Edison’s return to business at the start of April, following the vacation with Mary in Florida, marked the beginning of a turbulent period in his personal and professional life. One significant change, the death of Mary’s father, Nicholas Stilwell, on 9 April after what seems to have been a chronic illness, came unsought and unwelcomed. So, too, did the sicknesses, probably acute colds, that afflicted both him and his wife later in the month, forcing Edison to cancel a trip to witness the start of central station service in Newburgh, New York. Mary’s general health, however, was improved enough—or perhaps Edison wished to economize—that the family gave up hotel living and returned to their rented Gramercy Park home at the first of May. Edison had recovered and was attending an electrical exhibition in Worcester, Massachusetts, at the moment, leaving Mary, still experiencing headaches and a sore throat, to manage the move with Samuel Insull.

Outside circumstances contributed to Edison’s decision, in mid-April, to close up the Edison Construction Department. Through March, he had charged the Edison Electric Light Company more than $11,000 for expenses, paid from his own pocket, related to canvassing and estimating for central stations. Much of that sum was still outstanding, and most of those prospective stations were not built.¹ The Edison Electric Company, which Edison had considered a tepid partner in the central station business all along, was itself feeling financial strain, exacerbated by having to take stock in the local illuminating companies to which it sold operating licenses, rather than getting all the cash it originally expected. The Company was evidently also affected by worsening general economic
conditions and the recent financial failures of two of its principals, Henry Villard and Egisto Fabbri. For some months, it had been exerting increasing control over Edison’s outlays on its behalf through the Construction Department. When Villard, in one of his last official acts before returning to his native Germany, again proposed that the Company take some interest in the money-making manufacturing shops, Edison again balked. Edison additionally declared that because the Company’s agents were not successful in contracting for new central station plants, he was “obliged to immediately disband my organization as the expenses in connection with it are too large to allow of my continuing it unless I have work in hand.”

His decision in mid-May to immediately lay off his engineering staff coincided almost exactly with an acute liquidity crisis that brought the nation’s financial system to the “verge of a panic” and led to the failure of several New York banks and brokerages. Sherburne Eaton arranged for the Edison Electric Company to take on the salaries of some men, at least temporarily, but Edison had, in the meantime, been forced to accept the resignation of Frank Sprague and let others go. These events led to a series of negotiations for the reorganization of the Edison lighting business in the United States. No formal agreements were signed until September, but an informal consensus seems to have been reached by mid-June for the Edison Company for Isolated Lighting to take over the central station business and for the Edison Electric Light Company to share in the profits of the manufacturing shops. Among the questions to be settled was how to resolve standing complaints by local illuminating companies against Edison and the Construction Department for defective workmanship.

Even while making these arrangements for adapting to straitened circumstances, Edison was planning for the future. In June, he declined an invitation to attend the opening of a central station in Circleville, Ohio, because, as he noted, “I never had more to attend to than at the present time, and I am compelled to be at my office both day and night.” Among his tasks were the engagement of a New Jersey political operative to help secure passage of state legislation favorable to electric lighting companies in small cities and towns. Farther afield, in mid-May, he requested from the Edison Electric Light Company—and later received—authority over the lighting business in South America. Having recently assigned to agents his rights in Chile, Bolivia, and Argentina, he recruited agents for other countries in Central and South America. He also con-
continued to monitor efforts to reorganize and recapitalize the French Edison companies, though little progress was made. He suggested to the Edison & Swan United Company in London a plan to lease, in Britain, its large dynamos lying unused—and unpaid for—in New York. Citing both economies of scale and superior manufacturing skill at his Harrison, New Jersey, lamp factory, he declined the British company’s request to set up its own factory. In the face of competition from rival lamp manufacturers in the United States, some of them quite capable, he secured the loyalties of several principals in his own factory by granting them shares in the incorporated business. In June, he installed Charles Batchelor, recently returned from Paris, as general manager of the Edison Machine Works.7 (Batchelor had already resumed the experiments on short-core dynamo design that he had started in Paris the previous summer.) About the same time, Edison formed the Edison Shafting Company to fabricate shafting, pulleys, hangers, and related transmission equipment under contract with the Edison Machine Works at its Goerck Street shop.

Evidently looking forward to inventing outside his contract with the Edison Electric Light Company, Edison placed attorneys Richard Dyer and Henry Seely on retainer for his personal patent work on 29 May. Immediately after his return from Florida, he had noted that a dried film being tried as lamp filament material was “marvelously sensitive to moisture” and potentially useful in a scientific instrument.8 Among his other projects were the application of dynamos to telegraph circuits and solicitations for that type of business; applying dynamos to telephone call bells; supervising John Ott’s experiments on separating nonferrous metals; a process for simultaneously drawing and annealing wire; and supplying a custom dynamo for Henry Rowland’s experimental determination of the ohm at the Johns Hopkins University. He also found time in June to work on a typewriter model.9

Edison faced a significant legal challenge in addition to the economic turmoil of these months. Lawyers for Lucy Seyfert, who in 1882 had won a judgment against Edison in a long-running dispute, moved to collect the judgment by levying on his Menlo Park property. Continuing to ignore his own attorneys’ advice to settle the matter, Edison instead took steps to disclaim legal ownership of both the real estate and chattel there.

The family’s Gramercy Park house figured prominently in a rare newspaper article about Mary Edison, titled “In the
Wizard’s Home” (Doc. 2683). Published on 1 June, the article presented Mary’s own version of her courtship and wedding, giving her the opportunity to rebut myths whose repetition had evidently rankled her for years.

1. Edison Construction Dept. statement, 25 Mar. 1884, DF (TAED D8441K2); cf. App. 2.B.
2. Doc. 2655.
4. Concerning proposals for the reorganization of the Edison lighting business in the United States, see Docs. 2658, 2661, 2677, 2685, 2690; Doc. 2725 outlines the terms finally agreed upon.
5. TAE to Archibald Stuart, 10 June 1884, DF (TAED D8416HTQ).
6. See Doc. 2688 and TAE to David Cone, 5 June 1884, Lbk. 18:75 (TAED LB018075).
8. Doc. 2645.
9. TAE marginalia on J. M. Robinson to TAE, 27 June 1884, DF (TAED D8403ZEG).

---

April 3, 1884

[Telgrams: To/From Mary Edison]

Mrs. Edison
Do you want a trained nurse if so will send one out. Answer¹

Edison

Menlo park nj

T. A. Edison
Will let you know tomorrow morning

Mame²

¹Date from documents, form altered.
²This message was sent to Menlo Park. The nurse would have been for Mary’s father, Nicholas Stilwell (see Doc. 2646 and Israel 1998, 232, 499 n. 7). Also on 3 April, Dr. William O’Gorman, a prominent Newark physician, visited Menlo Park and billed $30 for a “consultation.” Voucher no. 388 (1884); “Historical Data,” Journal of the Medical Society of New Jersey 13 (Aug. 1916): 427.

²Mary Edison. See Doc. 2618 n. 14.
My dear sir:

Enclosed we send you sixteen and 75/100 dollars (16.75) amt charged for the lunch and wine furnished for you to take on your trip.

We are very sorry that you did not receive it, and regret that after so much trouble on your part to have a good lunch provided, that there should have been any mistake about it. We cannot ascertain where, or to whom to attach the blame, but will see that the next time you come here your lunch will go with you.

Hoping that you had a pleasant trip home and that you will favor us with a visit to Maplewood¹. We remain Very truly Yrs.

Magnolia Hotel² per McGilvray³

〈Acknowledge money & say that [if?]³b I am afraid the recording angel has a special Entry against my account for improper language upon the day of my departure³c If I could get the 16.75 to St Peter to balance my account then all would be well. I thought I would leave orders to have the head waiter killed but relented However next year blood will flow. E[di-son]⁴³


1. The Maplewood Hotel, near the town of Bethlehem in the White Mountains of northeastern New Hampshire, appeared on the Magnolia Hotel's letterhead. Both establishments were owned by Isaac Cruft, a wealthy Bostonian, and managed by O. D. Seavey. Constructed in 1876, the Maplewood was at this time among the region's largest and most prestigious inns, with accommodations for 500 guests in the hotel and adjoining cottages. Johnson 2006, 144; Child 1886, 159–60.

2. Regarding the Magnolia Hotel in Magnolia, Fla., see Doc. 2614.

3. Not identified.

4. The typed reply to the hotel, prepared by Samuel Insull, closely followed Edison's draft. Insull changed the phrase “blood will flow” to “I will be able to avenge myself.” TAE to Magnolia Hotel, 11 Apr. 1884, DF (TAED D8416BFQ).
I think it would be a good thing for the recent Inventors Organization to carry the matter into the newspapers.3 Yours truly,

SI


1. Maine used a return address of Harlan, Allen County, in northeastern Indiana (see note 2); the editors have not further identified him.

2. This typed reply was based closely on the draft Edison wrote on Maine’s 26 March letter. Maine urged Edison to act against proposals in Congress to alter the patent system. Such attempts had occurred regularly in recent years, partly at the behest of the Granger movement, though he attributed the present “villainous scheme” to “the Railway Association organized several years since to fight patents,” and indeed the Western Railroad Association (a trade group) had been pushing vigorously for major revisions in the patent laws. Maine suggested that Edison, because of his stature and personal interest in patent protection, should reprint a recent Scientific American editorial “and mail these to all the newspapers in the United States with a personal request from yourself to publish the same” (Maine to TAE, 26 Mar. 1884, DF [TAED D8403ZAS]; Buck 1963 [1913], 118–19; Usselman 2002, 145–63). That editorial, running more than a full column, blamed the railroads for encouraging “the false idea that new inventions and new industries are a bane to the people instead of a blessing.” From a number of pending bills, it singled out two in the Senate. One would have reduced the term of patents to five years; the other, like bills considered in 1880 and 1882, offered indemnity from infringement liability to the purchasers of patented articles. Both measures ultimately failed (“The Plot Against Patents,” Sci. Am. 50 [22 Mar. 1884]: 176; “Record of the Session,” NYT, 7 July 1884, 2). Edison had opposed similar legislation on at least two previous occasions (see Docs. 1684 and 2287).

3. Edison referred to the “Inventors Protective Association,” organized in New York in October 1883 to advance patentees’ legal rights. The Electrical Review welcomed its formation because “as is well known, powerful influences are now being exerted, especially in the manufacturing districts of the West, against the present patent laws, which furnish at least a slight protection to the inventor.” “The Rights of Inventors,” NYT, 21 Oct. 1883, 3; “Convening the Inventors,” Electrical Review 3 (1 Nov. 1883): 8–9.

April–June 1884
the rights of the Italian Company, and, I have written to Com-
pagnie Continentale to this effect.\footnote{Interlined above.}

I cannot understand why the German Co. should endeav-
our to do business in your territory, and I have asked the Com-
pagnie Continentale for an explanation.\footnote{1. Organized in Geneva between January and May 1883, the Société
d’Appareillage Électrique was incorporated in May 1883 with a capital-
ization of \textct{₣}500,000. It became the exclusive agent for Edison’s lighting
system in Switzerland through a transfer of rights from Edison’s 1880
agreement with Ernst Biedermann, Antoine Cherbuliez, and Gaspard
Zurlinden; Edison received \textct{₣}125,000 for consenting to the transfer. The
executives of the new company included Arthur Achard (an engineer)
as president; Cherbuliez as secretary; and Zurlinden as legal counsel.
Théodore Turrettini served as a consulting engineer but resigned to
pursue outside obligations in November 1883. He and Achard were
both experts in hydraulic power and members of Geneva’s municipal
government. See Docs. 1878, 1985 n. 2, 1962, and 2356 nn. 15–16; TAE
agreement with Cherbuliez and Ernst Biedermann, 19 Jan. 1883, Miller
(\textit{TAED} HM800129); TAE to Société d’Appareillage Électrique, 6 Mar.
1883, Lbk. 15:414 (\textit{TAED} LBo15414); TAE to Société d’Appareillage
Électrique, 9 Sept. 1883; Achard to TAE, 15 May 1883; Calvin Goddard
to TAE, 24 May 1883; Achard to TAE, 1 May 1884 and 16 May 1885;
al DF (\textit{TAED} D8316AUC, D8337ZBL, D8337ZBO, D8436ZCL,
D8535ZAC); Paquier 1998, 366, 370, 545–48.}

Referring to your enquiry as to what articles you should
furnish outside of Switzerland, and what you should not, I
should very much prefer not to enter into this question, as I
am afraid by so doing I would only complicate matters.\footnote{2. Achard denied accusations from the Italian company that the So-
ciété was selling Edison products in Italy. He enclosed with his 2 Feb-
uary letter copies of correspondence with that company, which had
threatened to seize equipment coming into Italy (Achard to TAE,
2 Feb. 1884; Comitato per le Applicazioni dell’Elettricità a Société
d’Appareillage Électrique, 25 Jan. 1884; Achard to Comitato per le}

The Italian Company naturally\footnote{2. Achard denied accusations from the Italian company that the So-
ciété was selling Edison products in Italy. He enclosed with his 2 Feb-
uary letter copies of correspondence with that company, which had
threatened to seize equipment coming into Italy (Achard to TAE,
2 Feb. 1884; Comitato per le Applicazioni dell’Elettricità a Société
d’Appareillage Électrique, 25 Jan. 1884; Achard to Comitato per le} only
desire to make a profit on all articles in connection with the Edison system, and
should you supply any of them in competition with them, they
will naturally protest against your so doing. I think that more
friendly relations would be fostered by your not endeavou-
ing to enter into competition with them, even in connection
with such articles as you claim are not patented. At all events,
I would much prefer not to be the judge as to what you should,
and what you should not export, as should I place myself in
the position you ask me to, the only result would be a contro-
versy between myself and the Italian Company. Yours truly,

TL (carbon copy), NjWOE, DF (\textit{TAED} D8416BCX).
Applicazioni dell’Elettricità, 28 Jan. 1884; all DF [TAED D8436P, D8436E, D8436I1]). Joshua Bailey commented that “The Swiss Company denies having sold these articles and as far as we are informed they came direct from Mr. Turettini [sic] or some one acting under him. What is unquestionable is that lamps and machines coming from New York to Switzerland have been sold into Italy” (Bailey to TAE, 30 Jan. 1884, DF [TAED D8436M]).

3. The Società Generale Italiana di Elettricità was organized at the end of 1883 (and incorporated in January 1884) as successor to the Comitato per le Applicazioni dell’Elettricità Sistema Edison, which built and operated the original Milan central station. Hausman, Hertner, and Wilkins 2008, 80 n. 29; Docs. 2235 n. 5, 2321 n. 5, 2343 n. 14.

4. Edison responded to the Compagnie Continentale’s 30 January letter soon after his return from Florida. Pointing out that the Italian and Swiss dispute put him in “an awkward position” and unable to evaluate competing claims, he preferred that the quarrel should be “settled locally.” He also blamed the conflict in part on the Compagnie Continentale’s impolitic handling of the Société d’Appareillage Électrique’s protests against activities in Switzerland by Edison’s German agents (see note 5). TAE to Compagnie Continentale Edison, 5 Apr. 1884, DF (TAED D8416BCW).

5. Achard had expressed concern that the Siemens & Halske agent in Zurich would get supplies through Deutsche Edison Gesellschaft for resale in Switzerland. Edison had previously assured Achard that the contract between the Société Électrique Edison and Siemens & Halske (and the forthcoming German Edison company) would not grant rights beyond Germany. Edison further promised that he was negotiating with the Paris company to protect the Swiss rights, and that he had not authorized the Paris company to compete there (Achard to TAE, 18 Oct. 1883 and 2 Feb. 1884; TAE to Société d’Appareillage Électrique, 21 Nov. 1883; all DF [TAED D8337ZEZ, D8436P, D8316BIP]). Earlier encroachment on the Swiss market by agents of the French and English Edison companies is discussed in Doc 2356 n. 15 (see also Calvin Goddard to TAE, 24 May 1883 [TAED D8337ZBO]). The Swiss company, however, had hoped to expand internationally. Its attempt in 1883 to conduct business in Spain was resisted by the Compagnie Continentale, and, with no further success, the Swiss proposed a unification of Edison’s European companies during the Vienna Electrical Exhibition of 1883 (Société d’Appareillage Électrique to Goddard, 22 May 1883; TAE to Société d’Appareillage Électrique, 10 Sept. 1883; both DF [TAED D8337ZBN, D8316AUF]; Paquier 1998, 548–49).

6. In a separate letter enclosed with Achard’s of 2 February (see note 2), the Société inquired about authority to sell non-Edison products beyond Switzerland and asked Edison to clarify which products in the Bergmann & Co. catalogue would be available for them to re-export. Société d’Appareillage Électrique to TAE, 2 Feb. 1884, DF (TAED D8436Q).
Dear Sir,

I am a young man who anticipates taking a college scientific course and of making the study of electricity a special one. Before doing so however I think it best to look upon the practical side of the affair and find out if such a course can give a man a knowledge of electricity such that he can take it up as a business and rely upon it, or whether these courses in Electrical Engineering are merely good as giving a man a theoretical accomplishment which he can never apply in practice for his livelihood. Therefore I take the liberty of addressing you to ask for your views upon the general subject of a young man taking up electricity with the view of making it a business and especially of pursuing the study of it in our colleges. By kindly answering the above at your convenience, you will greatly oblige one who comes to you as a practical electrician for advise, which can not be got elsewhere. Yours Truly,

Howard Greenman

(To tell the truth College Electricians are no good the only way into to learn it where it is commercially carried out. There is always a demand for practical Electricians with business instincts)²

ALS, NjWOE, DF (TAED D8403ZBB).

1. Howard Greenman (1863–1939) was a native and resident of Brooklyn. He evidently did not become an electrical engineer; he instead had a career as an accountant, first in Brooklyn and later in Montclair, N.J. Obituary, NYT, 12 Mar. 1925, 19; U.S. Census Bureau 1970 (1880), roll T9_843, p. 442.1000, image 0103 (Brooklyn Ward 23, Kings, N.Y.); ibid. 1982? (1900), roll T623_1061, p. 6A (Brooklyn Ward 23, Kings, N.Y.); ibid. 1982 (1910), roll T624_883, p. 13B, image 835 (Montclair Ward 1, Essex, N.J.).

2. The editors have not found a formal reply to Greenman. Edison had not always held such a dim view of collegiate electrical engineering (cf. Docs. 2427 n. 3 and 2479 esp. n. 3). His ambivalence toward such programs also showed in his responses to other requests for his opinion on electrical engineering schools. In response to an inquiry in late December 1883, for example, he noted that Stevens Institute was “as good as any” to enter to become an electrician. By June 1884, however, he recommended that a 23-year-old considering attending Lehigh University should instead “get into a shop, electrical if possible, & work out your own salvation. Don’t go to a College.” TAE marginalia on G. W. Euker to TAE, 22 Dec. 1883; TAE marginalia on Horace Engle to TAE, 10 June 1884; both DF (TAED D8303ZIJ, D8403ZDW).
My dear Verity:—¹

Your letter of 18th March came to hand a few days ago.² I held it, as I wished to speak to Mr. Edison about the matter, and he was away in Florida. I am going to get him to write a letter to Major Flood Page, urging that some arrangement should be made with you.³ This letter will go off by either this or the next mail.

We do not use steam dynamos⁴ for Isolated business. What you should use is a $14^{1/2} \times 13$ engine, running at about 250 or 275 revolutions per minute, and belt direct on to two “H” dynamos without any countershafting at all. This would be better and more reliable. I will send you a plan showing how much space this engine and dynamos take up. If you want to run one machine in the daytime, put in a smaller engine with one machine attached.

We estimate that $7^{3/4}$ lamps are attained per horse power in actual practice. I presume that the 6 lamps you speak of was simply taken as a rough calculation.

All our prices are quoted to you F.O.B. New York, so that all you have to figure on is Insurance and freight. Thirty shillings per ton will cover the freight, but I do not know exactly what the insurance will be. By next mail I will send you a revised price list, quoting prices delivered in London.⁵

Mr. Edison is very anxious indeed that the arrangement you propose should be made by the Edison & Swan Company, and I assure you that everything will done, on this side that is possible, to assist you.

I will get up plans for a 2000 and a 3000 light plant, and send them on to you early next week, and I will also state what I would ship the stuff from New York for.

In installing an Isolated Plant, you should be careful to only put in capacity for the maximum number of lights that will be burning at any one time.⁶ That is; suppose the Grand Hotel⁷ requires 3000 lights (I mean, wire and outlets for 3000 lights) they could not burn these 3000 lights all at the same time. Perhaps the average would be below 2000, in which case your plant should have a capacity of 1500 or 2000, otherwise you would have 1500 or 1000 lights more than would ever be required. To explain more fully what I mean, I may say that down town in New York, we have 10 000 lights wired for in our district, and the absolute capacity of our Plant is only 6000 lights. The maximum call upon us for lights is about 5500. Now, if every single light in our district was to be turned on at

---

¹ My dear Verity:—
² Your letter of 18th March came to hand a few days ago.
³ We do not use steam dynamos for Isolated business. What you should use is a $14^{1/2} \times 13$ engine, running at about 250 or 275 revolutions per minute, and belt direct on to two “H” dynamos without any countershafting at all. This would be better and more reliable.
⁴ We estimate that $7^{3/4}$ lamps are attained per horse power in actual practice.
⁵ All our prices are quoted to you F.O.B. New York, so that all you have to figure on is Insurance and freight.
⁶ In installing an Isolated Plant, you should be careful to only put in capacity for the maximum number of lights that will be burning at any one time.
⁷ Suppose the Grand Hotel requires 3000 lights (I mean, wire and outlets for 3000 lights) they could not burn these 3000 lights all at the same time.
one time, the whole snap would be busted (to use American-
ism), that is; part of New York would be turned into darkness,
as we have not got a plant sufficient to carry 10 000 lights. But
it would require an effort on the part of the Almighty to get
the whole lot of lights burning at one time, consequently, we
feel perfectly safe so long as we are able to take care of 5 or
6000 lights. I may mention incidentally, that we are now en-
larging the capacity of our Plant, so that in about a month we
will be able to take on 2400 more lights, which will bring the
capacity of the Station up to about 8500 lights. As soon as this
work is finished, we will be in a position to supply the demands
of about 150 applicants whom we are unable to supply at the
present moment. Then, a little later we are going to improve
the machines in our Station, and add another 1200 lights to its
capacity, simply by a small improvement which will not cost
more than 5 or 600 Pounds for the whole outfit.8
If you find it impossible to make any arrangements with the
London Company, that is, of a permanent character, why not
try and make a dicker with them for each particular plant you
want put in. If their terms should be so onerous as to pre-
vent your making money on your plants, it is just possible that
we might be able to make you a little better prices, as we do
not want to make money out of our machinery, unless you can
make something out of the installation of same. We are very
anxious to see our machines operating in London, and put in
the shape they would be, if Verity & Sons had charge of the
work, with Halloway as their Engineer.9
I was up to Johnson’s house the other night. Mrs. John-
son has been sick. She has either had a swollen sore throat or
mumps, or some other complaint to which human flesh falls
victim.
We have been having most horrible weather in New York of
late. In fact, I think I must have bottled up a lot of the London
weather. To-day is “just to lovely for anything,” as a gushing
New Yorker would say.
Hoping that you will be able to do something in this Iso-
lated business, and with best regards to all the people at Moor-
croft,10 Believe me, very sincerely yours,

TL (carbon copy), NjWOE, DF (TAED D8416BDG).

