of the magnetic value of the scale on X1 iron. "... shape of the hysteresis curve... might tell the story".
228-232	2 Mar 1911	C.P. Steinmetz to E.J. Guay, GE Lynn. "Last titanium lamp which you sent us.... appears to be generally satisfactory... and therefore should be used as the basis of the further development of a commercial titanium lamp." Makes suggestions for improvements, and recommends that a dozen of the improved lamps be tested as street lights in Schenectady, with no use elsewhere "until we have made good in Schenectady."
233	3 Mar 1911	J.L.R. Hayden to G. Faccioli, GE Pittsfield. "We were very much grieved to

		hear that you have discontinued the use of Bakelite.... will be glad to talk the matter over with you.”
234	4 Mar 1911	J.L.R. Hayden [?] to M.W. Allen, National Carbon Co., Cleveland O. Sorry about delay in shipping you lamps.
235	4 Mar 1911	J.L.R. Hayden to M.W. Allen. Telegram. Your lamps will be shipped March 6 <sup>th</sup> .
236	4 Mar 1911	H.H. Barnes, Jr. New York Office [GE?] Will talk on “Recent Developments in Electrical Engineering Theory”.
237	4 Mar 1911	C.P. Steinmetz to Edward Caldwell, McGraw Hill Book Co. Will send corrections to Transient Phenomena in 2 weeks.
238	4 Mar 1911	C.P. Steinmetz to G.N. Chambelin, GE Lynn. Regarding translation of French paper on high efficiency low voltage mercury lamp (see 218). “It may be advisable to make some experiments on it, as I doubt there is anything patentable in the matter.”
239	4 Mar 1911	C.P. Steinmetz to D. McFarlan Moore, Newark NJ. White Moore Light Window gave a very nice white light”, and met voltage and current specifications, until glass tube cracked.
240	4 Mar 1911	C.P. Steinmetz to E. Webb Offut, Schenectady Illuminating Co. Seeks copy of report made to you by Mr. French on Schenectady Water Supply System.
241	4 Mar 1911	C.P. Steinmetz to H.R. Yates, Schenectady Fire Dept. Same as 239.
242	6 Mar 1911	Comfort A. Adams, EE, Harvard to C.P. Steinmetz. Invitation to stay at his house during Harvard Engineers meeting. C.P. Steinmetz handwriting. “Greatly regret inability of attending. “
243	6 Mar 1911	J.L.R. Hayden to S.H. Blake, GE Pittsfield. Hopes National Carbon lamps will be shipped this week. Please inform.
244	6 Mar 1911	J.L.R. Hayden to A. McK. Gifford, GE Pittsfield. Put off visit to Schenectady, as C.P. Steinmetz has to be in Chicago. “... our campaign on insulations...”
245	6 Mar 1911	J.L.R. Hayden to E.J. Guay, GE Lynn. Progress on white flame carbon, magnetite lamp, and titanium carbide lamps.
246	6 Mar 1911	J.L.R. Hayden to Ca. A Kelsey, GE Pittsfield. Would like your views on cast copper rotor.
247	6 Mar 1911	J.L.R. Hayden to E. Weintraub, GE Lynn. Would like to be kept informed regarding our new mold for casting copper rotors.
248	6 Mar 1911	John W. Upp, GE, to C.P. Steinmetz. Enclosed find stock certificates for your subscription to the South Mobile Terminal Company. C.P. Steinmetz shorthand.
249-251	7 Mar 1911	Forty-Ninth Electrode Committee meeting. Reports from Weintraub, Berry, Chamberlin, Guay and Halverson on progress of various types of arc lamps.
252	8 Mar 1911	Chairman, Schenectady Section AIEE [name illegible] to C.P. Steinmetz. Thanks for statistics on Pittsfield-Schenectady AIEE meeting.
253	8 Mar 1911	J.L.R. Hayden to A. McK. Gifford, GE Pittsfield. “Regarding the letter you received from Mr. Baekeland, I am going up to the Patent Department

		now and will try to find out how the patent situation stands....It might be well to start out and plan a campaign with regard to Bakelite similar to what we did with Condensite..."
254	9 Mar 1911	J.W. Aylesworth, Condensite Company of America, Glen Ridge NJ, to General Electric Co. Has transformer and generator coils insulated with Bakelite impregnated tape ready for tests.
255	9 Mar 1911	Frederick Bedell, Cornell U., To Steinmetz. What is title of your talk? Steinmetz reply: "On the Nature of Transients in Engineering." [Presence of this reply in both handwriting and shorthand makes this a sort of Rosetta Stone for translating Steinmetz shorthand.]
256	9 Mar 1911	R.Mc. Lloyd, VP, General Vehicle Co., Long Island City NY, to C.P. Steinmetz. Enclosed report from Cornell on Murphy Electricity Rectifier Company's system. What do you think of this system? [General Vehicle is a manufacturer of electric commercial vehicles].
257	16 Mar 1911	J.L.R. Hayden to J.W. Aylsworth, Condensite Co. Send transformer coil to A.McK. Gifford, Pittsfield, generator coil to J.L.R. Hayden, Schenectady.
258	10 Mar 1911	J.L.R. Hayden to E.R. Barry, GE Lynn. Possibilities of Bakelite. Suggestion to consult with MIT on work on condensation products. "Mr. Lunt of the Patent Department was saying the other day that it would be a good thing if somebody connected with the General Electric Company got up a condensation product—I immediately thought of you as being one who could do such a thing." [This remark is of some historical interest, as Mr. Lunt appears to be the first to suggest that GE go into the manufacturing, rather than merely the use of, the synthetic materials then known as condensation products but later known as plastics, which became for half a century a major product line of GE].
259	10 Mar 1911	J.L.R. Hayden to A. McK. Gifford, GE Pittsfield. Work on insulation for transformer and generator coils.
260	10 Mar 1911	I.J. Schwatt, mathematics Dept., Penn. Greatly impressed by Steinmetz remarks on unexploited fields of electricity, and wants further information. C.P. Steinmetz shorthand.
261	10 Mar 1911	C.P. Steinmetz to H.G. Stott, AIEE, NY City. Telegram. Unable to attend luncheon due to cold.
262	10 Mar 1911	C.P. Steinmetz to J. W. Upp. Received, with thanks, certificates. See 248.
263	11 Mar 1911	E.J. Guay, GE Lynn, to J.L.R. Hayden. Wants to arrange meeting of Guay, "Mr. Davis", Hayden and C.P. Steinmetz.
264	11 Mar 1911	C.P. Steinmetz to Prof. Comfort A. Adams, Harvard. Telegram. Regret unable to attend meeting of Harvard Engineers due to indisposition.
265	11 Mar 1911	C.P. Steinmetz details on above. C.P. Steinmetz caught a cold on trip to Chicago.
266	11 Mar 1911	C.P. Steinmetz to Dr. W. Bedell, Cornell. Telegram. Subject of my talk will be "On the Nature of Transients in Engineering."
267	11 Mar 1911	C.P. Steinmetz to Dr. W. Bedell, Cornell. Same as above, plus arrival information.

268	11 Mar 1911	C.P. Steinmetz to E.J. Berg, Illinois. Please send corrections needed in Transient Phenomena for new edition.
269	11 Mar 1911	C.P. Steinmetz to F.L. Kennedy, Harvard. Telegram. Regret inability to be at Harvard Engineers meeting.
270	11 Mar 1911	C.P. Steinmetz to L.L. Vincent, Ithaca, New York. Details of visit.
271	11 Mar 1911	John B. Whitehead, Johns Hopkins J.L.R. Hayden Invitation to C.P. Steinmetz to attend April meetings of Baltimore and Washington sections of AIEE. "Dr. Steinmetz has suggested to me that if I really want to know anything about him I had better write to you."
272	13 Mar 1911	J.L.R. Hayden to E.J. Guay, GE Lynn. C.P. Steinmetz can meet with Guay this week.
273	13 Mar 1911	George F. Sever, AIEE, Chicago IL, to C.P. Steinmetz. Requests C.P. Steinmetz. Asks C.P. Steinmetz to present a paper on the Electrolytic Condenser at the June Convention in Chicago.