1. John B. Verity (1863–1905) was educated at University College
School and had some experience with the production of incandescent
electric lamps in the United States. He became a member of the Institu-
tion of Electrical Engineers in 1889 (Obituary, Journal of the Institution
of Electrical Engineers 35 [1905]: 584; Crisp 1904, 12:66). Verity was ac-
quainted with Insull and Edward Johnson through his family’s business, B. Verity & Sons of King St., Covent Garden. This was one of two Verity firms (distinct from Verity Bros.) in the design, manufacture, and fitting of lighting fixtures. A well-established business with a prestigious clientele, B. Verity & Sons made the large chandelier for Edison’s Crystal Palace exhibition in 1882 and a similar fixture for the Holborn Restaurant in 1883 (George Verity to Johnson, 1 Apr. 1882; Johnson to TAE, 8 May 1882; both DF [TAED D8239ZBG, D8239ZBF]; “The Holborn Restaurant,” The Era [London], 3 Mar. 1883, 3; Doc. 2342 n. 9).

2. Verity’s firm was moving on its own into the isolated lighting business. He had applied to Insull in February for detailed information about Armington & Sims engines, explaining that “We have got sick of the Edison [& Swan United] Co and are going into isolated plants right away. We have as good as got the Hotel Metropôle which will open next Spring and is the largest hotel in England.” Insull obliged with information about engines, and also prices and capacities of dynamo models. Verity responded on 18 March with questions about contracting for Edison dynamos through the British company or, preferably, directly from New York. He pressed Edison to help him enter the market, noting that a machine made by rival Schuckert was “all the rage” while those of John Hopkinson built for the Edison & Swan United Co. were “not worth a cent,” a belief shared by that firm’s secretary, Samuel Flood Page. Verity to Insull, 9 Feb., 18 Mar., and 19 Apr. 1884; Insull to Verity, 1 Mar. 1884; Flood Page to TAE, 27 Mar. 1884; all DF (TAED D8437C, D8437L, D8437U, D8416ARW, D8437M).

3. Not found.

4. That is, a dynamo connected directly to the steam engine.

5. The editors have not found such a letter from Insull. In March, Verity had used Insull’s earlier list of dynamo prices in the course of his negotiations with the Edison & Swan United Co., prompting Samuel Flood Page to protest the disclosure of this information to an outside party. Verity promised that all subsequent correspondence with Insull on this subject would be “strictly personal” (Flood Page to TAE, 27 Mar. 1884; TAE to Flood Page, 8 Apr. 1884; Verity to Insull, 19 Apr. 1884; all DF [TAED D8437M, D8416BDN, D8437U]). By mid-April, Verity reached a license agreement governing royalties to the Edison & Swan United Co. on machines bought directly from Edison in New York. Insull sent him blueprints of dynamo connections and dimensions in May (Insull to Verity, 1 and 2 May 1884, both DF [TAED D8416BMJ, D8416BMW]).

6. Edison had written on Verity’s previous letter: “Warn him only put in Boiler & Engine capacity for Lamps that will actually burn & not all those installed this he can get at in various ways Canvass etc.” TAE marginalia on Verity to Insull, 18 Mar. 1884, DF (TAED D8437L).

7. Frederick Gordon, a former solicitor and restauranteur (connected with the Holborn Restaurant) turned hotel entrepreneur, completed the Grand Hotel on Northumberland Ave., facing Trafalgar Square, in 1881. The seven-storey, 500-room establishment also boasted popular restaurants. London Ency., s.v. “Grand Hotel”; Thorne 1980, 239–40, esp. n. 42; Denby 1998, 143, 241; Verity to Insull, 18 Mar. 1884, DF (TAED D8437L).
8. According to the Edison Electric Illuminating Co., 11,272 lamps were wired to the Pearl St. plant at this time, with close to 2,000 more installed and awaiting connection. The company signed an agreement with Edison in February to increase its generating capacity, and it was in the midst of spending about $34,000 to install two short-core C dynamos (modified from the old design), engines, and regulators in the basement of 255 Pearl St. (Insull to Gustav Soldan, 7 Mar. 1884, DF [TAED D8416AU]; Sherburne Eaton report to Edison Electric Illuminating Co. stockholders [p. 8], 9 Dec. 1884, PPC [TAED CA004A]; TAE agreement with Edison Electric Illuminating Co. of New York, 29 Feb. 1884; Edison Electric Illuminating Co. cost estimate, 29 Feb. 1884; both Miller [TAED HM840211, HM840211A]; Edison Electric Light Co. Bulletin 22:2, 9 Apr. 1884, CR [TAED CB022]; Clarke 1904, 50). Edison insisted that any work that might interrupt service or “run the slightest chance of causing the present dynamo to stop” should be performed on Sundays. The additional dynamos entered service in May. Retrofitting the machines already in service was not part of the contract and evidently did not take place (Edison Construction Dept. to William Rich, 9 Apr. 1884, DF [TAED D8416BEK]; see also Docs. 2652 and 2669).

9. James Holloway (1839–1924), an English machinist whom Edison sent to London in late 1881 or early 1882, had been in charge of running the Holborn Viaduct plant. He ended his association with the Edison lighting interests about the beginning of 1884 to take over the Gordon Hotel Co.’s electrical engineering work. He worked in that capacity on the Holborn Restaurant and the Hotel Metropôle. Doc. 2258 n. 6; “Holloway, James,” Pioneers Bio.; Verity to Insull, 18 Mar. 1884, DF (TAED D8437L).

10. Moorcroft was Verity’s country home in Weybridge Heath, Surrey. A photograph and plan of its 50-light installation appear in Verity 1891 (71).

---

**Notebook Entry:**

*Hygroscopy*

---

**Dried films tragacanth are marvelously sensitive to moisture**

1. Edison made this observation four days after Martin Force tried several gelatinous mixtures (but not gum tragacanth) for lamp filaments. N-82-12-04:175, Lab. (TAED N145175B).

2. Edison had devised an extremely sensitive form of hygroscope (the odoroscope) on a different principle in 1881 and exhibited it at the Paris Electrical Exposition that year (see Doc. 2111 n. 22). The editors have found no evidence of further experiments for developing such an instrument.
April 7, 1884

Menlo Park, NJ

Samuel Insull

Send trained man nurse who is not afraid of person out of mind

Send as soon as possible

Edison

[New York]

Thomas A. Edison

Nurse goes out this morning. Don’t fail be here tonight attend Committee meeting

Samuel Insull T[ate]

1. Edison was referring to Mary Edison’s father, Nicholas Stilwell (1822–1884). The son of Nicholas Stillwell and Jemima Aber Stillwell, Nicholas was born in New Jersey and lived most of his life in Newark. Regarding the variant spellings of the family name, see Wright 1939 (229). Both “Stilwell” and “Stillwell” appear for the family members in census records and archival correspondence, although the preferred spelling seems to have shifted to “Stilwell” with Mary’s generation and afterward.

Census records indicate that Mary was the second child of Nicholas and his second wife, Margaret Crane (1831–1908). Nicholas and Margaret were also parents of Alice Stilwell Holzer (1853–1932), Charles F. Stilwell (1861–1939), Eugenie L. “Jennie” Stilwell (1868–1942), and Margaret Stilwell (b. 1871). Nicholas and his first wife, Ann Leake (Elizabeth Leek?), were parents of George G. Stilwill (b. 1842), Harriet “Hattie” Stilwell (b. 1844), and Caroline Stilwell (b. 1846). Nicholas earned his living as a sawyer (not as a lawyer, as stated erroneously in Doc. 218 n. 5), but the 1880 federal census noted that he suffered from “General Debility.” He had also worked as a paid caretaker at Edison’s Menlo Park laboratory for about three weeks in November and December 1883. U.S. Census Bureau 1970 (1880), roll T9_776, p. 68,300, image 0499 (Newark, Essex, N.J.); Samuel Insull to Nicholas Stilwell, 23 and 28 Nov. 1883; Stilwell to Insull, 26 Nov. 1883; TAE to Stilwell, 28 Nov. 1883; Stilwell to TAE, 29 Nov. 1883; all DF (TAED D8316BJV, D8316BLI, D8367ZAN1, D8316BLL, D8303ZHJ); Voucher no. 224 (1883) for Nicholas Stilwell.

Nicholas died at Menlo Park on 9 April 1884. The death certificate attributed the cause to “Cirrhosis of Liver—Pyelitis—accompanied by mania—Exhaustion from” (Stilwell death certificate, 9 Apr. 1884, Nj-Ar [TAED D844ZAP1]). Regarding contemporary medical definitions of these conditions, see Quain 1883, s.vv. “Kidney, Inflammation of Pelvis of”; “Liver, Cirrhosis of”; and “Mania.” The certificate was signed by Dr. John J. Daly, one of the Edison family’s physicians and
the Rahway, N.J., City Physician, who served as mayor of that city from 1885 until his death (see Docs. 1383, 1524, and 1525; “Mayor Daly of Rahway Dying,” *NYT*, 7 Apr. 1896, 1; Ricord 1897, 140–41).

2. A docket notation of “R. Eagan 314 E 32” on the reverse of Edison’s telegram corresponds to the Richard J. Egan identified in a city directory as a clerk living at 314 East 32nd St. in New York. On the day her father died, Mary Edison wrote to Insull on black-bordered stationery asking him to “please pay to Mr Egan thirty-five (35) dollars for Services rendered.” The payment was made from a Construction Dept. account (and recorded under the name “Wm. Eagan”). Richard Egan (b. 1863) became a physician in New York City. Trow 1885, 487; Mary Edison to Insull, 9 Apr. 1884, with Voucher no. 194 (1884) for “Eagan”; Edison Cash Book (1 Jan. 1881–30 Mar. 1886), p. 245, 10 Apr. 1884, NjWOE; ” U. S. Census Bureau 1970 (1880) roll T9_884, p. 475.2000, image 0668 (New York, New York, N.Y.); ibid. 1982? (1900), roll T623_1119, p. 3B (Manhattan, New York, N.Y.).

---

Metuchen Apr 10th [1884]

*From Israel Thornal*

Dear Sir

Your Jersey calf which you sent here July 8th 1882 now had a young calf, one week old to day.¹ Please let me know your intentions with regard to it. at your earliest convenience yours truly

Israel Thornal²

〈Mrs. TAE What shall be done TAE〉

〈Ask for Bill for Pasture Will send for them in a few days〉³

〈OK R.〉³b

ALS, NjWOE, DF (*TAED D8403ZBK*). ¹Written by Mary Edison.

³Written by John Randoph.

1. The Edisons, who had owned an unknown number of cows (possibly in conjunction with Mary’s half sister, Harriet Stilwell Van Cleve), considered selling them in late 1882 but decided not to do so. Edison’s financial records from that time included a “farm account,” but the editors have not identified any transactions relating to these animals generally or Israel Thornal in particular. Samuel Insull to John Randolph, 12 Oct. 1882; Harriet Stilwell Van Cleve to TAE, 17 Oct. 1882; both DF (*TAED D8244U, D8204ZHU*); Insull to Randolph, 18 Oct. 1882, Lbk. 14:302 (*TAED LB014302*); Ledger #5:499, 523, Accts. (AB003 [images 246, 258]).

2. Israel Thornal (variously Thornall; 1822–1908) farmed land near Menlo Park that his family had owned since the colonial period. He wrote to Edison from nearby Metuchen. Thornall 1982, 122–26.

3. John Randolph (1863–1908) began working for Edison as an office assistant in 1878. He was now keeping Edison’s books for both personal and business matters, including the Edison Construction Dept. Doc. 2121 n. 3; “John F. Randolph, Treasurer of All the Edison Companies,
To Nathaniel Keith

My dear Mr. Keith:—

I am sorry to say that I shall have to again put off the appointment for to-morrow that I had with you. My Father-in-law is dead, and I want to spend the time with my wife and family.¹

I will advise you later, making another appointment. Yours very truly,

TAE

TL (carbon copy), NjWOE, DF (TAED D8416BGA). Initialed for Edison by Alfred Tate.

¹. After a recent conversation with Edison, Keith had sent a draft proposal for an “Electro-Chemical & Metallurgical Co.” for the “Manufacture of chemicals, colors, dye-stuffs &c; the production of works of art; all by means of Electricity (Furnished by Edison’s Electric Light Plants during off-hours).” He planned to discuss the matter again on 6 April, but Edison postponed their appointment until the following Sunday, 13 April. When Keith tried to confirm this engagement on 11 April, Edison wrote on his letter: “Write him say Father in law dead etc will make another appointment.” Nicholas Stilwell died on 9 April. Keith to TAE, 4 and 11 Apr. 1884, both DF (TAED D8403ZAZ, D8403ZBL); TAE to Keith, 5 Apr. 1884, LM 18:472 (TAED LBCD5472); see Docs. 2639 and 2646.

To Sherburne Eaton

Major Eaton:—

I am constantly getting enquiries from Europe with relation to new methods that we have adopted in connection with the electrical part of our business; requests for drawings or copies of drawings of new dynamos and other things which we turn out. In fact, for all kind of information with relation to the system.

I am anxious to know what is my exact status with relation to these enquiries. Am I by agreement compelled to give such information at my own cost, or have I a right to charge for same? All I wish to do is to prevent myself from being continually burdened with these matters, but of course, I am perfectly willing to give the information if it is paid for.

April–June 1884
496
Will you oblige me by looking into the matter, and advise me as to the position I should take in the matter.¹

This memo is prompted by an enquiry I have from Berlin to-day, asking for a great deal of information, which it will take considerable time to get out.²

Thos. A. Edison. per McG[owan]

TL (carbon copy), NjWOE, DF (TAED D8416BGE).

1. Eaton replied that Edison was required to furnish only drawings and models necessary for taking out patents; those sought for other purposes fell outside his contractual obligations. Edison noted on that letter: “Insull You can charge for the labor etc. for the infortn requested.” Eaton to TAE (with TAE marginalia), 16 Apr. 1884, DF (TAED D8428O).

2. The Deutsche Edison Gesellschaft (DEG) requested information about Edison’s new method of calculating central station conductors without making a physical model. They also inquired about “what kind of measurements for detecting mistakes are used in your central station, and by what instruments they are done.” Edison replied that he thought it impractical to explain the necessary calculations in a letter, and that the better course would be to send a man to New York for instructions or pay for someone to go to Berlin. DEG to TAE, 31 Mar. 1884; TAE to DEG, 29 Apr. 1884; both DF (TAED D8436ZBW, D8416BLX); see also Doc. 2652.

– 2650–

From Francis Upton

EAST NEWARK, N.J., April 14 1884

Dear Sir:

My understanding with Messrs Howell, Bradley, Lawson and Dyer¹ is, as concerns the one share of the Edison Lamp Co.² agreed to be sold to each of them:

Mr. Edison sells to the Edison lamp Co for the full fare of the assessments with interest added, four shares of the Lamp Co. He will hold them as trustee for the four men mentioned, until they have paid to the Lamp Co. the money [---]³ paid to Mr. Edison together with the interest. Then the shares will be transferred to the names of the individuals.

With this is enclosed a memo. of the amount due Mr. Edison. We credit him as agent.³

You will draw up a trust deed, stating that [---]³ Mr. Edison holds the shares in trust, and that he expects at least⁴ five dollars a week to be paid by the individuals to the Lamp Co. In case of failure to pay this amount the shares may be bought back by the Lamp Co. on payment of of the amounts paid in to the date of failure together with interest. Yours Truly

Francis R. Upton Treas.

April–June 1884 497
ENCLOSURE

East Newark, N.J. [c. April 1, 1884]

Holzer says that he was promised $50 per week from Aug. 1880, that is from the starting of the Lamp Factory at Menlo Park. He remembers distinctly the conversation and thinks that he can recall it to Mr. Edison.

Messrs. Bradley, Howell and Lawson will each agree to put in $5 per week from their wages toward the assessments.

They understand that the amount of their share is to be held for them in trust. They are to be reimbursed for any money they may put in. at par value, the company to have an opportunity to purchase the stock at par.

Questions raised:
What will be the value in the future when improvements are made?
What term of years will be set before the stock or share belongs to the individuals?
Who is to determine whether they are serving the company, and what is to prevent us discharging them at any time?

Who owns the real estate of the here at East Newark?

<table>
<thead>
<tr>
<th></th>
<th>2777.46</th>
<th>163,011.41</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[New?] Works</td>
<td>2393.65</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4890.34.23</td>
</tr>
</tbody>
</table>

| Due on Assess.         | 708.30   | 7040        |
| Total due Mr. E.       | 2069.16  | 6959.50     |
|                        | 4890.34  | 6959.50     |
|                        | 6959.50  | 80.50       |

$10,000 Batch 1000
3,600 Upton 1000
6,400 Johnson 500
500 MacLaughlin 500

$11,000 Holzer 600

7040 3600
3960 $11,000 1100
1100 550
550 660
660 3960

Partition at the Menlo Park office

1. Edison had promised to give John Howell, James Bradley, and John Lawson each a 1 percent share in the lamp factory business at least as far back as September 1883 (see Doc. 2518). On 3 April, he finally executed trustee agreements to grant them each one share of Edison Lamp Co. stock on the terms outlined in this document (an agreement with Lawson has not been found). Philip Dyer inquired the next day about his longstanding request for the same privilege. Edison assented a few days later and executed a similar agreement on his behalf, apparently backdating it to 3 April to match the others. Dyer to TAE, 4 Apr. 1884; TAE to Edison Lamp Co., 8 Apr. 1884; TAE to Dyer, 8 Apr. 1884; all DF (TAED D8429W, D8416BDJ, D8416BDK); TAE and Edison Lamp Co. agreements with Bradley, Dyer, and Howell, all 3 Apr. 1884, all Miller (TAED HM840213, HM840214, HM840215).

2. The Edison Electric Lamp Co. finally incorporated on 5 January 1884 (New Jersey Secretary of State 1914, 200). The editors have not found completed incorporation papers, but a draft document variously dated October, November, and December 1883 identifies Edison as holding sixty-seven shares, Upton fifteen, Charles Batchelor ten, Edward Johnson five, and Holzer three (Edison Lamp Co. draft Incorporation and Association papers, 1883, DF [TAED D8332ZDW]). The Edison Machine Works also incorporated in New York on or about 13 February (with Edison as president). Arrangements for that new legal entity to assume the business of the old partnership were not completed before March. Doc. 2343 (headnote, esp. n. 24); Samuel Insull to John Tomlinson, 4 Mar. 1884; TAE legal statement regarding Alfred Tate, 19 July 1884; Edison Machine Works minutes, n.d. [Feb. 1884]; all DF (TAED D8427Z, D8431ZAK, D8431D).

3. At Samuel Insull’s request, the Edison Lamp Co. credited the sale of four 1 percent shares in the company to Edison’s foreign order account. Each share was valued at $1,879.31 based on the company’s capital, with interest. Insull to Edison Lamp Co., 14 Apr. 1884; Edison Lamp Co. to TAE, 17 Apr. 1884; both DF (TAED D8416BGG, D8429ZAD).

4. This date is conjectured based on the conditional terms presented below, which are substantially those of the 3 April trust agreements discussed in note 1.

5. Except as noted, the editors have not determined the basis for the values in any of these calculations. The figure of 2,777.46 is fractionally more than 10 percent of Edison’s 70 percent ownership portion of the profit the company claimed for 1883. There is, however, no evidence that a dividend had been declared. Philip Dyer to Upton, 10 Apr. 1884, DF (TAED D8429Y).

6. This figure was the company’s capital, as reported to Sherburne Eaton on 10 April. Three percent of this figure, as calculated here, would represent the total value that Edison planned to transfer to Brad-
Friend Bentley:—

Cannot you assist me towards getting the trade of supplying the principal Western Union offices with dynamo current? I could arrange to do the work very cheap, and I am sure my terms would be perfectly satisfactory to the Western Union officials, as I would make the payment depend \([-\])\(^a\) upon \([\])\(^b\) the satisfactory performance of the work.\(^2\)

If you can assist me in any way, I shall feel very much obliged to you.\(^3\) With kind regards, I remain, Yours very truly,

TAE

TL (carbon copy), NjWOE, DF (TAED D8416BHW). Initialed for Edison, probably by Samuel Insull. \(^a\)Canceled. \(^b\)Interlined above.

1. Henry Bentley (1831–1895) was the founding president of the Philadelphia Local Telegraph Co., established about 1873. A minor inventor himself, Bentley had played an important role in testing Edison’s carbon telephone for Western Union in 1878. Obituary, NYT, 10 Sept. 1895, 5; Scharf and Westcott 1884, 2132–34; Docs. 548 n. 4, 1194, 1200, 1204, 1223, 1239, 1241, 1247, 1256, and 1257 n. 1.

2. This letter to Bentley was one of several similar ones that Edison wrote to U.S. and Canadian telegraph officials at this time. He pointed out that several months previously, he had installed a small dynamo and gas engine in Bentley’s office to run the stock printer, with satisfactory results. Edison had entertained similar ideas in 1882 (TAE to Baltimore & Ohio Telegraph Co., 16 Apr. 1884; TAE to Erastus Wiman, 17 Apr. 1884; TAE to George Ladd, 17 Apr. 1884; all DF [TAED D8416BHIX, D8416BHZ, D8416BIB]). His correspondence with Bentley was not his first on the subject of applying dynamo current to telegraphic circuits (see Doc. 2326).

3. See Doc. 2676 regarding Edison’s ideas for connecting dynamos in telegraph circuits, an idea he had considered in 1882 (see Doc. 2326). Bentley soon reported that several Western Union officials visited his office and were “much pleased” by the “splendid” stock printer arrangement. Edison was invited to submit a bid to Western Union, which he did. In June, Bentley circulated a report showing a savings of $4.43 per day with the dynamo and Otto gas engine. In a notation of thanks on Bentley’s cover letter, Edison promised to “paint your name on the bottom of my machine so they will work.” Bentley evidently accepted the proposition to power the Philadelphia Local Telegraph Co.’s office and local circuits, and Edison dispatched William Andrews to set up two dynamos there in May. Starting the machines proved troublesome, which Edison ascribed to depolarized field magnets. Bentley to TAE, 23 Apr.
Dear Sirs:—

Your favors of the 5th of February, and 27th March came to hand while I was absent from New York on an extended trip in the South.\(^1\) I will now take them up, and answer your various questions seriatum.

With relation to the “C” Dynamo,—I send you per express blue prints of the drawings for the modification of the present dynamos. I also enclose you herewith copy of a letter from the Superintendent of our Machine Works, explanatory of the drawings, and I also hand you a copy of the brief of the tests on the two dynamos which we have altered, and which we are now putting in our Central Station.\(^2\) You will notice that we have used on the field magnets exactly the same wire that was originally on the machines. This has been done for the sake of economy in the first investment, and in order to get the volts we normally require, we have altered the field regulating resistance, exact data in relation to which we will send you shortly. If you require any further information in regard to this matter, please let me know.

As advised you elsewhere, the Crank-shaft has been re-shipped to Milan.\(^3\)

I also enclose you a statement showing the general arrangement of our dynamos; the various prices of same, and we hope to send you within a few days detail drawings of all the machines.\(^4\) With relation to your request for information regarding the 3 wire system, I beg to say that although it is possible to connect the 3 wire system with the 2 wire system, yet it is not practical on a small scale. If you are going to install two or three times the amount of conductors that you now have, I would strongly advise you to adopt the 3 wire system; and I think I could then arrange to alter your present two wire system over to the 3 wire system, at a small cost as compared with continuing your present two wire system over a very extended district.\(^5\)

I do not think it would be possible for me to explain by means of correspondence the present methods adopted for
calculating out conductors. I would be necessary to send a man to Milan in order to explain the matter. Mr. Batchelor will be here very shortly, and I will consult with him in relation to the matter, as I have a similar request to the one you make from the German Company, and I am rather in a difficulty now as to how it will be possible for me to comply with your request.

The various dynamos you speak of with extra armatures have all been shipped, and you have doubtless received same ere this.

We are making shipments of lamps just as quickly as we can turn them out. As advised you by cable, we shipped 900 ten candle power lamps on the "Guttaedo" on the 12th inst. We shall make another shipment by the first steamer sailing.

We have endeavoured to trace up the error you allege in connection with our shipment of 27th December. We most invariably find that when complaints are made of any extensive short shipment that the barrels have not been completely unpacked. Only a few days ago we received a barrel back at the lamp factory as empty, whereas there was a layer of lamps in the bottom of the barrel. This was in connection with a shipment to some of our friends in this country. Will you please examine the barrel referred to again and have a careful count of your lamps made, and if you still find that there was a short shipment of 200 eight candle power lamps, we will credit you with the amount of same.

Referring to your letter of the 27th March,—we have given you credit for the overcharge on the 750 lamps you speak of.

With relation to your enquiry as to what we will charge for 25,000 lamps delivered to extend over the current year, we beg to quote you prices as follows:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>40 cents</td>
</tr>
<tr>
<td>16</td>
<td>[-] 40 &quot;</td>
</tr>
<tr>
<td>10</td>
<td>50 &quot;</td>
</tr>
<tr>
<td>32</td>
<td>60 &quot;</td>
</tr>
<tr>
<td>50</td>
<td>$100 &quot;</td>
</tr>
<tr>
<td>100</td>
<td>$150 &quot;</td>
</tr>
</tbody>
</table>

If you give us an order for 25,000 we will be willing to forward them in required regular shipments extending over a year at above prices, and all charges such as freight and Insurance paid to Genoa. I trust those prices will be perfectly satisfactory to you.

With relation to your repeated enquiry about the Porter-
Allen shaft,—we have answered this question in the foregoing.

The credit for sockets supplied to Bergmann & Co was an error. We have set this right in our correspondence with the Compagnie Continentale, who will have doubtless advised you of the matter.11 Yours very truly,

TAE

PS.4 Statement Re Dynamos sent under separate cover

TL (carbon copy), NjWOE, DF (TAED D8416BIL). Initialed for Edison by Alfred Tate. cCanceled. bCorrected by hand. aInterlined above by hand. dPostscript handwritten by Alfred Tate.

1. Giuseppe Colombo had written (in his own name) on 5 February, largely in response to Doc. 2580 but referring also to discussions with Samuel Insull in Milan. Having received no reply to his questions, he wrote again on 27 March. Edison noted on the second letter: “Cant all the questions he required in his previous letter be answered I think we should hereafter be prompt & correct with these people to keep our trade with them which in the event of great success in the future will be a great thing for us.” Edison’s marginal notes on Colombo’s first letter were incorporated into the present reply. Colombo to TAE, 5 Feb. and 27 Mar. (with TAE marginalia) 1884, both DF (TAED D8436V, D8436ZBU).

2. Edison referred to the modification of “Jumbo” C dynamos to the short-core design, such as was done on the two machines being installed at New York’s Pearl St. station (see Doc. 2644). Samuel Insull asked the Edison Machine Works for “detail information with relation to alteration of Central Station dynamos” to accompany drawings for the Italian company, but none of the enclosures has been found. In the latter half of 1883, the Milan firm acquired two old-style C machines being held at Antwerp by the Compagnie Continentale Edison. Insull to Gustav Soldan, 11 Apr. 1884; Colombo to TAE, 4 Oct. 1883; both DF (TAED D8416BFJ, D8337ZEO).

3. The Milan company reported in December 1883 that one of its Porter-Allen steam engines, which had never entered service (and may have been part of a long-running payment dispute with Edison; see Doc. 2399) had a defective crankpin. When the manufacturer, the Southwark Foundry in Philadelphia, confirmed the defect, Insull instructed them to make the repairs and “charge same to us & etc ship Crank Shaft to Milan.” The repairs were completed by 4 April, and Insull so advised Colombo a few days later. Comitato per le Applicazioni dell’Elettricità to TAE, 14 Dec. 1883; Southwark Foundry to TAE, 11 Mar. (with TAE marginalia) and 4 Apr. 1884; Insull to Southwark Foundry, 8 Apr. 1884; Insull to Colombo, 8 Apr. 1884; all DF (TAED D8337ZFV, D8436ZBO, D8436ZBY, D8416BDY, D8416BDS).

4. The editors have not found such drawings, but Insull may have sent them in early May when he provided similar information to John Verity in London. Insull to Verity, 2 May 1884, DF (TAED D8416BMW).

5. Colombo had discussed with Insull the Milan company’s plan to expand its underground conductor network. In his 5 February letter

April–June 1884 503
(see note 1), Colombo stated that Insull “thought it possible to connect a three-wire system of conductors with an existing two-wire network, and promised to send . . . a complete information and sketches of the three-wire system . . . and how I could join the two systems together.” Edison commented on this plan: “We found that it wld pay to work the 3 wire in connection with the old.” By July 1884, the plant was wired to about 3,500 lamps through roughly three miles of conductors; 2,500 of the lamps were for the house and stage of the Teatro alla Scala. With the addition of dynamos by the middle of 1885, the plant served 5,600 lamps. “The Edison Central Station in Milan,” Electrician 13 (26 July 1884): 248–49; “Electric Lighting in Milan,” ibid. 15 (29 May 1885): 45–46.


7. See Doc. 2649. Colombo had “hundreds” of requests to light small towns and villages, but he was still awaiting details of the three-wire system in July. Colombo to TAE, 11 July 1884, DF (TAED D8436ZDA).

8. The Italian firm had ordered one each of the G and R dynamo; when these were contracted for sale before they reached Milan, Colombo asked for one more apiece. He also ordered spare armatures. Comitato per le Applicazioni dell’Elettricità to TAE, 14 Dec. 1883; Colombo to TAE, 5 Feb. 1884; both DF (TAED D8337ZFV, D8436V); Colombo to TAE, 16 Jan. 1884, LM 2:41D (TAED LM002041D).

9. This erroneous spelling of Gottardo may have arisen from a mis-reading of Colombo’s reference to the ship in his 27 March letter (see note 1). The Gottardo, a large iron steamship of the Navigazione Generale Italiana, entered service about the beginning of 1884. Edison cabled about this lamp shipment on 17 April. “A New Italian Steam-Ship,” NYT, 26 Jan. 1884, 8; TAE to Colombo, LM 2:57C (TAED LM002057C).

10. In that letter (see note 1), Colombo discussed the status of a prior order for 3,000 10-candlepower (designated “C”) lamps rated for approximately 102 volts. He had received only 1,000, not including 750 8-candlepower (“B”) bulbs mistakenly sent in February and charged at the higher price of the more intense lamps. Colombo cabled Edison on 17 April: “Urgent ship ten candle lamps.” LM 2:57B (TAED LM002057B).

11. Colombo had objected to a shipment of 500 “roughly made” key sockets from Bergmann & Co. He offered to keep them at a 50 percent price reduction; when Edison refused, Colombo returned the entire lot on the authority of Joshua Bailey. Colombo was disappointed to learn that Bergmann & Co. would not refund the full price, which he suspected had been erroneous from the first. The editors have not found contemporaneous correspondence on this subject with the Compagnie Continentale Edison. Comitato per le Applicazioni dell’Elettricità to TAE, 4 Oct. and 14 Dec. 1883; Bergmann & Co. to Insull, 27 Nov. 1883; TAE to Comitato per le Applicazioni dell’Elettricità, 30 Nov. 1883 and 4 Jan. 1884; Bailey to TAE, 25 Mar. 1884; all DF (TAED D8337ZEO, D8337ZFV, D8324ZAU1, D8316BLW, D8416ABJ, D8436ZBS).
Baltimore, Md  Apr. 21, 1884.

From Louis Duncan

Dear Sir.

Prof. Rowland¹ wishes me to ask you, if you could have wound for us a dynamo that we could use for charging a storage battery of 50 cells in series. We want it for our experiments on the Ohm² and our own machine is worn out. We have an engine of about 5 HP. Yrs &c.

L. Duncan.³

(Please give Volts required at terminals of machine—also amperes required while charging—⁴ E)

ALS, NjWOE, DF (TAED D8403ZBT).

1. Henry Augustus Rowland (1848–1901), the first professor of physics at the Johns Hopkins University (Docs. 1910 n. 2 and 2391 n. 1), made independent tests on the efficiency of Edison’s lamps in 1880. He also had allowed Edison to prepare a dynamo patent application in his name, an effort to circumvent the American interests of Siemens & Halske, but he otherwise declined engagement in Edison’s affairs (see Docs. 1880, 1951, 2021, 2033). Rowland had sent a letter on 5 March, while Edison was in Florida, but it has not been found and may not have been answered (Rowland to TAE, 6 Mar. 1884, DF [TAED D8403ZAJ]).

2. Rowland, who had made determinations of the ohm in the 1870s, was supervising experiments made by Arthur Kimball with the assistance of Duncan and at least one other person. Their effort to reach an absolute value of the ohm, commissioned by the United States Congress with a grant of $12,500, was done both at Rowland’s Johns Hopkins laboratory and at Clifton House, a country residence near Baltimore of the university’s late benefactor, where urban vibrations would not disturb their instruments. Rowland referred to a battery of 50 Planté cells, charged by “A small Edison dynamo machine” in the Clifton House basement, to be used in calculating the resistance of standard coils (one of several experimental methods he used). Owing in part to difficulty in constructing the apparatus, Rowland and Kimball did not complete these trials until the end of 1884. ANB, s.v. “Rowland, Henry Augustus”; Kimball 1884; Kimball to TAE, 7 May 1884, DF (TAED D8403ZDI); Rowland, “Report on the Experiment of the Ohm” [1889?], pp. a, 5–12, Ser. 5, Box 41, HAR.

Standardization of the unit of electrical resistance had had a long and contentious history since the British Association first called for such an effort in 1862. The British sought an absolute determination based on the resistance of standard wire coils. Germans, led by Werner Siemens, preferred a practical value, suitable for engineering purposes, derived from the resistance of a tube of mercury. The French, with an eye to maintaining their position as the center of international metronomy, attempted to arbitrate simultaneous disputes over units of electrical resistance, current, and pressure. Rowland was a delegate to French-sponsored international conferences in 1881 and 1882, neither of which definitively resolved the matter of the ohm. The United States Congress, in order that the nation should not be left out of the debate,
allocated $12,500 to the Johns Hopkins University for research under Rowland’s direction. Rowland hoped to reconcile the various experimental methods by making new trials, and he planned to present his results to an April 1884 meeting of the French commission on electrical standards (an outgrowth of the 1881 Congress of Electricians in Paris). Unable to complete the work in time, he asked the conference to delay any decision until at least November 1884. The conference, notwithstanding, plunged ahead. Confronted with conflicting results, it adopted an average measurement, which satisfied no one. Rowland believed its value too low, which he subsequently showed to be the case, but he did not report his results to the British Association until 1887. His measurement substantially agreed with earlier findings by Lord Rayleigh and Eleuthère Mascart and, slightly rounded, was adopted in 1893 as the international standard by the International Chamber of Delegates for the Determination of Electrical Units, over which Rowland presided during the World’s Columbian Exposition in Chicago. That valuation remained the international standard until after World War II. Kimball 1884; Kershaw 2007, 111–19, 128–29; on the international history of the ohm, see Carhart 1893, Schaffer 1991, and Schaffer 1994; an undated extract of Rowland’s 1884 letter (probably spring 1884) to the International Conference for the Determination of Electrical Units is published in Rowland 1902, 217–18.

3. Electrical engineer Louis Duncan (1861–1916), an 1880 graduate of the U.S. Naval Academy, was commissioned an ensign and posted to Johns Hopkins for graduate study in physics and electricity about 1882. He completed the Ph.D. under Rowland in 1885 with a thesis entitled “On the Determination of the Ohm by the Lorentz Method,” which the editors have not found. After leaving the Navy in 1886, Duncan taught at Johns Hopkins for fourteen years. During that time he participated as an engineer or consultant in the electrification of rail lines in Baltimore, Washington, D.C., and New York City, and was associated with electric traction pioneer Frank Sprague in the firm Sprague, Duncan, and Hutchinson. He chaired the new electrical engineering department at MIT for two years (from 1902) before returning to private engineering practice in New York, where he organized the firm of Duncan, Young & Co. “Louis Duncan Dead; Noted as Engineer,” NYT, 14 Feb. 1916, 13; Beach and Rines 1911, s.v. “Louis Duncan”; Annual Report of the President of Johns Hopkins University 1886, 68; Duncan application for admission to American Institute of Electrical Engineers, 7 June 1887, Duncan (accessed 15 Oct. 2009 through http://www.ieeeghn.org/wiki/index.php/Main_Page).

4. Edison’s marginalia was the basis for a short typed reply to Duncan on 24 April (DF [TAED D8416BKJ]). Duncan, writing in Rowland’s name, answered that he required “10 volts while running to give 10 amperes” through the battery. Edison promised that “We can wind you a machine that will give 200 Volts and stand a Current of 10 amperes. The volts can be lowered by a resistance box in field will this answer.” Duncan responded affirmatively, again speaking for Rowland, and, as an afterthought in his “great hurry for it,” he asked whether Edison had any on hand. Almost immediately, and apparently in reply to a message from Rowland that has not been found, Edison quoted prices and specifications for standard 110-volt dynamos of 45 and 22 ampere capacity.
Rowland requested the smaller machine be sent as “soon as possible,” and the Edison Machine Works shipped one with a resistance box on 8 May. Edison subsequently answered separate inquiries from Rowland about the armature speed for each engine, but he did not address the apparent discrepancy, and it is unclear whether Rowland in fact acquired both (Rowland to TAE, 28 Apr. 6, 9 and 10 May 1884; Arthur Kimball to TAE, 7 May 1884; TAE to Rowland, 9 May 1884; Samuel Insull to Kimball, 9 May 1884; all DF [TAED D8403ZCE, D8403ZCN, D8403ZCS, D8403ZCV, D8403ZDI, D8416BOB]; TAE to Rowland, 5, 10, and 12 May 1884, LM 19:102, 137A, 141B [TAED LBCD6102, LBCD6137A, LBCD6141B]).

Cincinnati, April 22nd 1884.

From Archibald Stuart

Dear Sir:—

I write this letter asking a little advise, and in order that you may understand the position I will have to make it somewhat lengthy.

When the Middletown plant was put in it was during my sickness in November. Mr. Shaw arranged a kind of temporary organization at Middletown which amounted to nothing, consequently we were compelled to install and run that plant ourselves.¹ We find it very difficult to enlist local influence, for the reason that the Brush Company have had a company there for the last three years. They light the town by means of a tower and three or four scattering lights.² As you are aware there is also a Gas Company there,³ but the main trouble is the Brush Co. who have instead of making money lost three or four thousand dollars. The public seem to be aware of that fact, and placing all electric light in the same category they think we are bound to loose money also, the result is they will not touch electric light stock with a forty foot pole.

We have succeeded in getting in about one hundred and seventy five lights and there the thing seems to hitch. We have some very good friends there, well wishers, etc. but no workers. Some of these friends of ours are in the city council, and one in particular is Chairman of the Committee on light. The Brush Company three years ago commenced to light the town for three thousand dollars per year; last year they had four thousand dollars, this year they want five thousand dollars, consequently the people are getting down on them and they are very unpopular. They are now working very hard at the Storage battery which they have there, trying to get people interested in them, but no one seems to take hold. They succeeded in putting a few of their large lights in some of the
large stores, which after a few months trial were thrown out, hence the only revenue they have is from the city lighting having no private consumers at all. Now it so happens that our mains in Middletown are in the main streets, not in the alleys. In conversation with Mr. Andrews—he thinks it would be a very easy matter for us to put up some additional posts, run light mains where we have no main and cover sufficient territory to light the town; and that it could be accomplished by running one more wire where we now have main and utilizing the middle wire of the present system, or as some call it, the compensating wire in connection therewith to make the circuit. This enables us to control all the street lights from the station.

Now the point is; first:— if we can succeed in lighting the town that winds that Brush Company up completely, and they will have to leave. Secondly:— It puts us on top of the Gas Company and makes us at once the leaders in light; establishes public confidence and enables us to get more private consumers, that will at once make the plant pay.

The question is:— Will it work upon the plant above proposed, and what do you think of it? We put a couple of lights up in brackets on the poles at the entrance of the alley going to our station. This seems to have enthused the council committee very much, and they are after us red hot to give them a bid, and offer us a very fair show.

Please answer this as soon as possible [a] above the bid will have to go in very shortly, if we make it. Yours truly.

A Stuart Secy. A[lttenberg]

〈Idea looks OK let map be made of where Extra main runs, no of & position of poles & also where Each Lamp is & How new wires connect with our Center wire & we will calculate Cost & what you can afford to do City lighting E[ison]〉

TL (carbon copy), NjWOE, DF (TAED D8449ZAF). Letterhead of Ohio Edison Electric Installation Co. “Cincinnati,” and “188” pre-printed. ¹Faint copy. ²Obscured overwritten text.

1. The Edison Illuminating Co. of Middletown, Ohio, received local authority to install wires on poles and underground in September 1883 and contracted with Edison in November to install the plant (Welmer 1915, 87; TAE agreement with Edison Illuminating Co. of Middletown, 28 Nov. 1883, Miller [TAED HM830202]). By “ourselves,” Stuart probably meant the Ohio Edison Electric Installation Co., which later claimed right to ownership of the plant; Edison, however, assigned the title to the Middletown company, with which he had made the contract (George Altenberg to TAE, 19 June 1884, DF [TAED D8449ZBF]; Samuel Insull to Stuart, 19 June 1884, LM 19:462 [TAED LBCD6462]; April–June 1884 508
TAE agreement with Edison Illuminating Co. of Middletown, 14 July 1884, Miller [TAED HM840227].

2. The outdoor lighting system adopted by the Brush Electric Light Co. (established by inventor Charles Brush) and its local affiliates consisted of clusters of powerful arc lamps mounted on a number of iron or wood towers, each generally more than 100 feet high. In a twelve-month period in 1884-1885, the company erected ninety such structures. One contemporary analyst concluded that “So long as the tower system is retained there can be no competition among electric light companies for public lighting, because of the great expense of building towers, and the power of the Brush company to put their price so low that no other company could think of building towers in opposition.” Doc. 2148 n. 7; Moore 1887, 542.

3. The Middletown Gas, Light and Coke Co. was chartered in 1872 to provide gas for public and private lighting. Wilmer 1915, 85.

4. George Altenberg, a clerk or secretary, signed Stuart’s name and his own initial on the letter. Stuart to TAE, 12 June 1884, DF (TAED D8448ZAL).

5. Samuel Insull prepared a typed reply based on Edison’s marginalia. He then sent Stuart’s letter to William Andrews, who directed Harry Leonard to determine where the new lines, poles, and lamps should go. Stuart replied that Middletown was “the hardest town we have struck,” but that lighting the streets would “forever squelch the Brush Co. there, which will cause our plant to be on a profitable basis in a very short time.” Edison noted on a subsequent inquiry from Stuart: “This ought to be rushed or He will lose the City Contract for Lighting.” The necessary blueprints went to Stuart about 10 May. At the end of 1885, after having installed street lights and expanded the service district, Stuart reported that the Brush company had left Middletown and that he hoped soon to force out the gas company. Insull to Stuart, 24 Apr. and 9 May 1884; Insull to Andrews, 24 Apr. 1884; Andrews to TAE, 27 Apr. 1884; Stuart to Insull (with TAE marginalia), 7 May 1884; Stuart to TAE, 9 Dec. 1885; all DF (TAED D8416BKF, D8416BOI, D8416BKA, D8442ZDS, D8449ZAP, D8523ZCA).

—2655—

To Sherburne Eaton

Dear Sir,

Owing to the fact that I am rapidly finishing up the outstanding work in connection with the Construction Department and that the Agents of the Light Company are not forming any new Companies and that in consequence I am not getting any new contracts I find myself in the position of being obliged to immediately disband my organization as the expenses in connection with it are too large to allow of my continuing it unless I have work in hand.¹

I very much regret being compelled to take this course and in as much as it has been suggested that the Isolated Com-

—2655—

[New York,] 24th Apl [1884]
pany should take in hand the work now being performed by the Construction Dept. I would suggest that the matter be considered and an immediate decision arrived at. Otherwise a staff of the best men in the Service and which has cost considerable time and money to organize will have to be disbanded, and immediately further local Companies are formed all the labor and expense of organization will have to be again incurred.

I shall be happy to supply you with any information you may desire as to the expenses in connection with the running of the Construction Department.

Urging upon you the necessity for prompt action upon this matter,\(^2\) I remain Very truly yours

Thomas A Edison

LS (letterpress copy), NjWOE, DF (TAED D8427ZAL). Written by Samuel Insull.

1. Edison considered the alternative of forming a company to carry on the work of the Construction Dept. on a broader scale, and he went so far as to have papers drawn up to incorporate Thomas A. Edison & Co., Contractors, at Harrison, N.J. The draft papers have blanks for the day and month in 1884, but it seems likely that Edison contemplated this idea in late winter or early spring, after the incorporation of the Edison Lamp Co. (and about the time the Edison Machine Works also incorporated). Edison may also have acted following a legal analysis of his personal obligations under the Edison Construction Dept.’s contracts with local illuminating companies. Though that analysis is undated and unsigned, attorney John Tomlinson would have been an obvious choice for the job. The proposed contracting company would have had an initial capital of $25,000, of which Edison planned to subscribe $24,600, with the remainder divided equally among Francis Upton, William Holzer, Charles Batchelor, and Samuel Insull. The firm would have a broad charter to purchase, own, use, and license patents for the “generation regulation or application of Electricity to light, heat, power telegraphy, [and] telephony” and related manufacturing; and, specifically, “To contract for, and erect install and operate Edison Electric Light Central Station Plants in the various cities towns and villages throughout the United States & other countries.” The work of making “estimates determinations and plans” for central stations would be conducted at a New York office. Edison & Co. Contractors draft articles of incorporation, undated 1884; “Memorandum on Contract,” n.d. [1884]; both DF (TAED D8439ZBO1, D8439ZBR).

2. See Doc. 2661 esp. n. 1.
New York, April 24, 1884.  

From Frank Sprague

My dear Mr. Edison:

Since you have recently asked me to take up certain problems relative to the transmission of power, my reluctance to do which you may have noticed, it becomes necessary for me to enter into some explanations and to define my future position.

Before entering your service, in which I hope I have satisfactorily preformed whatever duties you have assigned me, I became interested in this subject, and while I have not had as much opportunity for experimental work as I should desire, I have lost none of my interest in it, and have advanced far enough to wish to keep it entirely apart from whatever duties are owing you, and to make it my especial study, that is to retain intact my individual title & its development. I desire to go into a course of work to settle practically the theories I hold and to compare whatever results I may get with the best work of Duprez, 1 Ayrton, 2 Perry, 3 and Hopkinson—

Such work must be largely mathematical, and a system of distribution for power requires the best work of this character— I feel that I can, and to a great extent in my own mind have solved the question of this transmission— To take up subject in obedience to your request would be simply to make over my own work without due consideration, and a due regard for my future makes it impossible for me to do this.