274- 275	13 Mar 1911	C.P. Steinmetz to E.F. Collins, GE. Wants information on the series of tests performed by the "test men" in order to determine how a test man could get "as general experience as possible, when spending 12 to 15 months in the testing room" [considerably shorter than the current test program].
276- 278	13 Mar 1911	C.P. Steinmetz to R. McLloyd, General Vehicle Co. Confidential. In reply to query about Murphy Rectifier and report on it from Cornell, see 256 above, gives much detail and concludes that the report is "in general correct" but underestimates losses in practice. As a result "it is probably fair to say that roughly the loss of power in the Murphy rectifier would be twice what it is in the mercury arc rectifier." [General Vehicle Co. was a GE subsidiary]
279	13 Mar 1911	C.P. Steinmetz to I.J. Schwatt, Penn. See 260. Paper will be published in Journal of Franklin Institute.
280- 281	13 Mar 1911	C.P. Steinmetz to C.W. Stone. "Attached I send you report on the Singrum refrigerating machine, which I received from Mr. Hulse. The machine apparently is especially suited for small outputs, as low as 10 lbs of ice per hour.... The principle impresses me <b>very</b> favorably, so that I believe we should further look into it.:" Discusses features, especially hermetically sealed construction, which enables use of SO2 without leaks. . "It appears to me that this machine should be materially improved in efficiency. "
282	13 Mar 1911	C.P. Steinmetz to V.W. Surber, U. Missouri. See 142-143. Sorry he cannot attend Steinmetz Club event. Will send picture. In return, requests picture of club members.
283	13 Mar 1911	L.L. Vincent, Ithaca NY, to C.P. Steinmetz. Details of visit.
284- 285	14 Mar 1911	Bassett Jones, Jr., EE, NY City. Encloses his own approach to the symbolic method of EE calculations for Steinmetz's review.
286	15 Mar	Frank A. Benford, Schenectady, to C.P. Steinmetz. Read C.P. Steinmetz

	1911	Engineering Mathematics with pleasure and profit. Sending a list of misprints. [ Frank Benford, at this time in his first year as an engineer at GE after graduating from the U. of Michigan in 1910, went on to become a distinguished engineer and discoverer of Benford's Law, a regularity of the frequency of various digits in tables, today used for such applications as discovering fraud in financial statements.] Steinmetz shorthand.
287	15 Mar 1911	Ernst Berg, U. Illinois, to C.P. Steinmetz. Sending corrections for Transient Phenomena. Seeks suggestions for "best courses in mathematics for engineering students." C.P. Steinmetz shorthand.
288	15 Mar 1911	Arthur A. Buck, GE, to Sven R. Bergman, GE Lynn. The "starting single phase motor which you and Mr. Fish are proposing to build" is covered "by Dr. Steinmetz's patent No. 533,247, dated January 29, 1895, and you are free to go ahead". Key feature is use of phase converter to start motor.
289	15 Mar 1911	J.L.R. Hayden to A. McK. Gifford, GE Pittsfield. Received the field coil and tube this morning from the Condensite Co.
290	15 Mar 1911	J.L.R. Hayden to E.J. Guay, GE Lynn. How are you progressing with regard to your fused magnetite?
291	15 Mar 1911	C.P. Steinmetz to M.W. Foss, McGraw Hill Book Co. Enclosed Preface and Appendix co 2 <sup>nd</sup> Edition of Transient phenomena. Will send corrections in a day or two. Sales of C.P. Steinmetz, Light and Radiation have been "disappointing to me." Am now preparing lecture series on "Elementary Lecturers on Electrical Transients" and "Theory of Electric Railroading" which may be the source of future books.
293	15 Mar 1911	C.P. Steinmetz to H.G. Stott, NY City. Regrets he was unable to attend the Past [AIEE] Presidential Luncheon. Wants to know what was discussed and what actions were taken.
294	15 Mar 1911	C.P. Steinmetz to L.L. Vincent, Ithaca NY. Telegram. Arrive Ithaca Thursday.