You, surely, will understand me when I say that I desire to identify myself with the successful solution of this problem, and when I also say that I am actuated by the same spirit with which you attacked the electric light, with the result of making yourself world-famous

You believed that you could solve that problem, and you did it.

But with all the responsibilities which that solution brought you, and with the question of thermoelectricity still remaining, you have stated that you have not the time necessary to give to the transmission of power— Surely it is enough for anyone, and I will have to devote the best of whatever knowledge I possess to make it a success.

As your subordinate, I cannot work with the same freedom as if I take the future into my own hands— Personal reasons, and my relations with others make it necessary that I should look well to the future, and with the confidence I feel, and the example of your own perseverance, I am willing to take upon myself whatever responsibility attaches to my action—
I am aware that the future of the Edison system of lighting must be allied with the transmission of power, and I hope it may be my good fortune to be instrumental in such alliance—

In taking this position, I of course know that you may feel that the salary you are paying me does not warrant you in retaining my service as an electrical expert, but I am ready to relieve you of this burden by tendering you my resignation, if you so desire, to take effect on the 1st proximo.¹

Lest you may think me influenced by other electric light interests, I will say that I have had absolutely no negotiations with any other company; that I have the same unbounded confidence in the soundness of the principles, and the successful development of the Edison system that I have so long had; and that I shall look forward to that development with the same hope and interest I now feel—

Should it be desirable that I continue any relation with your work, I can only consent to do so in a purely consulting capacity, with a perfect freedom to the time and title of my own inventions—

In regard to the dynamos now being added to the Pearl St. Station, the rewinding of the 50 light machine, and the reducing of the speed of the S, Y, and H machines, I will do what I can, and do it willingly.²

In closing let me express my sincerest personal esteem for yourself, and my personal regret that the highest duty to myself and those related to me make it necessary that I should take this step. Very truly yours—

Frank J. Sprague.


1. Marcel Deprez (1843–1918) was a French engineer who, after 1875, promoted the use of electric power in industry. In the early 1880s, Deprez experimented extensively on the metering and long-distance transmission of electrical power. He made his first major demonstration at the 1882 exhibition in Munich, where he built an artificial waterfall powered by direct current generated some thirty-five miles away. *DSB*, s.v. “Deprez, Marcel”; Hughes 1983, 131, 335; Gooday 1995, 250–51.

2. William Edward Ayrton (1847–1908), physicist and engineer, had a long history of problem-solving innovation in telegraphy and electric lighting in England, India, and Japan. He was professor of applied physics at Finsbury Technical College in London; in 1885, he became professor of electrical engineering at the City and Guilds Central Technical Institution in South Kensington. Ayrton dealt with various problems of electric regulation and transfer, including the improvement of


4. Dalzell 2010 (55–58) attributes the timing of Sprague’s decision, in part, to the young man’s recent work in Brockton, where he had “access to a nearby machine shop as well as a supply of electrical materials and components. Restless and ambitious, he surveyed his options and prepared to build.” Edison replied immediately in Doc. 2657.

5. In addition to the work mentioned here and his ongoing efforts to improve regulation of the three-wire system, Sprague had recently submitted a report, at Edison’s request, on rewinding various dynamo models as motors. Sprague to TAE, 16 Apr. 1884, DF (*TAED* D8442ZDG).

---

**To Frank Sprague**

[New York,] Apl 24 [1884]

Sprague,¹

As we are about to close out our construction dept I think the best way is for you to resign on the 1st for the reason that your position would be so curious as to be untenable² Yours

Edison

ALS (letterpress copy), NjWOE, Lbk. 18:46 (*TAED* LB018046); a letterpress version of a copy, probably written by John H. Randolph, appears on the same page.

1. Edison wrote this letter in reply to Doc. 2656.

2. Sprague tendered his formal notice the next day, citing “the reasons given in my letter of yester–date” for resigning as of 1 May. Edison promptly accepted it. Sprague to TAE, 25 Apr. 1884; TAE to Sprague, 25 Apr. 1884; both DF (*TAED* D8442ZDQ, D8416BKL).

---

**To Henry Villard**

[New York,] 25th Apl [1884]

Friend Villard,

I have concluded not to take hold of the Light Company’s business upon the terms indicated by you at our last interview.¹ I have written to the Light Coy. that I would be pleased turn over the skilled men in my Construction Department either to the Light Co or Isolated Co as it is impossible for me to continue to stand the expense of my present organization in as much as the Light Co’s Agents are not forming any new Com-

---

*April–June 1884* 513
panies and I am consequently not getting any more contracts.²
If they decide not to take over this organization I shall disband
it as quickly as circumstances will permit.

Regarding the question of manufacture my Associates are
willing to give the Light Co various percentages in the gross
sales and to submit to a limitation of profits in some form to
be agreed on. The percentages would vary with each Factory
and depend upon the amount of work done in each year. My
associates & myself believe however that it would be a great
mistake for the Light Co to derive any profit from the Facto-
ries. The Company should merely restrict the Shops as to the
amount of their profits in as much as the strongest argument
the Light Co can make in negotiating with Local Companies
as to licenses is that they have no interest whatever in the prof-
its derived from manufacture but that they (Light Co) look,
for their profits, to the same source as do the local parties in
interest with them viz Dividends on their stock holding in the
local Illuminating Companies. We shall however be ready to
state the various percentages we are willing to give whenever
we are called upon to do so³. Very truly yours,

Thomas A. Edison

LS (letterpress copy), NjWOE, DF (TAED D8427ZAM). Written by
Samuel Insull.

1. The editors have not determined the substance of Villard’s pro-
posal, but see Doc. 2638.

2. See Doc. 2655. One gauge of Edison’s personal monetary stake
in the village plant business is the $8,000 invoice Samuel Insull had re-
cently prepared for a portion of the Edison Electric Light Co.’s liability
for canvassing and estimating work done by the Construction Dept. In-
sull to Frank Hastings, 22 Apr. 1884, DF (TAED D8416BJJ); see also
Docs. 2704 and 2736.

3. See Doc. 2725. At some unspecified time, probably in mid-1884,
Edison itemized the capitalization of his lighting enterprises, including
the manufacturing shops. He listed his personal investment as $733,700;
combining his stake with that of his manufacturing partners, the total
was $1,008,000. TAE memorandum, n.d., DF (TAED D8526ZAT).

To Archibald Stuart

Caught severe cold on my return from Florida. Feel too
sick to make a long journey. Am [---]¹ much obliged for
the compliment but must ask to be excused under circum-
stances.¹

Edison

[New York,] 4/26 [1884]

To Archibald Stuart

Caught severe cold on my return from Florida. Feel too
sick to make a long journey. Am [---]¹ much obliged for
the compliment but must ask to be excused under circum-
stances.¹

Edison

April–June 1884 514

1. Stuart had telegraphed for Edison to attend the opening of the Piqua, Ohio, central station. He began the invitation: “The whole population of Piqua say you must be there next Monday night.” Edison also replied in a letter prepared by Samuel Insull (Stuart to TAE, 25 Apr. 1884; TAE to Stuart, 26 Apr. 1884; both DF [TAED D8450ZAL, D8416BKX]). Mary Edison also became ill after returning from Florida (see Doc. 2663).

—2660—

Samuel Insull to William Andrews

My dear Andrews:—

Immediately the Piqua Plant starts, we are entitled to a check for $11,500. This check will be payable to Mr. Stuart, and should be sent to us in such shape as to of immediate use to us, by means of a draft on New York. I am in a very bad hole. I suppose you will say this is nothing new, but I want you to again try and help me out, and do your very level best to get Mr. Stuart to send us a draft so that it will reach here not later than Thursday morning next. You have been so successful heretofore in getting money for me that I feel confident you will not fail in this case. Please wire me immediately you have any information as to what the prospects are of my getting money.¹

With relation to the rumours you have heard about reorganization, and the letter I sent you asking which of your men I should discharge,² I beg to say, that we are making arrangements by which all construction work will in all probability be done by the Isolated Company. For the purpose of these negotiations and to produce an effect on those we are negotiating with we find ourselves compelled to relieve ourselves of the greater part of our present staff, although, I presume before their connection with us ceases we shall have made a deal by which I will hand them over to someone else.

Of course the above information is for yourself alone. The outcome will be all right. I will explain more fully to you when I see you in New York.

We were all up to Newburg the other night, and Mr. Edison is simply delighted with the work there.³ You and your staff deserved the highest possible compliment for the progress you have made since putting in the first station at Sunbury, and I do not mind telling you that we feel quite proud of our Electrical staff.

My dear Andrews:—

Immediately the Piqua Plant starts, we are entitled to a check for $11,500. This check will be payable to Mr. Stuart, and should be sent to us in such shape as to of immediate use to us, by means of a draft on New York. I am in a very bad hole. I suppose you will say this is nothing new, but I want you to again try and help me out, and do your very level best to get Mr. Stuart to send us a draft so that it will reach here not later than Thursday morning next. You have been so successful heretofore in getting money for me that I feel confident you will not fail in this case. Please wire me immediately you have any information as to what the prospects are of my getting money.¹

With relation to the rumours you have heard about reorganization, and the letter I sent you asking which of your men I should discharge,² I beg to say, that we are making arrangements by which all construction work will in all probability be done by the Isolated Company. For the purpose of these negotiations and to produce an effect on those we are negotiating with we find ourselves compelled to relieve ourselves of the greater part of our present staff, although, I presume before their connection with us ceases we shall have made a deal by which I will hand them over to someone else.

Of course the above information is for yourself alone. The outcome will be all right. I will explain more fully to you when I see you in New York.

We were all up to Newburg the other night, and Mr. Edison is simply delighted with the work there.³ You and your staff deserved the highest possible compliment for the progress you have made since putting in the first station at Sunbury, and I do not mind telling you that we feel quite proud of our Electrical staff.

[New York,] April 26th. 84.
Now do your best to get money for me, and you will make me happy. Yours very sincerely,

SI

TLS (carbon copy), NjWOE, DF (TAED D8416BK). ‘Handwritten.

1. In a letter prepared by Insull on this date, Edison also appealed directly to Archibald Stuart for prompt payment of the costs of the Piqua, Ohio, station. After starting the plant on 28 April, Andrews went to see Stuart in Cincinnati, some eighty miles south. Stuart did not pay immediately (evidently laying some unspecified blame on Phillips Shaw), but he did promise Andrews to mail about half the balance later that week, before he left for New York. The Ohio Edison Installation Co. sent a check for $5,000 on 1 May; in June, it sent a note for $5,750 with instructions that Edison should apply to the Piqua illuminating company for the remainder. TAE to Stuart, 26 Apr. 1884; Andrews to Insull, 29 and 30 Apr. 1884; Ohio Edison Electric Installation Co. to TAE, 1 May 1884; Stuart to Insull, 13 June 1884; all DF (TAED D8416BKX, D8450ZAY, D8450ZAZ, D8447ZAI, D8450ZBD, D8450ZCO).

2. Insull had asked Andrews to identify men whose employment could be terminated because “certain changes are taking place in connection with our business, which render it necessary for us to reduce our staff to a minimum.” Insull to Andrews, 23 Apr. 1884, DF (TAED D8416BJV); see Doc. 2672.

3. Andrews supervised the start of the Newburgh, N.Y., plant on 31 March. Edison had planned to visit the station on 21 April with Insull, Sherburn Eaton, Francis Upton, and probably Edward Johnson. He was unwell, however, and although the trip was postponed three days, he did not accompany the others. Andrews to Edison Construction Dept., 1 Apr. 1884; Insull to Thomas Conant, 17 Apr. 1884; Eaton to TAE, 21 Apr. 1884; TAE to T. Cornell, 24 Apr. 1884; all DF (TAED D8446V, D8416BIA, D8446ZAL, D8416BKI); see Jenkins 1984 on the Newburgh plant’s inauguration.

And Edward Johnson, Samuel Insull, and Francis Upton
Draft to Henry Villard

[New York, c. April 28, 1884]

Sir:—

After many discussions upon the subject of the relations of the factories to the Light Co, we the undersigned have reached the following conclusions, and present them with the full expectation that they will be received as honest opinions.

We conceive the prime motive of the Light Co in appointing your Committee to be, first: to provide for the more rapid exploitation of the Electric Light system.

Second; to re-arrange and adjust the relations of the factories to the Light Co that the stock of the latter may participate in the profits of the former where they are the direct outcome of the Company’s patents.
Third; To so consolidate the working forces and profits of manufacture as to reduce the cost of installations to such a point as will place the Company in a more favorable position in respect to competition than it now occupies.

In our opinion all these things can be best accomplished by providing for the most economical production and installation of the Company’s Plants. We believe that the true principle is to attain the highest possible development and the greatest economy of production, thus rendering the earning capacity of the plants in competition with gas and other forms of artificial light, more sure and more efficient; thereby popularizing the system and creating a demand for licenses.

We believe that any participation of the Light Co in the direct profits of manufacture or installation will defeat their purpose. That their true interests is in the direction of securing in every possible way greater earning capacity from the sale of the product of the plants of which they are by virtue of their contracts part owners, and that through their part ownership they thus derive in a legitimate way an indirect but real participation in the profits of the factories. We are convinced that the personal supervision and self interests of the present owners of the several factories is far more likely to secure economy of production than would result from corporative control and management.

It seems to us that the attention of your committee should be directed to formulating some plan of control and supervision of the cost of manufacture so as to afford your Company a constant guarantee that its goods are produced at the lowest possible figure, consistent with a fair manufacturer’s profit; and also to the question of the more economical operation of the various installation Departments. This latter is in our opinion of very great importance. The cost of an installation may be very greatly enhanced by lack of skill and by bad management. Our suggestion in this respect is that all installations of whatsoever character be made by one Department, thereby concentrating the general charges of installation, and by their diffusion over all the operations of the Company obtain a general considerable reduction in the general charges on each particular job. We suggest for this purpose that the Isolated Company become contractors for installing Central Station Plants, and that they do all the work in relation thereto not now performed by them. It is obvious that the commercial and practical Departments of the Isolated Company in such a case should be presided over by a man of great
executive capacity. We therefore suggest that such a man be sought and placed in charge of the affairs of that company.

TDf (carbon copy), NJWOE, DF (TAED D8427ZCJ). “Interlined above by hand.

1. This undated document was written sometime after Doc. 2658. It is likely that Edison and his associates drafted it in preparation for a meeting of the Edison Electric Light Co.’s Committee on Manufacturing and Reorganization, chaired by Villard, scheduled for 29 April. Sherburne Eaton expected the committee to ask for his opinions on what to do about the Construction Dept. business. He accordingly invited Edison, Samuel Insull, Edward Johnson, and Francis Upton to his office on 28 April to “discuss what should be done with the present business of the Construction Department, on the hypothesis that Mr. Edison may disband his present organization.” Expecting the committee to ask his opinions on the matter, Eaton thought it would be “of great value to me to have the benefit of a conference with the gentlemen above named.” Villard subsequently prepared his own report on the committee’s activities for a meeting of the company’s directors on 8 May. He sent a copy to Edison, but it has not been found. Villard largely withdrew from the company’s affairs at about that time. Eaton to TAE, 26 Apr. 1884; Villard to TAE, 7 May 1884; both DF (TAED D8427ZAN, D8427ZAV); see also Doc. 2725.

2. This letter was addressed to Villard as chairman of the Committee on Manufacturing and Reorganization.

3. See note 1 concerning the likely principal authors; also cf. Doc. 2395. At some later date, an archivist erroneously wrote the names of four putative signers at the end of the document. All were later officials of the Edison Co. for Isolated Lighting, but among them only Edward Johnson participated at this time in Edison’s negotiations over the manufacturing shops and central station business.

4. This clause refers to the Edison Electric Light Co.’s practice of taking stock in local illuminating companies in payment of license fees.

---

John Tomlinson to
Garrett Vroom¹

[New York,] April 28th, 84.

Dear Sir:—

Your favor of April 23rd was duly received.²

The letter you speak of as written to Mr. Reiff³ was not received by Mr. Edison until the other day, which accounts for his ignorance that an execution would be issued.

Mr. Edison feels that the judgment is one he should not be compelled to pay as the note on which it was obtained was given to Mr. Seyfert⁴ for his accommodation, and was practically liquidated in their negotiations concerning the Automatic Telegraph.

Would the fact Mrs. Seyfert⁵ knew that the note was an accommodation note; and that it had been practically settled by

---

April–June 1884 518
the negotiations referred to,—especially, if it was delivered to her after maturity,—in your opinion have any effect upon the disposition of the case in case a new trial could be obtained? We think these facts could be shown, and if there is any opportunity of obtaining a new trial by appeal or otherwise, Mr. Edison would be inclined to make every effort to do so. If a new trial cannot be obtained, or if in your judgment these facts would be of no [-----] material assistance to Mr. Edison upon a new trial, I presume nothing is left but to make the best settlement we can.

Mr. Edison has not property in New Jersey sufficient to satisfy the judgment. The property at Menlo Park belongs to the Edison Electric Light Co; and the furniture and personal property in Mr. Edison’s house belongs to his wife. The title of the house is in him, but is mortgaged to nearly its full value; so that the plaintiff to satisfy her judgment will probably have to sue upon it here which would entail considerable delay. If therefore, Mr. Edison was disposed to fight this claim as bitterly as possibly, he could delay the plaintiff considerably. Under these circumstances, would she not take less than the face of her judgment.

Mr. Edison has Mr. Seyfert’s receipt for $300, which under any circumstances should be deducted from the judgment.

Will you please let me know the exact amount of the judgment, and whether you think any settlement for a less amount could be made; and if so, how much could you get them to throw off. Yours truly,

Mr J C Tomlinson

TL (carbon copy), NJWOE, DF (TAED D8416BLF). *Canceled.

Interlined above by hand.

1. Garrett Dorset Wall Vroom (1843–1914) was a prominent attorney and banker in Trenton. The son of a former New Jersey governor and grandson of a U.S. Senator, Vroom graduated from Rutgers College in 1862. He had served as county prosecutor and, until recently, as mayor of Trenton. At this time, he was also a long-time reporter of the state supreme court and past member of an important judicial commission. Vroom was appointed to the New Jersey Court of Errors and Appeals in 1901. Lee 1907, 785–86; Obituary, NYT, 5 Mar. 1914, 9.

2. Vroom warned Tomlinson on 23 April of an imminent effort to enforce a pending judgment against Edison (DF [TAED [D8403ZBY]). This tangled legal case, on which Vroom had worked on Edison’s behalf since at least early 1881, concerned a $300 note that Edison gave in 1874 to George Harrington, an investor in the Automatic Telegraph Co. Harrington endorsed the note to William Seyfert, who later conveyed it to his wife, Lucy Seyfert. When Mrs. Seyfert tried to collect, Edison disowned the obligation, claiming the note had been given to her hus-
band as part of a personal loan. Lucy Seyfert won a $5,065.84 judgment at trial in December 1882, but Edison resolved to drag out the matter as long as possible. Vroom reminded Tomlinson in his 23 April letter that he had, in November 1883, secured a new trial on technical grounds but this, too, resulted in an unfavorable verdict (see note 6). Having long advised Edison to reach a settlement with Seyfert, he had supposed the matter was closed (see Docs. 516, 2014, and 2382).

3. Railroad financier and telegraph entrepreneur Josiah Custer Reiff (1838–1911) was a longtime Edison associate who had provided most of the funds for Edison’s work on automatic telegraphy. It was through his connection with the complex finances of companies formed to exploit the resulting patents that he knew of the contested note held by Lucy Seyfert, and he had been involved in trying to negotiate a settlement of the suit in 1880 (see Docs. 141 n. 7, 452 n. 3, 676, 1713, and 2014 esp. n. 2). Vroom had recently informed Reiff, whom he characterized as having “had charge of this case from the commencement,” of immediate plans by Seyfert’s attorneys to obtain an execution of the judgment against Edison, the last legal requirement for the seizure and sale of property. In his letter to Tomlinson (see note 2), Vroom also claimed to have given Reiff a statement of the money owed. Reiff reportedly promised to “see that the amount was paid at once” upon Edison’s return from Florida (Vroom to Reiff, 31 Mar. and 8 Apr. 1884, both DF [TAED D8403ZAU, D8403ZBG]).


6. Ruling in November 1883 on Edison’s motion for a new trial, the New Jersey Supreme Court brushed aside his argument that the promissory note was uncollectable because William Seyfert had received it as an “accommodation” after its maturity date. Though accepting the plaintiff’s view of the facts, the court nonetheless granted Edison a new trial on the grounds that the laws of New York, where the note was made and payable, and of Pennsylvania, where it was transferred to Lucy Seyfert, did not address such an interstate transaction between married parties, hence “the note in suit remain[ed] the property of the husband, the transfer to the wife being a nullity.” When Josiah Reiff reported this event to Edison with Vroom’s recommendation of seeking a compromise, Edison instructed him to “postpone the matter just as long as possible, in fact carry out the same policy that has been carried out right along, meantime see what kind of a settlement can be made.”
The second trial, in February 1884, also resulted in a decision for the plaintiff and a similar judgment (with court costs) of $5,348.64. Opinion of Chief Justice Mercer Beasley, Nov. 1883; Reiff to TAE, 1 Dec. 1883; TAE to Reiff, 3 Dec. 1883; opinion of Justice Edward Scudder, 18 Nov. 1884; Vroom to TAE, 3 Dec. 1884; Strong & Son to Tomlinson, 8 Feb. 1886; all DF (TAED D8303ZHN, D8303ZHP, D8316BMN, D8403ZIN, D8303ZHR, D8603ZAA).

At some time during this long process, Edison made three pages of rough notes about the process of appealing to the New Jersey Court of Errors and Appeals, legal requirements for a sheriff’s sale, and the idea that “Seyfert probably could be seen in Philadelphia & would settle for less than the amount of judgment— Reiff could [job?] Seyfert.” TAE memorandum, n.d. [1884?], DF (TAED D8403ZKB).

7. The editors have not established how—or if—Edison transferred ownership of chattel at Menlo Park to the Edison Electric Light Co. John Tomlinson (or another agent for Edison) drafted several affidavits around 13 May stating that various property (carefully itemized) at Menlo Park belonged not to Edison but to his wife and several Edison companies (Mary Edison’s affidavit is Doc. 2671). The Edison Electric Light Co. claimed to own the tools, equipment, and supplies in the laboratory and shops. Tomlinson to Vroom, 13 May 1884; Edison Electric Light Co. to Middlesex County Sheriff, n.d. [c. 13 May 1884]; both DF (TAED D8403ZCX, D8403ZCZ2); see also Doc. 2671 nn. 3–4.

—2663—

Mary Edison to Samuel Insull

[New York,] April 30th 1884

My Dear Insull

Will you engage a wagon from Baumann1 to be here at eleven o'clock tomorrow morning. I shall also want a man or men2 to move furniture from one room to another tomorrow afternoon at two o'clock or friday mornings at ten.2 I am so awfully sick I am afraid I cannot go tonight3 just before you start for home send one of the Boys over and I will give a decided answer. Just now my head is nearly splitting and my throat is very sore.4 I will have to have a little money you neglected to send my usual allowance on Saturday and I will need some tomorrow twenty five will do if you are short Yours in haste Mrs Edison.

ALS, NjWOE, DF (TAED D8414I). Letterhead of Mary Edison from 25 Gramercy Park. “or men” interlined above.

1. A large store for elegant furniture, carpets, and home furnishings, Baumann Brothers was located on New York’s Fourteenth St. near Union Square (Advertisement, New York Herald, 9 Sept. 1883, 22; Advertisement, NYT, 25 June 1884, 8; Spero and Gillon 2002, 34). Although the Edisons had purchased from Baumann’s before and would in the future, their engagement this time was for “Moving & setting up of furniture at Gramercy Park.” Leaving the Clarendon Hotel, the
family planned to occupy 25 Gramercy Park from 1 May until the end of the lease in September (Voucher no. 252 [1884] for Baumann Bros. for moving; [the vouchers series contains records of various purchases from Baumann’s]; James Pryor to TAE, 29 Apr. 1884; Samuel Insull to Pryor, 1 May 1884; both DF [TAED D8403ZCF, D8416BMP]; see Docs. 2517 and 2528).

2. Mary indicated Friday, 7 May. Baumann Bros. submitted another bill for moving furniture, hanging curtains, and laying carpet, apparently done on at least two occasions in early or mid-May. Voucher no. 330 (1884).

3. The editors have not identified Mary Edison’s plans.

4. Edison was also ill at this time; see Doc. 2659.

From James Upham

Worcester May 5 1884.

Friend Edison—

Very sorry not to see you again— I called at “Bay State”1 twice on Friday, but as I feared, some of the folks had carried you off— Could not conveniently get out to Friday evenings exhibition,2 greatly to my regret, particularly when Mr. Smith3 told me you got a “breathing spell” from receptions, and had a chance for a quiet chat— Was vexed enough to kick myself, for I wanted to ask you several things, besides indulging in some reminiscences— Smith says you thought you might be here again— If so, let me know please, and I shall present myself, promptly— Was much pleased with what I saw at hall, as part of it had been out of my reach before, except in print—

Where can I get hold of one of those “baby” lamps?— (1 candle power)—4 Want one for my collection of odd bits—

With best wishes for continued health and prosperity, I am Yours Faithfully,

James C. Upham5

(My Dear Upham I expect if they put through the Worcester Co to come on when I shall have more time

There were but few baby Lamps made & they are all gone we expect soon to make some more when I will send you one E)6


2. Edison participated in public demonstrations of his inventions before some 2,000 people at Mechanics’ Hall in Worcester on Thursday,
May. Invited by the local natural history society and the mechanics’ association, Edison reportedly came “on the sole condition that he should not be asked to speak from the platform.” He presented the electric light and motor and related devices, the telephone, microphone, and other inventions as Edward Johnson explained them; Sherburne Eaton also spoke. Afterward, Edison met with some thirty invitees at the Bay State House. One newspaper account of the latter event noted that Edison “is evidently fond of explaining his inventions to appreciative listeners, though no conversationalist on general topics.” The lecture and demonstrations were to be repeated the next evening for the city’s students. Edison’s party in Worcester also included Francis Upton, Spencer Borden, and Luther Stieringer. “Electrical and Scientific,” Electrical Review 4 (10 May 1884): 4; transcriptions of “Mechanics Hall: A Brilliantly Illustrated Lecture on Electricity,” Worcester Gazette, c. 28 Apr. 1884 and “Edison’s Electrical Exhibit,” Worcester Evening Gazette, 2 May 1884; both Cat. 116,993, Scraps. (TAED SB0210014, SB0210014B; TAEM 227:621, 624); transcriptions of other articles from local newspapers about these events are in Cat. 116,993, Scraps. (TAED SB021; TAEM 227:602).

3. Probably Richmond Smith (b. 1838?), cashier of the Western Union office in Boston when both Edison and Upham worked there in 1868–1869. U.S. Census Bureau 1965 (1870), roll M593_650, p. 28B, image 63 (Chelsea, Suffolk, Mass.); Reid 1886, 732; Smith to TAE, 24 Dec. 1878, DF (TAED D7802ZZNR).

4. The editors have not otherwise identified these “baby lamps,” which may have been like the small lamps mentioned in Doc. 2502 or used to illuminate the Christmas tree designed by Edward Johnson in 1882. “A Christmas Tree Lighted by Electricity,” Electrical World 1 (20 Jan. 1883): 38.

5. James C. Upham was a Western Union operator in Boston while Edison worked there in 1868 and 1869. Charles Sanford to TAE, 24 May 1913, EGF (TAED E1306; TAEM 254:194).


To Horatio Beckman


Dear Sir:—

Mr. Insull informs me that he learned, when at Newburgh yesterday, that your Directors are very much inclined to fix the price of light at one cent per hour per ten candle lamp. 2

I am strongly of the opinion, from my experience in other cities, that you can just as easily get one and a quarter cents, and I write to urge you to sell your light at the latter figure. It is very easy for you to reduce your price later on if you find that the people in Newburgh will not pay so much, but if you start at one cent you will find it very difficult indeed to raise
your price should you come to the conclusion to sell at the higher figure.

At Brockton, Mass., when our station started there, the Directors of the local Company decided to charge at the rate of one cent, they now say that they very much regret that they did not commence charging at one and a quarter cents, as from the manner in which the light has been taken hold of in Brockton, they are convinced that if they had started at a higher figure they would have been able to get just as many lights taken, whereas now they are afraid to increase their price as it might possibly prejudice their business. At Brockton the light was taken hold of much slower than it is being adopted at Newburgh, and the dividend earning capacity of the plant seemed to me at the time to be much less than I think it is at Newburgh.

I write this letter to you not because I think it impossible to make money at one cent per hour, but because I think that your Stockholders should have the extra dividend which the extra quarter of a cent will bring them and which I feel assured your consumers will pay, unless customers at Newburgh are entirely [-----ent] different to what they are in other cities.

You should not be over anxious about getting the whole capacity of your plant taken up right away. If you wait a little until your consumers have learned to appreciate what they have got, you will, we believe, find no difficulty in disposing of all the light you can sell practically on your own terms. You are selling a light which is vastly superior to any which is being supplied by your competitors the gas company, and in deciding what price you will charge we trust you will bear this in mind. In thus advising you we not only draw from our experience in New York City but also in every place we have got a station started. Yours truly,

TAE


1. Horatio B. Beckman (b. 1830?), a trained machinist and steam engineer, was superintendent of the Newburgh Steam Mills. An organizer of the Edison illuminating company in Newburgh, N.Y., Beckman was its vice president. U.S. Census Bureau 1982? (1900), roll T623_1141, p. 15B (Newburgh Ward 4, Orange, N.Y.); Nutt 1891, 264–65; TAE to Beckman, 12 Nov. 1883, LM 16:149 (TAED LBCD3149).

2. Edison sent a similar letter on this subject the same day to the treasurer of the Edison illuminating company in Piqua, Ohio, following a discussion of the plant with Archibald Stuart. See also Doc. 2666. TAE to Henry Flesh, 6 May 1884; Samuel Insull to Stuart, 10 June 1884;
April–June 1884


To Elisha Hubbard

Mr. Stuart, of Cincinnati, has been here for the past few days, and in the course of conversation he submitted to us a proposition which came from you to him, requesting our opinion on the same. It was in reference to the light you are furnishing some hotel in your City, in which, as we understand it, you propose putting about 110 lights for a stipulated sum per year, we think the amount was $375.

Mr. Stuart requested us to write you our views on the subject, and first of all we believe it is a mistake on your part altogether, in connection with the Edison light, to sell it to anybody in lump for so much per year, as it induces reckless burning of the light, it being not at all to their interest to use economy, which you will readily see runs up the expenses on lamps, but the main objection which occurs to us and which we are deeply interested in, is that you are inclined to let anybody have the light, who is willing to put it in, at most any price, and for fear of the gas company. We are of the opinion that it would have been a good plan to let the gas company have it at this price, for the hotel people would have repented of it much sooner than you.

Our experience in other towns warrant us in saying that you should not be too anxious to get your station all taken within the first three, or four, or five months. It is not expected that is to be done, so far from it we would prefer to hear that you were refusing to take lights at reduced prices, and even at your own price, provided it did not have enough burning hours, and by the time the Fall lighting commences you would wish you had selected your customers out of those who have a long average of burning. From what we have heard of Tiffin there is nothing more certain than a fine success with your plant and a good dividend if you will be firm in your terms of price. Very truly yours,

T.A. Edison Constn. Dept. By TAE

1. Elisha B. Hubbard (1844–1916) was secretary of the Tiffin Edison Electrical Illuminating Co. A druggist by profession and the owner

TL (carbon copy), NjWOE, DF (TAED D8416BNG). Initialed for Edison by Alfred Tate.
of his own pharmacy, Hubbard was also a Democratic representative in
the Ohio General Assembly by 1888. U.S. Census Bureau 1970 (1880),
roll T9_1065, p. 174, image 0349 (Tiffin, Seneca, Ohio); ibid., 1982
(1900), roll T623_1320, p. 15B (Tiffin Ward 1, Seneca, Ohio); Hafner
1883; letterhead, Hubbard to Edison Construction Dept., 19 Dec. 1883;
both DF (TAE D8356K, D8356ZBE).

2. See also Doc. 2665.

[New York, c. May 6, 1884]

TO THE STOCKHOLDERS OF THE EDISON ELECTRIC LIGHT COM-
PANY OF EUROPE, LIMITED:—

A report on the condition of the Company was submitted at
a Special meeting of the Stockholders held March 7th. 1884,
since which time nothing new has transpired.

At the meeting of March 7th. the stockholders confirmed
the action of your Board in giving an option to a Paris syn-
dicate to merge the existing three Paris Companies into one
Company and raising their present united Capital, 3,500,000
francs, to 10,000,000 francs.2 A full statement of the terms and
conditions of this proposed merger was made to the stock-
holders at the above meeting. The option above referred to
has not expired and does not expire until June 22nd. We have
however had a cable from our Paris representative stating that
there is a great probability of the matter being closed very
shortly,3 in which event we presume the capital for the new
company will be at once raised and work on the large central
station at Paris commenced.

We are informed that the light has made steady progress in
Europe during the past year. A central station of 6000 lamps
capacity was installed at Milan and has been in operation for
nearly a year, lighting La Scala and other theatres, as well as a
number of stores and residences. Capital has been raised for a
large central station in Berlin, and we are informed that ne-
gotiations are pending for the installations of stations in other
cities. Mr. Batchelor is now on the way from Paris to New
York4 with the plans and specifications for the Paris Station
for the purpose of discussing the same with Mr. Edison, in
order that the best possible results may be obtained when the
station is installed.

The financial condition of the Company presents a very se-
rious aspect. At the stockholders’ meeting of March 7th. a full
statement was made as to the Company’s bonded indebted-
ness of $100,000., by which it appeared that the same becomes
due November 1st. 1884, and that there was no money in the Treasury either to pay the principal or the half yearly interest due May 1st. The stockholders authorized your Board to pledge a number of our Founders’ shares, if necessary, to raise money for the May interest. The Second Vice President thereupon wrote to Mr. J. F. Bailey at Paris regarding the matter, and requested him to obtain a loan for us upon a deposit of a small number of our Founders’ shares, to which Mr. Bailey wrote that he would certainly arrange to have the money for us in time to pay our interest. About the end of last month, not having heard from Mr. Bailey in regard to the money, we cabled him urging immediate attention. We received a reply by cable stating that there was the greatest probability that the syndicate would be made up on Saturday May 3rd., and that it would be dangerous to press for the loan now. We cabled in reply saying that we must have the money at once,—but have received a cable from Mr. Bailey stating that the syndicate will be formed and that we shall certainly receive the money this month. We shall therefore be compelled to ask the bondholders to postpone presenting their coupons, for the present until we receive money from Paris.

Inasmuch as we cannot be certain of raising any money in Paris, it would seem that the Company is in a critical position on account of its inability to pay the interest on its bonds. The bondholders, or any of them, can bring suit against us at any time and might possibly apply for the appointment of a Receiver. This, we are assured by Mr. Bailey, would ruin the business of the Companies in Europe, and, consequently, take away from our assets what value they now have.

If the stockholders can furnish any solution of the difficult problem of raising money to meet the interest on the bonds, a task which the present Board of Directors have been unable to successfully perform, they will render a great service to the Company.

In the judgment of your Board there is nothing else remaining to be said except what has been already set forth in the report submitted to the stockholders special meeting, mentioned above.

1. This document was likely prepared after a 5 May meeting (adjourned from 3 May) of the European company’s directors, and in advance of its annual stockholder meeting scheduled for 7 May. It is also dated by internal references to cable correspondence. William Mead-
owcroft to TAE, 3 May 1884; Frank McGowan and Samuel Allin legal statement, 7 May 1884; Meadowcroft to TAE, 24 June 1884; all DF (TAED D8428S, D8428ZAB, D8428ZAC).

2. The meeting was called to evaluate the company’s situation and to consider acting on “a proposition from Paris for merging the existing three French Companies into one Company.” The 7 March report of Sherburne Eaton, second vice president, is in CR (TAED CE001003). The option referred to was authorized in anticipation of fresh capital from Pierre-Eugène Secrétan (see Doc. 2593 n. 6). Charles Batchelor to TAE, 20 Feb. 1884; Samuel Insull to Alfred Cowles, 3 Mar. 1884; both DF (TAED D8436ZAR, D8416ASP); Batchelor to Francis Upton, 21 Feb. 1884, Unbound Documents (1884), Batchelor (TAED MB122).

3. Joshua Bailey cabled to this effect on 1 May. As of 18 June, Secrétan had not officially accepted the option but, according to Bailey, he had promised to do so by 20 June. Bailey to Eaton, 1 May 1884; Bailey to Batchelor, 18 June 1884; both DF (TAED D8436ZCM, D8436ZCV).

4. Charles Batchelor planned to leave Paris on 3 May and would have reached New York in eight or nine days. He was at the Edison Machine Works by 16 May. Batchelor to TAE, 30 Apr. 1884, LM 2:59C (TAED LM002059C); Cat. 1306, Batchelor (TAED MBN011AAO).

5. These were 6 percent debenture bonds with semi-annual interest payable on the first of May and November. Half of the total was held by Frederick Foote, L. G. James, Israel Corse, Dr. Giovanni Ceccarini, and Charles Farley (Francis Upton’s brother-in-law). The company’s entire capital stock was $2 million, but no profits or dividends had been realized. As of April 1884, the company’s liabilities (including the bonds) totaled approximately $137,000 (Meadowcroft to New York Dept. of Taxes and Assessment, 28 Mar. 1884; Meadowcroft affidavit to City and County of New York, 30 Apr. 1884; Edison Electric Light Co. of Europe Ltd., Minutes 16 Dec. 1884; all DF [TAED D8428R, D8428Q, D8428ZAJ]). The company’s stock, $100 per share at par, traded at $165 during the electric lighting boom but had fallen as low as $40 by April 1883. The asking price in March 1884 was $15, but it reportedly attracted bids of only $3 per share (Meadowcroft to New York Dept. of Taxes and Assessment, 28 Mar. 1884; Frederic Gostenhofer to TAE, 10 Mar. 1884; both DF [TAED D8428R, D8428I]; “Electric Light Companies of America,” Teleg. J. and Elec. Rev. 12 [12 Apr. 1883]: 328).

6. On the instructions of Batchelor and Bailey, 2,000 founders shares of the European company were deposited with Drexel, Morgan & Co. on 3 March. Batchelor and Bailey to Eaton, 1 Mar. 1884, DF (TAED D8436ZBD); Eaton to Bailey, 3 Mar. 1884, LM 2:52D (TAED LM002052D).

7. The correspondence in March between Sherburne Eaton, the second vice president, and Bailey has not been found. Eaton cabled Bailey on 29 April to warn, as the due date for interest on the bonds drew near, “Company will default and receiver appointed unless you remit.” Bailey replied promptly: “Hopeful tomorrow.” Eaton report to stockholders, 7 Mar. 1884, CR (TAED CE001003 [image 12]); Eaton to Bailey 29 Apr. 1884; Bailey to Eaton, 30 Apr. 1884; both DF (TAED D8436ZCJ, D8436ZCK).
8. Bailey predicted that receivership would “explode whole affair.” Eaton replied that it was “Impossible raise money here. Receiver threatened by bondholders.” Bailey promised on 6 May that formation of a new company within the month was “certain.” Bailey to Eaton, 1 and 6 May 1884; Eaton to Bailey, 2 May 1884; all DF (TAED D8436ZCM, D8436ZCQ, D8436ZCN).

9. Apprising Edison of these developments and Bailey’s promise, Eaton suggested there was nothing to do for the moment “unless somebody sues us. I guess we will have to wait, and meantime put the bondholders off with one excuse or another.” Edison appended “Yes” to this note. Eaton to TAE (with TAE marginalia), 6 May 1884, DF (TAED D8436ZCP).

10. Edison and other directors of the European company met at his laboratory on 28 November to consider the latest proposal put forward by Joshua Bailey; Batchelor, Samuel Insull, and Francis Upton also attended by invitation. The plan threatened to liquidate the Compagnie Continentale (now unprofitable in part because of expenses associated with its former effort to build a Paris central station) unless the directors approved its combination with the other French companies. Reluctant to surrender the European company’s veto powers, the directors voted to reject the proposal if it did not guarantee lamp royalties of $80,000 per year. At Frederick Foote’s suggestion, however, they agreed to call a committee of bondholders to study the matter (Edison Electric Light Co. of Europe, Ltd., directors’ minutes, 28 Nov. 1884; Bailey draft proposal to Edison Electric Light Co. of Europe, Ltd., 30 Oct. 1884; Bailey to Edison Electric Light Co. of Europe, Ltd., 28 Nov. 1884; all DF [D8428ZAI, D8436ZDH, D8428ZAI1]). The bondholders counseled against the directors’ rejection of the fusion. Instead, they unanimously recommended lamp royalties at approximately 2.75 cents per unit and pressed for approval of the French consolidation. Pending such conditions, the bondholders offered to extend their claims on the company until 1 November 1885. Edison reportedly consented to these terms, and the matter was to be taken up by the European company’s directors at a special meeting in January 1885, with the expectation that it would be approved (minutes of bondholders committee, 16 Dec. 1884; report of committee of bondholders, 19 Dec. 1884; Eaton to TAE, 23 Dec. 1884; Meadowcroft to TAE, 31 Dec. 1884; all DF [TAED D8428ZAJ, D8428ZAM, D8428ZAL, D8428ZAO]; see also Wilkins 1970, 56, 263 n. 41).

---

New York, May 7th, 1884

To Nathaniel Keith

Dear Sir:—

I am in receipt of your letter of the 6th inst, and in reply beg to say that I shall be pleased to accept the nomination of your Committee as one of the Vice Presidents of the American Institute of Electrical Engineers.1 Yours truly,

TL (carbon copy), NjWOE, DF (TAED D8416BNZ).

April–June 1884 529
1. Nathaniel Keith, who headed the organizing committee for the nascent American Institute of Electrical Engineers (AIEE), asked Edison on 6 May to stand for election as one of the Society’s vice presidents. The stated impetus for organizing electrical practitioners was to receive the many “famous foreign electrical savants, engineers and manufacturers” attending the International Electrical Exhibition at Philadelphia in September, though a sense of rivalry with scientists planning the concurrent Conference of Electricians surely played a role. Edison had signed Keith’s petition calling for such an organization of practical electricians, a printed copy of which was circulated to prospective members in April. Edison was elected a vice president (one of six) at an “enthusiastic meeting” on 13 May, and his term was set for two years (which he misunderstood as three years). AIEE petition and prospectus, 31 Mar. 1884; AIEE petition, 11 Apr. 1884; Keith to TAE, 6, 14, and 27 May 1884; TAE to Keith, 31 May 1884; all DF (TAED D8411B, D8411C, D8411E, D8411G, D8411J, D8416BSA); on formation of the AIEE, see McMahon 1984, 27–29; also “Historical Preface,” AIEE Transactions 1 (1884–1887): 1–9; Gibson 1984 (chap. 5) discusses generally the tensions at the Philadelphia conference between those identified as either scientists or practical electricians. Scott 1934 (648–49) includes facsimile reproductions of the signature pages (including Edison’s) from Keith’s petition.

Edison seems to have missed most, if not all of the Society’s initial executive meetings. At one, held on 3 June, he was appointed “Chairman of the Standing Committee of three on ‘Incandescent Lamps’” and asked to name its other members. Edison queried on this notice: “what does this mean why are interested parties put on coms.” Keith explained that the committee would deal with routine matters about incandescent lighting, such as proposed papers, coming before the Society. The point of naming an “interested” party to the chair, he continued, “was because it was thought best to put some one who knew something about the subject in the place. All who know anything about dynamos, lamps, etc., are more or less interested. Honorable men can always do justice.” Edison marked “Id rather not serve” on the letter and sent a formal reply later. Keith to TAE, 27 May, 5 and 14 June (with TAE marginalia); TAE to Keith, 7 June 1884; both DF (TAED D8411J, D8411K, D8411L, D8416BTG); TAE to Keith, 16 June 1884, Lbk. 18:77A (TAED LB018077A).

---

To Willis Stewart

[New York,] May 9th. 1884.

Dear Sir:—

We have received your various letters in relation to the Santiago station and the business in general in Chili.\textsuperscript{1}

Major Eaton has written you, I believe, that he thinks it would be well for you to go ahead under our contract, at the same time doing all you can for the Santiago people.\textsuperscript{2} I do not doubt but what the Santiago matter will settle itself eventu-
ally. Your memorandum asking for the shipment of various pamphlets, electrotypes and blue prints will be sent forward to you by fast freight, together with 25 canvass books asked for in your letter of the 21st. March. 3

The cable key book, together with memorandum regarding Chilian cable key, came duly to hand. 4

We have got no new contracts of late, in fact our business at the moment is rather dull. This is of course but temporary, and we do not doubt but what as the Summer comes along we shall have plenty of work to do.

The central station down town is running splendidly. The collections keep up above $9,000., and only the day before yesterday we sold $600. worth of light, being the largest amount of light sold in that district, although the maximum number of lights on any one time was only 3,500. The reason for this is that we have been having [---] exceptionally bad weather for May, and consequently had a great deal of day lighting. A peculiar circumstance in connection with the running of our plant is that [---] as a rule we seldom have now more than 3,000 lights on as a maximum, and that our average lamp hours has gone up from five to six hours. This is owing mainly to the character of the lighting that Mr. Chinnock is now obtaining in the district, as he now has an opportunity of choosing his customers, and in no case does he take a new consumer, unless the average lighting is very high indeed. Within a few days we expect to start on the two new dynamos which have been placed in the basement of the second building at Pearl Street by our Construction Department under contract with the Illuminating Company. 5 This will give an increase capacity to the station of about 2,400 lights, and judging from the results obtained during the first week in May and the month of April, it would seem to indicate that our Summer lighting in the first district is going to be equal in every respect to the Winter lighting. 6

We are figuring on an uptown plant between 23rd. and 59th streets and 8th. and Madison Avenues, and there is a maximum of 115,000 lights burning at any one time. It is our intention to divide this into two districts, the upper one starting at 42nd. Street and the lower one ending there. In all probability the station for each district will amount to about $500,000., or a total of $1,000,000. At this writing I do not know whether one or both of these plants will be put in this Summer. 7

Our small town plants are running elegantly, all bugs have
been eliminated. The new pressure indicator is a perfect success. A large party of us went up to Newburgh to view things, and the station there seems absolutely perfect, with first class pressure indicators, feeder regulators we get a result of upwards of 1,000 average with our lamps, and inasmuch as this plant has only been running a month this result is something wonderful, as it is of course expected that the bad lamps will be shaken out during the first month of running.

Your orders shall be attended to promptly and shipments made by us as quickly as possible.

Your proposition to mail us drafts on London will be satisfactory for the present if you find you are unable to arrange for cable remittances.

We cannot understand why your contracts have not arrived, as they were sent from here on February 9th.

I will see if I can get from the German Company a certified copy of the decision in the suit with the Swan Company.

Very truly yours,

TAE [Insull]


1. Stewart covered a number of topics in the dozen or so recent letters that would have reached Edison by this date. Beyond the matters addressed herein and in Doc. 2602, Stewart’s recent correspondence concerned the departure of chief engineer Mark Lawrence, a request for personnel with village system experience, lamp prices, and trouble with the Edison dynamo on the steamer Santa Rosa. Electric Light—Foreign—Chile, DF (TAED D8435).

2. The editors have not located the letter from Sherburne Eaton. Regarding Stewart’s plan to reorganize the Santiago company outside the control of Kendall & Co., see Doc. 2602 nn. 5–6.

3. The requested printed materials, together with various catalogs, blueprints, and illustrations, were sent to Stewart on or about 15 May. Stewart to TAE, 21 March 1884 and n.d. [Mar.? 1884], both DF (TAED D8435G, D8435ZBN); John Campbell to Stewart, 15 May 1884, LM 19:171 (TAED LBCD6171).

4. Stewart mailed these items on 21 March. Stewart to TAE, 21 Mar. 1884, DF (TAED D8435G).

5. See Doc. 2644 esp. n. 8. The contract referred to is Edison’s agreement with Edison Electric Illuminating Co. of New York, 29 Feb. 1884, Miller (TAED HM840211).

6. Edison’s optimistic projection for summer lighting was not met. During the spring quarter, the station produced a profit of $7,252. During the summer months, this figure dipped to $3,873 before picking up during the last quarter to $14,000. The Illuminating Co. attempted “to neutralize this falling off” over the summer by furnishing “electric motor fans to be run by current from the central station.” Although
they were introduced too late in the season “to secure any consider-
able results, the fans met with such favor as to warrant the belief that
next summer they can be developed into an appreciable and permanent
source of revenue.” Samuel Allin reports to TAE in Electric Light—
Edison Electric Illuminating Co. of New York, DF (TAED D8426);
Edison Electric Illuminating Co. Annual Report, 9 Dec. 1884 (pp. 6–7),
PPC (TAED CA004A).

7. In January, Edison told a newspaper reporter that he was planning
a 7,000-horsepower station to serve the area between Twenty-fourth
and Forty-fourth Sts., and a 9,000-horsepower plant for the area up to
Fifty-ninth St. The projected second district had been canvassed and
mapped by the end of March. The number of lamps tabulated at that
time was about 110,000. The cost of constructing the First (Pearl St.)
District had considerably exceeded estimates; Edison hoped to do bet-
ter with the new stations, presumably in part by building the new dis-
trict on the three-wire plan. “Open Enmity to Gaslight,” Chicago Daily
Tribune, 9 Jan. 1884, 2; see Doc. 2599 n. 8.

8. Edison referred to the average lifetime of lamps, in hours.

9. Stewart had advised Edison on 1 April that “Business is boom-
ing; look out for a dozen orders.” He cabled one large requisition and
a supplementary one on 22 April; these may have been the orders that
Edison remarked totaled about $1,000. On a coded cable message re-
ceived on 9 May, Edison noted: “Another order from Stewart.” Stew-
art to TAE, 1, 22–23 Apr. and 9 May 1884, all DF (TAED D8435L,
D8435U, D8435X, D8435ZAC).

10. Finding it impossible to cable money directly to New York, Stew-
art proposed to give Edison ninety-day notes drawn in London at 6 per-
cent interest. On 23 April, he also mailed a small amount of cash as
deposit on pending orders. Stewart to TAE, 22–23 Apr. 1884, both
DF (TAED D8435U, D8435X).

11. Stewart had not received the contracts giving him authority as
Edison’s Chilean agent (see Doc. 2602 n. 2) before 28 March; after their
arrival, he required an additional set of copies to be certified by the
Chilean Consul in New York. Stewart to Sherburne Eaton, 28 Mar. and
9 Apr. 1884, both DF (TAED D8435I, D8435R).

12. See Doc. 2558. Stewart wanted both the German patent deci-
sion and explicit authorization from Edison to combat competition
from the Brush–Swan interests in Valparaíso at his own expense. Edison
promptly requested a certified copy from Berlin and referred the matter
to Richard Dyer and Sherburne Eaton, but he advised Stewart that the
Edison Electric Light Co.’s directors would have to consider the issue
of defending the Chilean patents. Stewart to TAE, 28 Mar. and 6 Apr.
(with TAE marginalia) 1884; TAE to Deutsche Edison Gesellschaft,
9 May 1884; TAE to Stewart, 19 May 1884; all DF (TAED D8435H,
D8435N, D8416BOH, D8416BPQ).
Mr Edison:

The information, as far as I can furnish it, is as follows:¹

Isolated plants in U.S. and Canada 59,883 Lamps
N.Y. Centr. Station 11,500 "
In Europe 32,000 "
In England & installations by English Co. 12,000 "
In other parts of the world, including So. America,
New Zealand, Australia, Cuba, &c 10,000 "

Total 125,383 lamps.²

To the above should be added the number of lamps in the
various Central station plants in the United States, outside of
New York City — I cannot supply these — I suppose you have
the records of them in your office.

Your mem. did not indicate a wish on your part that I should
reply to the letter, so I send you the information.

W H Meadowcroft

<1600
1600
1600
500
1600
1600
500
1000
3000
8800
13 800 13 800 Lamps in out town Central Stations³>

ALS, NjWOE, DF (TAED D8420Q). ¹Text enclosed by right brace.
²Followed by dividing mark.

¹ Edison had given Meadowcroft an inquiry from the Philadelphia
publisher of the Acme Cyclopedia and Dictionary for “the number of your
lamps in use, both in this country and in Europe. We have an item in our
forthcoming book . . . but have no late data.” When it was published
in 1884, this “practical compendium of useful information, and book
of reference for everybody” reported (under the electric light subhead-
ing of its entry for “Electricity”) 29,000 Edison lamps in the United
States and nearly 20,000 in Europe. These figures were attributed to
early 1883. Lantz-Lantz Publishing Co. to TAE (with TAE marginalia),
5 May 1884, DF (TAED D8420P); Lantz 1884, 285.
² Cf. TAEB 6, App. 2.
³ The numbers in Edison’s list correspond closely, but not exactly,
with the capacity of the plants identified in Appendix 2A as operating
by this date; the figure 3,000 may represent a subtotal.
Dear Sir:—

You will please take notice that I am the owner of the personal property mentioned in my affidavit, accompanying this notice, and levied upon by you virtue of a certain judgement rendered against Thomas A. Edison in favor of Lucy Seyfert, and that you will interfere with same at your peril. Yours truly

Mary Edison

ENCLOSURE

Mary Edison being duly sworn says— That she is the wife of Thomas A. Edison the defendant in the above titled action:

That she is the owner of the personal property hereinafter mentioned, levied upon by the sheriff of Middlesex County in the State of New Jersey by virtue of a certain judgment against Thomas A. Edison and in favor of Lucy F. Seyfert in the above action That said property is the sole and exclusive property of deponent and that the said Thomas A. Edison has no right or interest therein, and that the same is and has been in her possession and under her control at Menlo Park in the State of New Jersey. The following is a list of property so belonging to deponent, and levied upon as before described.

To wit:— In dining room— one extension table, carpet on floor, seven cane bottoms chairs, six other chairs, one sofa, one side board, one book case and contents, five window shades, one center table, two lamps, table covers, two clocks, one looking glass, one small stand, one sewing machine, one what not, one coal scuttle, one hat rack in hall, carpet, two chairs, four pictures on wall one lamp, one organ

In parlor— Velvet carpet on floor, two rugs, five cushioned chairs one large chair and two rocking chairs—one stand and glass vase, one sofa, one piano, one mirror, six lace curtains and shades and fixtures, two oil pictures on wall & all pictures—

Northwest Bedroom— carpet, Brussels carpet in hall up stairs

Southwest bed room— one crib, one bed-room set seven pieces, carpet and bedding, one wardrobe,

South east bed room— Carpet on floor, one bedstand and bedding, seven chairs, three rocking chairs, wash stand bowl and pitcher, one dresser, pictures on wall, two stand vases, one bureau, one shaving stand.

In hall 3rd carpet on floor and hat rack,
Center bed room— one bed room suite of eight pieces, bed and bedding and carpet,

South east room— one bed room suite six pieces (marble top) carpet bed and bedding knives and forks, tea and table spoons and dishes lot of tin-ware, pails, wash tubs, ice in ice house, ice box, lot of flower pots in wagon house, two plows, three wagons, poles, three lawn mowers, four pails, lot of forks, two sitting room stoves one table, one screen, one cross cut saw, one ice saw, one stove pipe, one saw, lot of tools, two cutting boxes, one scythe, two saddles, one riding bridle, one set of single harness one double harness, one gray horse, eight blankets, five robes, one carriage, one buggy, one box wagon, two sleighs, wagon jack, one pole and wiffle-tree, one tent, one carriage cover, one rubber blanket, two straps of bells, one neck yoke two neck yokes, fly nets and cushions, two wagon dusters, one looking glass, one cook stove, one bed room set, five set pieces, bed and bedding carpet, lounge, lot of hay one Alderney cow, six brindle cow, on bull, lot of manure, two pigs 17 fowls, coal screen lot of old plank and boards, one iron roller, four ladders, one wheel barrow, lot of rakes and hoes, iron tank, of tar one dog house two plows

(Duck—please sign your name below  TAE)

Mary Edison

TDS, NjWOE, DF (TAED D8403ZCZ). Enclosure is a TDS; John Tomlinson’s notary oath omitted. "one large . . . chairs—" interlined above.

1. Andrew J. Disbrow (b. 1815?), a former judge, served as sheriff. Opinion of Justice Edward Scudder, 18 Nov. 1884, DF (TAED D8403ZIN); U.S. Census Bureau 1970 (1880), roll T9_790, p. 393.3000, image 0627 (East Brunswick, Middlesex, N.J.).

2. Date taken from John Tomlinson’s notarization of the enclosure to this document, which Tomlinson sent to Garrett Vroom on the same day (see note 3).

3. After Lucy Seyfert’s attorney declined to allow Edison more time to pay the judgment against him, John Tomlinson asked Vroom on 13 May to file this document and enclosed affidavit immediately. Tomlinson also drafted similar documents on behalf of the two Edison companies that he claimed owned the remainder of the family’s Menlo Park property (Strong & Sons to Tomlinson, 12 May 1884; Tomlinson to Vroom, 13 May 1884; Edison Electric Light Co. to Middlesex County sheriff, n.d. [13 May 1884]; Edison Electric Railway Co. to Middlesex County sheriff and enclosed affidavit, n.d. [13 May 1884]; all DF [TAED D8403ZCW, D8403ZCX, D8403ZCZ2]). Told that the documents were not in the form required by New Jersey statutes, Tomlinson drafted them again according to Vroom’s instructions (Vroom to Tomlinson, 13 May 1884; Mary Edison to Middlesex County sheriff, with enclosures, 13 May 1884; both DF [TAED D8403ZDA, D8403ZDB]).
4. The enclosed affidavit carried a typed heading of “New Jersey Supreme Court Middlesex County” in reference to Seyfert v. Edison. An undated, handwritten draft of this list (likely intended for Seyfert’s attorneys) enumerated more items, including “All the Machinery in the Laboratory,” as well as railroad cars, which were elsewhere attributed to the Edison Electric Railway Co. (see note 3). Mary Edison draft memorandum, n.d. [May?] 1884, DF (TAED D8403ZEI).

5. A wooden stand with open shelves for displaying ornaments, books, or other objects. OED, s.v. “what-not” 2.

6. One of the fawn-colored breeds originally from the Channel Island, including Jersey and Guernsey. OED, s.v. “Alderney.”

---

[New York,] May 15, 1884.

To Sherburne Eaton

Dear Sir:—

I beg to give you below a list of the men I am now carrying in connection with my electrical staff, in anticipation of their services, in all probability, not being required at an early date in connection with central station work. I have no use whatever for these men at the present moment, and my only object in carrying them is, that it would seem to be a very great pity that these men should be lost to our business.1

Considering the trouble and expense incurred in enabling them to obtain the necessary experience to efficiently perform their work, I shall be glad to know if the Edison Electric Light Co. are willing to carry these men, pending the decision of the Committee now inquiring into the question of the future conducting of the Manufacturing and Construction business.2

<table>
<thead>
<tr>
<th>NAME</th>
<th>SALARY</th>
<th>ALLOWANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. M. Doubleday</td>
<td>$24.00</td>
<td>$17.50</td>
</tr>
<tr>
<td>Thomas P. Conant</td>
<td>25.00</td>
<td>17.50</td>
</tr>
<tr>
<td>James Lyman</td>
<td>10.00</td>
<td>17.50</td>
</tr>
<tr>
<td>A. S. Beves</td>
<td>15.00</td>
<td>17.50</td>
</tr>
<tr>
<td>H. W. Leonard</td>
<td>20.00</td>
<td>17.50</td>
</tr>
<tr>
<td>I. Walker (wireman)</td>
<td>16.00</td>
<td>17.50</td>
</tr>
</tbody>
</table>

Very truly yours,

TAE [nsull]

TL (carbon copy), NjWOE, DF (TAED D8416BOY). Initialed for Edison by Samuel Insull. ‘Heading repeated for continuation of list on following page.

1. See Doc. 2677 esp. n. 3.
2. The Edison Electric Light Co.’s so-called Committee of Three (see Doc. 2690 n. 1) met for the first time on 14 May. Although Eaton, in connection with the Edison Electric Light Co.’s Committee on Expen-
ditures, wanted to “put the knife into our expenses,” he agreed to keep skilled workers in the Edison fold and away from competitors. Eaton to TAE, 9, 10 and 14 May 1884, all DF (TAED D8427ZAY, D8427ZAY, D8427ZAZ, D8427ZBE).

3. Harry Mather Doubleday (1855–1934) attended the Brooklyn Polytechnic Institute and the Massachusetts Agricultural College before taking a job at his father’s woolen mill in 1872. He remained there until April 1881, when he sought out Edison and was hired to help with a canvass of gas use in New York. Later assigned to the Edison Machine Works, the Edison Co. for Isolated Lighting, and, briefly, the Edison Construction Dept., Doubleday was posted to the Southern Exhibition in Louisville in July 1883. At the end of the year, he returned to the Construction Dept., working at stations in Massachusetts and Pennsylvania. He took on similar duties for the Marr Construction Co., which was formed to install Edison central stations. Doubleday remained connected to the electrical industry until 1906, when he retired to Jamaica, where he served for several years as an American consular officer. Pioneers Bio., “Harry Mather Doubleday.”

4. Thomas Peters Conant (1860–1891) came from a distinguished scholarly and literary family that traced its line directly to Roger Conant, a founder of Salem, Mass. Thomas Conant graduated from the Columbia School of Mines in 1882 and soon after entered Edison’s employ as a chemical assistant at the Menlo Park laboratory. Since July 1883, he had been helping with central station wiring in Pennsylvania, Ohio, and New York. Conant remained connected with central station work after Edison disbanded the Construction Dept., but he was back in the laboratory in early 1885 making storage battery experiments. He left in March of that year, following the mysterious disappearance of his father, Samuel Stillman Conant, the managing editor of Harper’s Weekly. After working for various electrical firms, Conant reentered the Edison orbit in 1889 as a construction superintendent for the Edison Electric Light Co. He was the company’s eastern district engineer when he died in the care of his mother, the author Helen Conant, after an unspecified illness. Obituary, NYT, 25 Feb. 1891, 4; Obituary, Trans. ASME 12 (1891): 1056; Johnson and Brown 1904, s.vv. “Conant, Samuel Stillman” and “Conant, Thomas Jefferson”; “List of Graduates 1882,” School of Mines Quarterly [Columbia College], 6 (Jan. 1885): 186; Samuel Insull to William Andrews, 11 June 1884; Conant to Insull, 15 Mar. and 1 May 1885; all DF (TAED D8416BUI, D8513D, D8513K); Unbound Notes and Drawings (1885), Lab. (TAED NS85ACS); Watkins 1919, 143–47.


6. Isaac C. Walker (1848–1926), a Pennsylvania native, was hired by Edison in 1883 and put in charge of inside wiring for village plant sta-
tions. He remained in Edison’s employ until about June 1884. While still working for Edison, he began his own electrical engineering firm in Philadelphia, known after 1888 as Walker & Kepler. Walker’s firm initially specialized in the installation of electrical lighting plants but later branched out to include electrical supply and repair. “Walker, Edison Aide in Early Days, Dies,” NYT, 9 Mar. 1929, 19; U.S. Census Bureau 1982? (1900), roll T623_1406, p. 6A [Folsom, Delaware, Pa.]; TAE to Thomas Conant, 26 Oct. 1883; Walker to Insull, 24 June 1884; both DF (TAED D8316BCX, D8442ZEW); Distinguished Men of Philadelphia and Pennsylvania 1913, 97.

New York, May 15, 1884

To the Commissioner of Patents:

Be it known that I, Thomas A. Edison, a citizen of the United States, residing at Menlo Park, in the County of Middlesex and State of New Jersey, have invented an improvement in Methods and Apparatus for Separating Ores, and desiring further to mature the same, file this my Caveat therefor, and pray protection of my right until I shall have matured my invention.¹

The invention is designed to act upon gold and other non-magnetic metals in a metallic state, to separate the same by electrically operated apparatus from the gangue or non-metallic substances. This requires that the ore should be thoroughly stamped, so that the division will be fine enough to release all the particles of metal.²

The first feature of my invention is an improvement upon the apparatus described in my application No 340 (Ser. No 70,289),³ the object being to produce a more concentrated magnetic field.

In figures 1 and 2 a winged armature A, is shown located between the poles of magnet B. The armature A is revolved by power to shift the lines of force and to change the trajectory of the metallic portion of the falling powdered ore and thus separate it from the non-metallic portion.

Fig 1.
Fig 2

Flat spouts C. D. pass through the two portions of the field and conduct the material. These spouts have a considerable width. The action of the revolving armature is to throw the metallic particles to one side of the spouts, and dividing partitions below the troughs keep separate the two portions of the material. Suitable vibrating sieves are used in the hoppers to break up lumps and to feed the material in proper condition for the action of the apparatus.

The material may be passed through the spouts in a dry state, or with water, acidulated or not as desired: and the ends of the two spouts C. D. may be connected by wires 1 and 2 to complete the circuit. This causes heavy currents to circulate in the material and increases the effect of the action.

The winged armature may have its wings wound with wire connected in a circuit, to polarize it, and increase the field.

Winged electro-magnets E. F. are shown in figures 3, 4, 5 and 6.

Fig 3.

Fig 4

Fig. 5.

Fig 6.
These I prefer to the construction shown in my application referred to as forming a more uniform and continuous field. The wings may project from a shaft (figures 3 and 4) or from a larger cylinder (figures 5 and 6). The magnets E. F. are revolved by power opposite stationary armatures G. A spout may be used as in figures 3 and 4, or a hopper and partition as in figures 5 and 6. If the spout is used, the ends of the spout may be connected by a conductor outside of the magnetic field to complete the circuit. The revolving electro-magnet may be in the form of a Siemen’s C—armature H, as shown in figure 7. Fig 7.

Instead of changing the trajectory of the metallic portion of the falling ore by passing it through a shifting field of force, the trajectory of the metallic non-magnetic particles may be changed in another way. The material may be caused to pass through a magnetic field, so that an electric current will be thrown into the metallic particles by their cutting the magnetic lines of force.

There will then be a mutual attraction between the current in the particles and the magnet or magnets moving the metallic particles sufficiently to bring them to a different place of deposit than the non-metallic portion of the material.

In figure 8, the magnet I is opposed by a revolving winged armature J and the magnetic field is produced causing the action stated.
Fig 8.

In figure 9 three magnets and revolving armatures are shown as arranged for the same purpose.
Fig. 9.

In figure 10 a series of magnets K is arranged close to the gradually receding side of a vertical spout B.
No armatures are used, but the spout will be of sufficient length so that the weak attraction will effect the desired object and draw the metallic particles to one side of the dividing partition while the non-metallic portion of the falling body is deposited in the other side of this partition.

Another method is to take advantage of the retardation of the metallic particles in passing through a magnetic field. By making the field long enough a body of metallic and non-metallic particles thrown into the top of the spout will be quite completely separated before it reaches the bottom of the spout. The material as it issues from the spout will be directed into two or more receptacles.

In figure 11, the spout M has magnets N.

The swinging box O has three chambers. It is arranged to be swung under the end of the spout. The first chambers would receive all non-metallic material, the second chamber mixed metallic and non-metallic material, and the third chamber metallic particles solely.

In figure 12, a sliding scoop P is designed to be brought into the path of the falling body to catch the retarded metallic particles.

By using water the separation may take place in a trough Q (figure 13) slightly inclined from the horizontal, and a conductor 3 may be used to complete the circuit through the trough.
It is evident that with all the methods proposed, a dry or wet separation may be employed, and, if the latter the circuit may be completed by an outside conductor to permit of the circulation of the currents generated through the moving body.

And if desired additional dynamo currents may be passed through the moving body.

It is evident that by repeating the action upon the material the separation can be made practically perfect.

This specification signed and witnessed, this 15th day of May 1884.

Witnesses

Alf. W. Kiddle, E. C. Rowland

Thos A Edison

DS, MdNACP, RG-241, Edison Caveat 109 (TAED W100ABW). Probably written by Alfred Kiddle; all figures drawn on two separate pages.

1. This document was filed on 3 June 1884 as Edison’s Caveat 109. The editors have found no evidence of a related patent application.

2. Edison wrote out an undated draft of the basic principles of the caveat. He also made a series of sketches related to it between 3 and 14 May. On or about 8 May, Edison made more complete drawings, which became the basis for figures 1–13 in the caveat. Unbound Notes and Drawings (1884), Lab. (TAED NS84ACH, NS84ACI, NS84ACJ); Cat. 1150, Scraps. (TAED NM019AAE, NM019AAF).

John Ott conducted a related series of experiments around 14 May using an electromagnet and a series of nonferrous materials. He made a “large Electromagnet and suspended between its poles extensions with silk fiber the following Mettals and compounds,” including ivory, aluminum, quartz, glass, zinc, mica, lead, and gold, as well as flasks of muriatic, sulphuric, and acetic acids. Ott included with his notes on the experiments two diagrams, one illustrating his experimental apparatus and the other labeled as a “model for Ore Milling.” N-80-04-17: 91–98, Lab. (TAED N050091, N050096).

3. Edison executed this application in August 1881 but, due to the malfeasance of patent attorney Zenas Wilber, it was not filed until August 1882 (see Doc. 2323). It issued as U.S. Patent 400,317 in March 1889.

4. Alfred Watts Kiddle (1865–1935) was a frequent attestor or witness to patents or business documents executed by Edison and Richard Dyer, beginning in 1884. Kiddle gained valuable experience in patent law through his association with the firm Dyer & Seeley. He was admitted to the New York bar in February 1887, graduated from the Law School of Columbia College the same year, and worked for a time as a patent attorney for the Edison Electric Light Co. Kiddle developed his

5. Edward C. Rowland (1863–1926) was a native of Metuchen, N.J. He quit private school and joined the Menlo Park laboratory in 1880, where he briefly was involved in the manufacture of incandescent lamp filaments. His skill as a draftsman led to his reassignment to the drafting force, and his name appears on many of Edison’s patent applications. He moved to the Fifth Ave. office of the Edison Electric Light Co. in 1881. Rowland later worked for the patent firm of Dyer & Seeley before opening his own drafting office. “Rowland, Edward C., ” Pioneers Bio.

---

**New York, [May 20, 1884]**

*To Samuel Insull*

(Important)

(Plan to get more work & sell more E Lamps)

Insull—

Write Flood Page and suggest that he might arrange to rent some C machines at £300 per annum which would give him about 10 pct & 5 pct dep[re]c[iation][n]—that if they would merely pay the Engine & extra work of about $25700 per machine they could get them— we want to get rid of them & at the same time help them out= mention that they take up very little room are complete & where party has 800 @ 1000 Lamps they would be cheaply installed & no trouble [---]—& small space, [---]* and at the end of a year of whatever period they could be taken out & moved very cheaply where as with any other installation the fixed Expenses & work are very heavy & on removal the losses would be very great, that the rental of 300£ would be very moderate to any one—& that if the party wanted a spare machine which although I consider unnecessary they might Let them have it on payment of £150 Extra per year providing the party would agree to use it only when the other was out of order thus they would get abt 8 pct & no depcn= [-------]— They would make on Lamps & be earning interest on investment instead of letting these machines lie idle here Eating up interest—

E

ALS, NjWOE, DF (*TAED* D8437Y1). Letterhead of Thomas A. Edison, Central Station Construction Dept. a“NEW YORK,” preprinted. bCanceled. cCanceled and followed by “over” as page turn. dObscured overwritten text.

1. The typed letter to Samuel Flood Page, based on Edison’s instructions in this document, was dated 20 May. DF (*TAED* D8416BPY).
2. Edison may have been prompted to write by the Edison & Swan
United Co.’s recent urgent order of four large isolated dynamos for the International Health Exhibition at South Kensington, London (Edison & Swan United to TAE, 22 Apr. and 1 May 1884, DF [TAED D8437W, D8437X]). His suggestions were consistent with those he made in late 1882 urging the antecedent Edison Electric Light Co., Ltd., to develop the isolated lighting business (see Docs. 2374 esp. nn. 4–5, and 2375). The big C dynamos referred to here were probably those remaining in New York from the London company’s May 1882 order (see Doc. 2572 n. 4).

Flood Page unequivocally rejected Edison’s suggestions, counter- ing that it would be easier to sell than to rent the machines. He also asked Edison to consider repurchasing them from the Edison & Swan United firm. Edison noted on Flood Page’s letter, “Insull— Cant we try Colombo on some.” Insull apparently promptly wrote to Giuseppe Colombo (letter not found), who was planning for another expansion of the central station in Milan; Colombo then delegated John Lieb to arrange details personally with Edison. The Milan station added two Jumbo dynamos sometime between April 1884 and February 1885 and another two by the start of 1886. Charles Clarke recalled years later that at least one of them came from the Holborn Viaduct plant in London, but it is possible that Edison arranged to transfer one of the British company’s machines from New York, much as he had already disposed of one to the Netherlands. Flood Page to TAE, 17 June 1884; Colombo to TAE, 11 July 1884; both DF (TAED D8437ZAD, D8436ZDA); “Theatre de la Scalla,” La Lumière Électrique 12 (5 Apr. 1884): 13; “Station Centrale d’Éclairage Électrique de Milan,” ibid. 15 (28 Feb. 1885): 386 (reprinted in English in Edison Co. for Isolated Lighting Bulletin 12:25–26, 18 Jan. 1886, CR [TAED CC012025]); “Usine Centrale pour l’Éclairage Électrique à Milan,” ibid. 19 (6 Feb. 1886): 241–42; Clarke 1904, 53–54; see Doc. 2572.

**Memorandum to Richard Dyer**

NEW YORK May 21st 1884

Dyer

Please draw up patent for process of drawing wire whereby the annealing of the wire & drawing is a continuous process.¹

---

¹ This notation is not mentioned in the original text and seems to be an addition or a misprint. The context suggests it refers to the continuous process of annealing and drawing wire. However, without additional information from the source, the exact reference or use of this process cannot be confirmed from the text alone.
(see wire drawing book perhaps in Cyclopedia\textsuperscript{2} E)

about 6 inches or a foot of the wires passes between contact rolls clamps or brushes X A\textsuperscript{b} continuous quantity Current passes through athis section so as to heat it as it passes to the annealing or softening point. it may be heated between every die or every other die. The softening of the wire makes it easier to draw through the die hence there is a saving of power & this saving is nearly enough to run the dynamos— besides by making the process continuous saves a great deal of labor, & increase the output of the plant & also renders unnecessary the complicated annealing process now in use— get a broad claim\textsuperscript{3}

Edison

ADS, NjWOE, Lab., Cat. 1150 (\textit{TAED} NM019AAG). Letterhead of Thomas A. Edison. \textquotedblleft NEW YORK\textquotedblright preprinted. \textsuperscript{b}Obscured overwritten text.

1. Figure labels are “die,” “die,” “clamps,” “dynamo,” and “dynamo.”

2. Edison may have meant the sixteen-volume \textit{American Cyclopaedia: A Popular Dictionary of General Knowledge}, edited by George Ripley and Charles Dana and published from 1873. Edison acquired the second volume in November 1884, presumably to fill a gap in a set he already owned. The first and last volumes contained entries for annealing and wire, respectively. Each entry referred to the fact that wire, at some point in being drawn, becomes brittle and must be annealed before being drawn further. The editors have not identified the “wire drawing book.” Ripley and Dana 1883, s.vv. \textquotedblleft Annealing\textquotedblright and \textquotedblleft Wire\textquotedblright; Voucher no. 605 (1885) for J. M. Stoddart.

3. Edison sketched this idea for annealing on 23 May and again on 5 June, and a similar process on 24 May (Unbound Notes and Drawings [1884]; Cat. 1150; both Lab. [\textit{TAED} NS84ACK1, NS84ACL, NM019AAJ]). He executed two related patent applications on 2 June 1884. In one, based closely on this memorandum, Edison described annealing \textquoteleft by heating the wire by an electric current of low tension and large quantity at proper intervals between the die-plates\textquoteright through which the wire was drawn. The specification’s single figure, also based on the drawing in this document, clearly indicated pickling reservoirs \textquoteleft ar-

\textit{Drawing in Edison’s U.S. Patent 436,968 of apparatus for continuously drawing, annealing by electricity, and pickling wire.}
ranged in the line of the wire after each dynamo-connection to remove the oxide” (U.S. Pat. 436,968). The other application covered methods and apparatus for annealing in externally heated sealed vessels, “the wire entering and leaving the chambers through suitable air-excluding stuffing-boxes. The oxygen within the chambers is quickly consumed, so that but little remains therein, leaving the wire surrounded by nitrogen, and hence the heating can be performed with but slight oxidation of the wire” (U.S. Pat. 436,969). Both applications were rejected for conflating separate inventions for a process and machinery. Later changes in Patent Office policy obviated this objection, but the applications were again refused on the grounds that some claims overlapped those of an earlier patentee. After Edison revised and narrowed the claims, a technicality related to the inventor’s oath further delayed their issue until September 1890 (Pat. Apps. 436,968; 436,969).

Memorandum to John Ott

NEW YORK May 22 1884

John—

please try the following Experiment

I want to work Local Sounders and also work telegraph wires of [2500 to 7000 ohms] each from a Dynamo. So arrange it thus & Let me know if the sounders Lines dont interfere with Each other. (Worked O.K.)

put 100 ohms in & shunt around enough resistance to give good current to the Sounder then see if the sounders interfere with each other.
This is arranged so as to send out positive or negative Currents. The Lines on top of 75 ohm coil will get Current in one direction while those on bottom of 75 ohm coil will get Current in opposite direction (Worked O.K.)

Arrange all these circuits so you can change Relays & Keys etc from one Experiment to the other quickly then Let me know when you are ready to show it to me.

Edison

M N Force

J. F. Ott

1. Because of their relatively high internal resistance, batteries could operate only a limited number of sounders or lines. As the resistance of a working circuit changed with the addition of lines or sounders, resistance of the complete circuit (including the battery) would not change proportionally. This disproportionate change of resistance resulted in significant variations of current strength, which made it hard to keep instruments adjusted properly. A dynamo whose own resistance was a tiny fraction of that on the outside line, however, would reduce these disparities practically to zero. Dynamos also had the obvious advantages of supplying enough current to operate more devices as well as doing away with tedious battery maintenance. Maver 1892, 27–31, 40–49.

2. Figure labels are (top to bottom from left) “Poles of Dynamo,” “100 ohms,” “key,” “20 ohms,” “2500,” “3500,” “4000,” and “7000 ohms.”

3. Figure labels are (top to bottom) “75 ohms,” “20 ohm,” “20 ohm,” “2500,” “3000,” “4000,” “7000 ohms.”

4. Currents of opposite polarity were required for multiplex telegraph systems, in which a single wire carried more than one signal. Maver 1892, 42.

5. Probably in relation to the events discussed in Doc. 2651, Edison sketched on 23 and 24 May several arrangements of a “Dynamo for W.U.,” including one for the quadruplex that “Worked OK” (Unbound Notes and Drawings [1884], Lab. [TAED NS84ACK1, NS84ACK2,
April–June 1884

NS84ACK3]). In June, Edison and the Edison Electric Light Co. granted Western Union a license under an 1882 patent application, which was still pending in the Patent Office, to manufacture and use dynamos for telegraphic purposes (that use having been specifically excepted from Edison’s underlying contract with the Light Co. [Doc. 1576]). The application was probably Edison’s Case 404, which had already been rejected, amended, and placed in interference; Edison eventually abandoned it (TAE agreement with Edison Electric Light Co. and Western Union, 13 June 1884, DF [TAED D8427ZBI]; Patent Application Casebook E-2537:156; Patent Application Drawings [Case Nos. 179–699]; both PS [TAED PT021156, PT023: images 62–63]). On 1 July, Edison filed two patent applications for “Dynamo Telegraphy,” one of which pertained specifically to quadruplex telegraphy. He subsequently abandoned these cases as well (Patent Applications: Abstracts of Edison’s Abandoned Applications [1876–85], PS [TAED PT004:17]).

Edison would have been familiar with the efforts in this area of other inventors, including James Fuller, Orazio Lugo, and Stephen Field. Western Union had adopted Field’s dynamo quadruplex circuits in 1883 (see Docs. 634 and 2024 n. 2; “Steam Engines for Batteries,” NYT, 17 Jan. 1881, 5; Pope 1892, 185–87; Telegraphy 1901, 2:143–48; Maver 1888, 67, 79). By 1892, both Western Union and the Postal Telegraph Co. had installed Edison dynamos for local and outside circuits in New York and other stations (Maver 1892, 44, 46, 49).

Sherburne Eaton Memorandum

[NY ork,] May 24, 1884

President’s mem. for Executive Committee meeting, Light Company, May 24th. 1884.

CONSTRUCTION DEPARTMENT. TEMPORARY EXPENSES. On May 15th. Mr. Edison notified me that he was unable any longer to carry the electrical staff of his Construction Department. He mentioned 6 men in particular, all, he thought, indispensible to the business.¹ Their salaries and expenses aggregate about $225 a week. I told him that in order to prevent their discharge by him, the Light Company would temporarily pay the expenses, subject to the future action of the Directors. ($250.00)²

On May 21st. Mr. Edison asked to have the engineering pay roll of his Construction Department also assumed by the Light Co., 7 men, about $200 a week.² I told him this also would have to be acted on by the Directors.

Shall the Light Co. assume all or any part of those expenses, aggregating about $425 a week, pending the ultimate decision of what shall be done with the Construction Department³

CONSTRUCTION DEPARTMENT. CONTRACTS. About 2 months ago the Thomas A. Edison Construction Department made a
written tender to install a central station plant in Dallas, Texas, for $24,796, provided it were accepted within 60 days. The 60 days have now expired, the company is not yet formed, and Mr. Edison is not in condition to extend the time for accepting his tender. The question arises whether the Light Co. will assume the estimate and authorize our agent to proceed with the formation of the company? There are several other towns situated like Dallas, in this regard.  

Shall the Light Co. assume these contracts, pending the final disposition of the construction business? 

SOUTH AMERICAN BUSINESS. Mr. Edison asks for authority to make arrangements with such parties as he may select, to exploit our business in the various countries of South America, also in Mexico.

We have already given Mr. Edison the Argentine Republic and Chili. On July 2nd. 1883, Mr. Edison was given authority to at once install a central station plant at Buenos Ayres. Although 11 months have passed, and this has not yet been accomplished, Mr. Edison is confident that before another Winter, he can start a central station there.

On January 26th. 1884, an arrangement was made with Mr. Edison, for Chili, which was ratified by the Directors, Feb. 19th. He is to pay us in cash 25 percentum on the shop price of dynamos, and on village plants 18 per centum on the contract price of the original installation and future increases, all as delivered F.O.B., in New York City. We are also to have a royalty of 10 cents on every lamp, both in isolated and central station lighting. Mr. Edison sent Mr. Stewart to Chili to do business under this contract, and we have thus far received two small isolated orders from him. He expects to do a good business.

Shall we make the same arrangement with Mr. Edison for other countries in South America and Mexico, as we made in Chili?

UNSATISFACTORY INSTALLATIONS OF VILLAGE PLANTS. Several of the village plants installed by the Construction Department are unsatisfactory to the local companies. Mr. Douty, President of the Shamokin company, in a letter dated May 13th. and following up several previous conversations and letters on the matter, formally requests that his plant be made satisfactory and to conform to his contract with Mr. Edison, as Mr. Douty understands it.

Several of those companies have made complaints to us, and insist that either Mr. Edison or our Company should make the
installations perfect, to conform, as they claim, to the original contract. There are two sides to this question, Mr. Edison being on one and the local companies on the other. My own opinion is that the installations should be made satisfactory, within reason, but the question arises who shall pay for the necessary changes and additional machinery.

What shall be our policy? Shall we accept Mr. Edison’s decision as to what constitutes an adequate plant, or shall we accept the decision of our own engineering department, Mr. Clarke for instance, or any other engineer whom we may select? If Mr. Edison’s decision is not accepted by the local companies, and if our engineers do not agree with Mr. Edison, who shall pay the expense of the changes and new machinery? Strictly speaking, it is not our duty to stand this loss. As matter of law, there is probably no reason why we should do so. But there are reasons of policy why the local people ought to be given satisfaction.

S. B. Eaton President. per W.F.

TD (carbon copy), NjWOE, DF (TAED D8427ZBF). 1Date from text; form altered. 2Marginalia written in unknown hand. 3“S. B. Eaton” and “per W.F.” handwritten.

1. See Doc. 2672.
2. The seven individuals identified by Edison were: Charles Campbell and Charles G. Y. King (engineers), Carl Ulmann (draftsman), Joseph Atkins (blueprints), Henry Guimaraes and B. Gmur (mapping), and Paul Dyer (canvasser). TAE to Eaton, 21 May 1884, DF (TAED D8416BQG).
3. Eaton (who was concurrently working on the Committee on Expenditures) evidently sent a monetary offer on 26 May concerning both Edison’s engineering and electrical personnel, but that document has not been found. Edison rejected Eaton’s proposal as “quite inadequate, unless the Executive Committee are willing that the business should be conducted without the Light Co. having an engineering force, or one to which they can refer to when required.” Edison promised that Samuel Insull would consult with Eaton, the immediate outcome of which the editors have not determined. TAE to Eaton, 28 May 1884, DF (TAED D8416BRP); see also Doc. 2725.
4. The Dallas station was not constructed, but see App. 2B regarding its projected size.
5. See Doc. 2602 n. 2.
6. Edison acknowledged a “perfectly satisfactory” proposal from Eaton about South America and Mexico a few days later. Its terms have not been identified, but presumably they were similar to those for Chile. TAE to Eaton, 28 May 1884, DF (TAED D8416BRR).
7. Unidentified.
Dear Sir:—

I have your favor of the 27th. inst., and have given instructions for some instruments to be set up, and as soon as they are ready I will let you know, as I should like to have you and some of your friends see them working. I do not think I could arrange to send any to Corea just at present.

The first time I am down town I will do myself the pleasure of calling on you to see what you have written to General Foote.

I think it would be better to defer the interview with the Japanese Consul until such time as the instruments, above referred to, are in shape, and when I would propose taking him with you over to my laboratory to see them in operation. Very truly yours,

TAE Insull

TL (carbon copy), NJWOE, DF (TAED D8416BRO). Initialed for Edison by Samuel Insull.

1. Everett Frazar (1834–1901), resident New York partner for Frazar & Co. (China) since 1872, received his appointment as Consul General for Korea in New York in April 1884. Frazar's diplomatic career was facilitated by his acquaintance with Lucius Foote, who had recommended him as a host to the Korean Mission to the United States during 1883. Originally from Massachusetts, Frazar had established Frazar & Co. as merchant and commission agents in Shanghai in 1858 and later added branches in Nagasaki, Hong Kong, and Yokohama. Since at least April 1884, Frazar had been guiding Edison’s application for an electric light and telephone concession in Korea (“Obituary,” NYT, 4 Jan. 1901, 7; “In Memoriam,” Asia: The Journal of the American Asiatic Association 21 [Jan. 1921]: 121–23; Frazar 1884, 4, 49–51; Lucius Foote to Frederick Frelinghuysen, 17 Jan. 1884, no. 53, reel 1, U.S. Dept. of State 1951). The New York house of Frazar & Co. had sought to introduce Edison’s electric light in Japan in 1882; the Yokohama branch became the sole agents for his light in Japan and Korea in 1885 (Frazar & Co. [China] to TAE, 16 Aug. 1882; Goddard to TAE, 24 Aug. 1882; Frazar & Co. [Yokohoma] to TAE, 5 Aug. 1885; all DF [TAED D8237Z, D8237ZAA, D8534O]; see also Nam 2000).

2. Not found.

3. Frazar was promoting American participation in a proposed industrial arts exhibition in Seoul. He had recently talked with Edison about autographic telegraphy, written samples of which Samuel Insull had promised to send him. At the end of 1884, Frazar & Co. in China requested character printing telegraphic instruments, which it sought to represent in Japan, China, and Korea. “Exhibition in Corea,” NYT, 16 Dec. 1883, 6; Insull to Frazar, 1 May 1884; Frazar & Co. (China) to TAE, 19 Dec. 1884; both DF (TAED D8416BMH, D8471Y).

4. The editors have found no further reference to a meeting. Frazar & Co. (China) had a New York office on the third floor of 73–74 South St.

April–June 1884

552
and shared an additional address with the Korean consul at 123 Front St. “Two Warehouses Burned: The Christmas Eve Conflagration in South Street,” NYT, 26 Dec. 1881, 1; Frazar & Co. (China) to TAE, 16 Aug. 1882 and 19 Dec. 1884, DF (TAED D8237Z, D8471Y); Guide to the Charities 1886, 137.

5. Lucius Harwood Foote (1826–1913) was associated with Edison’s telephone rights while serving as American Consul in Valparaiso, Chile (Doc. 1823 n. 4). Adjutant General for the state of California from 1872 to 1876, Foote became U.S. Envoy Extraordinary and Minister Plenipotentiary to Korea in February 1883; he then applied on Edison’s behalf to obtain exclusive rights for electric light and telephones in Korea (NCAB 7:267–68; “Nominations by the President,” Washington Post, 27 Feb. 1883, 1; Obituary, NYT, 5 June 1913, 11; Frazar to TAE, 17 Apr. 1884; Insull to Frazar, 6 May 1884; both DF [TAED D8492ZBQ, D8416BNS]). Foote reported in September that Edison was authorized to introduce his lighting system at the palace compound in Seoul; he attributed this accomplishment, in part, to the “observations made by the Corean Envoys while in the United States,” referring to the Special Mission of 1883. The same diplomatic mission, headed by Min Yong Mok (president of the Foreign Office), had visited the Foreign Exhibition in Boston and the New York Herald building, where they may have seen Edison’s lighting. Some members of that delegation returned to Korea aboard the USS Trenton, which was outfitted with an Edison isolated plant (one L dynamo and 104 16-candle lights), the first electric lighting installation on a U.S. naval warship (Foote to Frederick Frelinghuysen, 4 Sept. 1884, no. 106, and 17 June 1884, no. 84, both reel 1, U.S. Dept. of State 1951; McCune and Harrison 1951, 34; Thompson 1954.


London, 28th May. 1884

Dear Sir,

I beg to inform you that the subject of the use of “Edison” lamps has on several occasions been before the directors. We have a number of Edison installations in the United Kingdom, some of which, such as the House of Commons, the Criterion Theatre, etc., are of great importance; and we have recently obtained a supply of lamps from you in order to replace lamps as required in these and other installations and to enable us to sell lamps in connection with new plants as we make them from time to time. If, however, the company are to continue to supply Edison lamps, and especially if they are materially to increase their use in this country, as we trust may be done, it is evident that we must manufacture them ourselves at our own
factory. The superintendent of our lamp factory feels that he
could now make Edison lamps and he thinks that in justice to
you, to the company and to the lamp itself, he ought to have
some one thoroughly competent and familiar with the process
of manufacturing your lamps, as a guarantee that the lamps
which we may make in this country shall be as good as those
that we obtain from you.

I am therefore instructed by the directors to request that
you will have the goodness to let us have a foreman in whom
you have confidence who would come into our employment
either for a short period, or for a considerable length of time,
as you, and he, might think best. We are anxious to develope
both sides of our business—the Edison, and the Swan—and
I am sure you will appreciate the importance of the applica-
tion that I now make to you. Unless we manufacture our own
Edison lamps, I feel sure that the trade in these lamps will not
increase.

I shall be obliged if you will let me know whether you can
place such a man as I have spoken of at our disposal, what sal-
ary he ought to receive and for what length of time he ought
to be engaged.

I am glad to be able to say that the lighting of the Criterion
Theatre reflects very great credit on those who have carried
it out; that it shows the Edison system in an admirable man-
ner, and that it is recognised by all who have seen it, as be-
ing quite the best piece of theatrical lighting yet carried out in
England. I regret however, to say that we shall lose a consid-
erable sum of money over the installation. I Remain, Dear Sir,
Yours Very Truly,

S. Flood Page. Secretary.

(Cant send Foreman. The French Co having the only one
we had to spare Suggest they do not go into the business for
the reason that if Lamps are made, factory always be better &
cheaper, that the cost in our own small French factory is al-
ready greater than our price delivered Hamburg & Lamps are
not so good— We believe that if all the Lamps are made in
one large works that they will always be cheaper than if made
in several small factories We even believe we could give you
a bid to deliver Swan Lamps in England for less than the cost
to you in your own factory taking every Expense into consid-
eration— E)

TLS, NjWOE, DF (TAED D8437ZAC). Letterhead of Edison and
Swan United Electric Light Co.; typed in upper case. “London,” and
“188” preprinted. *Interlined above.
1. The Criterion Theatre plant began operating regularly on 15 April, running some 600 lights on stage and throughout the house from four L dynamos. There was trouble initially with one of the two engines, which Armington & Sims and Edison jointly blamed on it having been started up improperly. The Criterion installation quickly won favorable reviews, with one observer proclaiming it “perhaps the most perfect example of theatre-lighting in London,” not least because the air in the theater remained fresh and below 60 degrees. TAE to Edison & Swan United Electric Light Co., Ltd., 9 May 1884, DF (TAED D8416BOG); “The Criterion Theatre,” Teleg. J. and Elec. Rev. 14 (19 Apr. 1884): 336.

2. Edison’s marginalia formed the basis for his 25 June reply, with which he enclosed a copy of Francis Upton’s six-page negative response to Page’s proposal. Edison pointed out that “we have within the last few months shipped from 70,000 to 100,000 lamps to the Continent of Europe in competition with the French Factory in Ivry-sur-Seine.” Upton also referred to the French factory, particularly to problems with quality and high manufacturing costs, both there and at the small Canadian shop, relative to the high-volume, low-cost strategy pursued by Edison’s works in Harrison. Upton described William Holzer as the only person qualified to start a new plant but declined to endorse him because of the inadvisability of asking him to compete against the U.S. factory, in which Holzer had a financial stake. TAE to Edison & Swan United Electric Light Co., Ltd., 25 June 1884, Lbk. 18:96 (TAED LB018096); Upton to TAE, 19 June 1884, DF (TAED D8429ZAO); cf. Docs. 2487 esp. n. 12, 2499 esp. n. 5, 2540, and 2554.

Dear Sir:

I trust you will excuse the intrusion of my opinion but having been a consistent Edison man for so many years my anxiety for the more rapid introduction of your light may be permissible.

I know very well how utterly heartless capital is and that it would slaughter your interests remorselessly on the slightest occasion if for its advantage.

It is therefore to be expected that you will look out that your interests and capital are first harmonized.

Having done this the money invested in the Edison companies should be carefully protected and by so doing your own interests will be the best served.

I do not believe that even you realize how generally the idea has permiated the public that the exclusive right to Incandescent lighting belongs to yourself.

This has been an enormous advantage in introducing the Edison system but under the present policy this is likely to be frittered away.

CHICAGO, May 29th, 1884.  

From George Bliss
Some six of the Arc companies are now offering to do Incandescent lighting and however inferior their apparatus may be it tends to postpone action, lower prices and divert business.

These competitors are gaining experience and are improving their apparatus constantly.

The public mind is being educated to the idea that Incandescent lighting is an open field.

Now why not put a stop to this by bringing suit on some one of the many points which you control essential to the success of Incandescent lighting.

Capital is proverbially timid and much of it would be frightened from going into the opposition.

The cost of these suits would certainly be much less than the incalculable injury already sustained from the efforts of competitors.

More business at better prices can be done by the Edison companies with suits in progress so that the expenses of litigation can readily be met from increased revenues.

The man who vigorously asserts his rights and contends for them generally succeeds for the majority of mankind do not care to engage in expensive and doubtful contests.

If the Edison policy shall be determined against litigation then it seems to me the only way is to put the whole business on the strictest kind of hard pan basis.

The Edison Co. ought to take all the factories under its control, of course paying you handsomely for your interests, put the price for franchises down very low and sell everything to local companies at such figures as would simply shut out competition.

With the lead which they have in the business this certainly ought to be possible. This is a big country and it is important that there shall be a number of Edison centers established from which the business can be handled promptly and to advantage.

I do not believe this can be well done from New York alone on account of time, distance and expense involved.

When the first installations under your supervision have reached practical success the sooner information is disseminated to these Edison centers the faster future progress will be made.

Your time ought to be altogether too valuable to be expended in ordinary business management when the principles have been thoroughly established.

I think you can make ten times the money by having others
do the work than by bringing everything directly under your own supervision.

All the evidence and experience coming under my observation goes to show that an enormous business is to be done in incandescent lighting.

With a successful policy your stock interests ought to pay you vastly more profit than can be made out of the vexations of manufacturing and contracting.

The Bell telephone is a most striking example of this and I do not regard the telephone of one tenth the importance of the Edison light even at the present time. Sincerely Yours,

Geo. H. Bliss

(Write Bliss in response to this not to get excited, that the arc Lt Cos he speaks of will think a Cyclone has struck them soon—E)

1. Edison sent a more anodyne letter of thanks expressing confidence that affairs would soon "be so arranged as to be satisfactory to all," and that he would "be enabled to push ahead vigorously and deal with the business, which I am sure is only waiting to be canvassed for." TAE to Bliss, 5 June 1884, DF (TAED D8416BSZ).

--2681--

_News York City, May 29th, 1884

From Richard Dyer

Dear Sir:

In accordance with the talk you had yesterday with Mr Seely and myself with regard to charges for conducting your soliciting business, I now propose to prosecute your business upon the following terms:1

(1) For the preparation of applications of ordinary length and simplicity including the drawing twenty-five dollars ($25). The case of Mr Livor and yourself on pulleys is an example of this class2

(2) For the preparation of simple applications including drawing twenty dollars ($20). The case on insulating covering for the conductors which you put into my hands yesterday is an example of this class.3

(3) For the preparation of cases more complicated than those of class 1 my charge for preparation will be from thirty to fifty dollars (including drawing) according to the amount of work required cost of drawing &c

(4) For the prosecution of applications you to pay reason-
able expenses and for time spent provided more than merely formal changes have to be made in the applications.

(5) For preparation of assignments, two dollars each. This does not include the record fee of Government, which is $1 for 300 words, and $2 for over that up to a number large enough to cover any ordinary assignment.

(6) The work of Mr Seely to be considered the same as my own work upon all matters we do for you

I consider it for my interest and of course propose to treat your business upon the most liberal basis, giving it my first and best attention and promoting your interests in every way in my power.

While expecting to be paid for work of any considerable length outside of the preparation and prosecution of applications I don’t propose to charge for consultations and searches for information which consume but a little time.

You will do me a favor by considering these terms strictly confidential since we hold our services high to the outside world, and propose to maintain in our general business a schedule of fees very much higher than the figures we have given you. The fees of Mr Serrell were referred to in our talks of yesterday. In our general business we hope to merit much higher figures than he charges—in fact as high as the leading firms in the soliciting business.

Hoping that you will appreciate the lower figures we have put upon your work I remain 

Yours very truly

Richd N. Dyer


1. This document appears to mark the start of Dyer’s partnership with Henry W. Seely, who likely gained entrance to the bar about this time (and certainly had done so by 1885). The firm of Dyer & Seely collaborated closely with Edison personally and with Edison companies for many years. Dyer assured Edison that although he was obliged to attend first to the Edison Electric Light Co., its business was “now so small, and is based almost entirely upon your own inventions,” that he did not foresee “any interference with the prompt execution of your personal work.” Dyer to TAE, 31 May 1884, DF (TAED D8468ZBF); testimony of Cyrus Brackett, 18 June 1885, p. 40, Weston v. Latimer v. Edison, MdCpNA (TAED W100DFA040).

2. Long-time Edison associate Henry (“Harry”) M. Livor (1846–1904) became acquainted with Edison in 1877 as a sales agent for the George Place Machinery Agency in New York. He had also represented other machine manufacturers and arranged credit with one of them on Edison’s behalf. Livor came from a well-connected New York family; his father was a noted homeopathic physician, and his three sisters
were all prominent in New York society. One of them, Iphigenia Place (the wife of Harry’s original employer), became a leading suffragist in the 1890s. *TAED*, s.v. “Livor, Henry”; Tate 1938, 148; Obituary, *NYT*, 28 May 1904, 9; “Women Ruled the Meeting,” ibid., 8 May 1894, 1; U.S. Census Bureau 1970 (1880) roll T9_896, p. 359, image 0722 (New York City, New York [Manhattan], N.Y.); ibid. 1982? (1900), roll T623_1119, p. 5B, (New York City, New York [Manhattan], N.Y.).

The editors have not identified the pulley patent application, but Livor had sent pulleys for Edison’s inspection in mid-May. Early the next month, Edison hired him away from the George Place Machinery Agency to become sales agent of the new Edison Shafting Manufacturing Co., then being formed to fabricate shafting, pulleys, hangers, and related transmission equipment under contract with the Edison Machine Works at its Goerck St. shop. Livor became general manager of the new firm almost immediately and received a substantial stake in it; he remained an important Edison manufacturing associate for many years. Livor to Insull, 14 May 1884; Livor agreement with Edison Machine Works, 3 June 1884; Livor agreement with Edison Shafting Manufacturing Co., 14 July 1884; Livor agreement with John Kruesi, 28 Aug. 1884; all DF (*TAED* D8431O, D8431Y, D8432B, D8432G); see also Bazerman 2002, 282.

3. The editors have not found this application; possibly it was a re-drawing of Edison’s Case 614, which the Patent Office had rejected in February (see Doc. 2588 n. 2).

---

**Technical Note: Electric Lighting**

[New York,] May 29 1884

[A]1

TAE Witness Richd N Dyer

X, NjWOE, Lab., Cat. 1150 (*TAED* NM019AAK).
1. Figure label is “Res[istance].” This drawing was the basis for the first of three figures in a patent application that Edison signed on 2 June for an arc lamp regulator. (The specification issued in 1890 with three additional drawings added during the examination process.) The regulator employed a motor with compound windings in the field or armature coils, or both. If the carbons came together, a low-resistance winding, connected in series with the arc, would cause the motor, through a worm gear, to move them apart. This motion would be countered by the effect of a high-resistance winding, in a shunt circuit with the arc, that would drive the motor the opposite way. Edison expected that this design would “maintain an arc of uniform length without flicker of the light” regardless of the lamp’s position. Also in early June, Charles Batchelor prepared to adapt the R dynamo for use with arc lights but did not write down any specifics. U.S. Pat. 438,303; Pat. App. 438,303; Cat. 1306, Batchelor (TAED MBN011AAV).

MARY EDISON’S STORY OF HER COURTSHIP AND WEDDING  Doc. 2683

The editors’ discovery of this article published in the New York World on 1 June 1884 has called into question time-honored accounts of the most written-about events of Mary Edison’s life: her courtship and marriage in 1871. Following Edison’s invention of the phonograph in 1878, newspaper reporters and authors responded quickly to the public’s growing curiosity about the inventor’s life. One of the most popular narratives to come from the resulting efflorescence of biographical mythology was Edison’s courtship of and marriage to Mary Stilwell. The story of his whirlwind romance of a sixteen-year-old employee in one of his shops and his immediate return to the laboratory after the wedding ceremony seems to have first appeared in a front-page article in the Washington Post on 26 November 1878. The story, or versions of it, soon appeared in newspapers across the nation and in James McClure’s 1879 biography, Edison and His Inventions.1 It was resurrected periodically in the press throughout Edison’s life, even after Mary’s death and his own remarriage, and it has been treated with a range of acceptance and criticism in a variety of Edison biographies.2 Aware of the accounts published in her lifetime, Mary evidently was eager to relate her version of meeting Edison and their subsequent courtship.

The World’s profile of Mary and her home, purportedly in her own words, was apparently unique. The editors have not found other instances in which Mary appeared as the subject of a printed article, nor have they determined how this one
came to be written. The article appeared on a women’s page over the byline of Olive Harper, the pen name of Helen Burrell Gibson D’Apery, a prolific and well-known newspaper writer and novelist who had endured brief notoriety over the veracity of her early reporting. Harper, who in recent years had mainly written articles about or directed at women, had sought to interview Edison on at least one occasion, in February 1882, when she asked to see him about “the application of your lights as a beneficial change from gas in homes.” Edison declined.³

When Mary talked with Harper, she vehemently denied having worked for Edison or anyone else prior to her marriage, affirming that she was still a schoolgirl when she met the inventor by chance after taking refuge in his factory during a rainstorm.⁴ Far from being a whirlwind romance, she claimed that the courtship lasted several months, beginning in the spring of 1871 and culminating in their wedding on Christmas Day. And contrary to earlier accounts, her portrayal of Edison’s courtship was quite conventional, with the suitor making repeated visits to her home and taking care to secure her father’s approval of their marriage. A second New York World article (Doc. 2718), probably also written by Oliver Harper and published eight days after Mary’s death, countered the widely circulated story that the groom had returned to his laboratory immediately after the wedding ceremony to work on his stock ticker.

Edison, for his part, told biographer Francis Arthur Jones decades later that the legend of his going back to work, forgetting that he had just been married, “was nothing but a newspaper story . . . got up by an imaginative newspaper man who knew that I was a bit absent-minded.” He did, however, concede that an actual event on his wedding day could have become the basis for the story: “The day I was married a consignment of stock tickers had been returned to the factory as being imperfect, and I had a desire to find out what was wrong and to put the machines right.” Far from forgetting his wife, he claimed that he had dutifully consulted her before departing:

An hour or so after the marriage ceremony had been performed I thought of these tickers, and when my wife and I had returned home I mentioned them to her and explained that I would like to go to the factory to see what was the matter with them. She agreed at once, and I went down, where I found Bachelor, my assistant, hard at work trying
to remedy the defect. We both monkeyed about with them, and finally after an hour or two we put them to rights, and I went home again.

Despite acknowledging that he had gone to work on his wedding day, Edison was adamant “as to forgetting that I was married, that’s all nonsense, and both I and my wife laughed at the story, though when I began to come across it almost every other week it began to get tedious. It was one of those made-up stories which stick, and I suppose I shall always be spoken of as the man who forgot his wife an hour after he was married.”

1. The story spread quickly in newspapers throughout the country. All of the articles listed below reproduced the original 26 November 1878 (p. 1) Washington Post article, in whole or in part; seven gave direct attribution: Alton (Ill.) Daily Telegraph, 2 Dec. 1878, 4; Decatur (Ill.) Daily Republican, 5 Dec. 1878, 2; Maquoketa (Iowa) Jackson Sentinel, 5 Dec. 1878, 6; Burlington (Iowa) Hawk-Eye, 7 Dec. 1878, 9; Decatur (Ill.) Weekly Republican, 12 Dec. 1878, 6; Logansport (Ind.) Journal, 12 Dec. 1878, 6; Cedar Falls (Iowa) Gazette, 13 Dec. 1878, 1; Decatur (Ill.) Daily Review, 14 Dec. 1878, 3; Freeborn County (Albert Lea, Minn.) Standard, 19 Dec. 1878, 4; Keene (N.H.) Sentinel, 26 Dec. 1878, 1; Hagerstown (Md.) Mail, 10 Jan. 1879; New Orleans Daily Picayune, 19 Jan. 1879, 12.

2. Concerning the treatment of the courtship and marriage in Edison biographies, see McClure 1879, 67–68; Dickson and Dickson 1894, 87–88; Jones 1907, 344–45; Simonds 1934, 81–83; Miller 1940, 140–42; Josephson 1959, 97–99; Conot 1979, 46–47; Baldwin 1995, 52–53; Israel 1998, 73–75; Stross 2007, 15–16.

3. Harper to TAE, 24 Feb. 1882, DF (TAED D8207N); TAE to Sherburne Eaton, 31 July 1882, Lbk. 7:812 (TAED lBo07812); on Harper see Doc. 2683 n. 13.

4. See Doc. 2683 n. 5.

5. Jones 1907, 344. According to Simonds 1934 (83), Alice Stilwell Holzer (Mary’s sister) also denied the story of Edison returning to work on his wedding night.

[New York, June 1, 1884]

IN THE WIZARD’S HOME.¹

HOW THOMAS A. EDISON’S RESIDENCE IS FITTED UP.²

One of the Many Elegant Private Homes in Gramercy Park—Mrs. Edison’s Deep Love for Her Famous Husband.

An abode of the purest peace, the truest sympathy and the utmost domestic harmony is the home of Mr. Thomas A. Edison, he who is commonly known as the “Wizard of Menlo Park,” and whose city residence is at No. 25 Gramercy Park.²

April–June 1884 562
The house is rather old-fashioned and without distinct individuality as to exterior, like almost all New York houses, but the inside has in every part a brightness and airy pleasantness entirely its own. The hall is paved with marble and furnished with Turkish rugs and crimson embossed velvet chairs and sofa and has a large hat-rack near the door, whereon hung a coat that bore the impress of the wizard himself. Three handsome parlors are en suite, all thrown wide open and with large windows in front, giving a pleasant outlook on the trees in the park, and with other equally large windows at the back, letting in a flood of sunshine and giving a view of a fine garden in the rear. The front parlor is carpeted with Persian rugs and the rest with Axminster carpets, and the walls are covered with pictures and fine engravings, while every available spot and corner is made to hold a statuette, or vase, or some other article of decoration. The pretty upright piano near the window holds three statuettes of exceeding merit and is covered with an embroidered cloth of peculiar and effective design. Numberless bits of painting and porcelain hang here and there, many done by the busy fingers of Mrs. Edison. The other two parlors are furnished much the same, with pale-blue satin furniture in carved ebony wood and with easy chairs of every design, and nearly all decorated with fancy lace-work, all light, bright, cheerful and pleasant to see. Mr. Edison had just gone out, and so I had a long and delightful chat with Mrs. Edison, who had a particular grievance to complain of, and that is that the newspapers all over the country had published such ridiculous stories of her and Mr. Edison’s courtship and marriage, and she averred that they had made her quite unhappy.

“In the first place,” she said, “I never worked in any factory, nor for Mr. Edison, nor anybody else in any capacity, and therefore all the stories about his passing along where I was at work Monday evening and proposing to me and setting the wedding for Tuesday morning hasn’t a word of truth in it.

“The fact is just this. I was going home from school one afternoon with two of my companions, when it began to rain furiously and none of us had an umbrella, and so we stepped into the hallway of what proved to be Mr. Edison’s factory, where he was then making the stock-recorders. A gentleman whom we knew came out and invited us inside, and we went in to be out of the rain. I was about fifteen and a half years old, and was tall for my age. Mr. Edison was at work on one of his machines and this gentleman, whom we knew, showed us around, and I noticed Mr. Edison particularly for two reasons. First,
I thought he had very handsome eyes, and next, because he was so dirty, all covered with machine oil, &c., and I spoke to him about the little instrument he was at work on. We talked a few moments, and as the rain kept up and even grew worse we concluded it was best to go home. The gentleman brought his umbrella and took my two schoolmates and Mr. Edison got his and started to accompany me, first pulling on an overcoat that hid his dirty clothes. When we got to the house I saw that he was determined to go in and I had to invite him, and when my mother came down she asked who that was. I told her and said that he had brought me home and she went in. I was in mortal terror lest she should ask him to stay, but she did, and then he got up and took off his overcoat and stayed till nine o’clock, and then when he went away he asked permission of my mother and myself to call again. When he got it he availed himself of it to come almost every evening, and at last after five months of constant visiting, he made his proposal in this way, which I tell you, because it is so perfectly his way of doing everything.

“We had been out walking and were coming home when he said:

“‘Have you ever thought you would like to be married, Mamie?’

“‘Why no,’ I replied, ‘not yet anyhow.’

“‘Well, I have and I would like to, and I would like you for my wife.’

“‘Oh, I couldn’t,’ I answered.

“‘Well, and why not? Don’t you like me well enough? Think, now, and try not to make a mistake.’ I stammered out something about the suddenness of it and that I couldn’t marry so young, but he said: ‘If you meant no you would say no, so now I’ll see your father to-morrow night, and if he says yes we’ll be married Tuesday. This was Saturday. Sunday he talked with father and mother and wanted to be married at once, but father said that he would give him an answer in a week. Mr. Edison took my hand and said: ‘I love your daughter and I’ll make her a good husband. I am honest, and I am good, and I know how to treat a woman. I’ll come next Sunday night.’ He did, and father had in the meantime satisfied himself that he need have no fear, and so we were married, and I have been very happy with him, and I expect to be as long as I live, for he is good and true and so tender to me and the children. We have three, Dottie, my daughter, and Tommie, my big boy, and Willie, my baby. Dottie looks a little like me,
but Tommie is like his father, with the same shaped head and same eyes. Yes, I’m a little in love with my husband’s eyes—yes, in fact, a good deal.

“This is his picture. You see how he looks. He is tall and weighs about two hundred now.”

And I saw a strong, honest, fearless face, with intentness of purpose and a strength of character most unusual, and with close-set lips and a deep line between the brows; not a handsome face according to the rules of beauty, but one to like and trust.

Mrs. Edison herself is a very handsome woman of about twenty-five, fair complexion, admirably proportioned, tall and probably weighing about one hundred and sixty pounds. She dresses in exquisite taste, although now in mourning, and it is her husband’s delight to see her so dressed, and nothing is too good for her he thinks. Mrs. Edison has been called the most extravagant woman in New York as to personal adornment, but it is a mistake, or worse, on the part of those who say it. Mrs. Edison declares she never feels neglected when her husband shuts himself up at Menlo Park for the purpose of making experiments or for invention, and she just waits until he has emerged from his seclusion, only taking pains to see that he has his meals properly, for he forgets self entirely, though he never forgets her. She watches over him and cares for him like a mother, and even has learned to like his smoking, which came hard at first, and she understands his business and his plans and inventions as well as he does, and thus proves the most valuable helpmeet, as in discussing them with her he not infrequently solves a problem that has bothered him and of which the solution always escaped. In this house he has no laboratory other than his busy brain, which is always at work. He is now at work on something which is almost completed and which will be of the utmost importance in telegraphy, but of which I am not at liberty to speak, as it is not covered by patent, and Mrs. Edison complains that the patent laws here are so badly arranged that it is almost impossible to be fully protected, even when you have a patent on anything, and that it only needs to invent something of value to have it immediately pirated.

With all Mr. Edison’s success with electricity their home is still lighted with gas, to her disgust and vexation.

Mr. Edison is, as is well known, an entirely self-made man, and he prides himself upon that fact as well he may, for though it is good to be born with a silver spoon in one’s mouth, to be
born with brains in one's head is very much better. He doesn't care what he wears; how old and worn his clothes are, nor what he eats, nor scarcely whether he eats at all or not, and he never seems to pay the slightest attention to his own needs, but his keen eyes are always upon his wife and children, and his delight is to see them enjoying every comfort and luxury possible, and he is as kind and thoughtful of every one's welfare that happens to be near him. Those who do not know him say, "What a wonderful genius he is!" and those who do know him say, "What a good man he is." It is well to be able to receive both titles given in all sincerity.

Olive Harper. 13

PD, New York World, 1 June 1884, 11 (TAED D8414K1). 1 Followed by dividing mark.

1. See headnote above. This article was reprinted or extracted in other newspapers, including the Boston Globe (11 June 1884, 5); New York Evangelist (12 June 1884, 3); and Atlanta Constitution (22 June 1884, 2).

2. The Edisons had returned to the Gramercy Park house at the beginning of May (see Doc. 2663). Mary Edison seems to have spent at least part of the summer at their Menlo Park house, as she had during the hot months since the family moved to New York in 1881.

3. Edison received a ten-page inventory of furnishings when he rented the four-story Gramercy house in 1882 (James Pryor inventory, n.d. [1882?], DF [TAED D8204ZKY]). The family purchased numerous decorative items, including photographs, small tables, and rugs during their tenure in the house. Nearly one thousand itemized receipts documenting these and other household acquisitions, as well as some of Edison's research and business expenses (all generally from mid-1883 to late 1884) are in the Vouchers series. The editors have generally not attempted to correlate items mentioned in this document with either these receipts or the landlord's inventory.

4. The instrument was rented from Charles H. Ditson & Co. for ten dollars per month. Tuition for frequent half-hour lessons for Marion (forty sessions in three months) was paid separately to Mrs. H. Clarke, at least through May 1884. Years later, Marion remembered Edison sitting "at mother's square piano banging out his self-composed music." Voucher nos. 272 and 640 (1883); Oser 1956, 3.

5. For a brief period, Mary did work for Edison at Edison's short-lived News Reporting Telegraph Co. in the Newark Daily Advertiser building at 788 Broad St. (Doc. 205 esp. n. 5). Beginning on 19 October and ending on 25 November, a series of entries appearing in the company's accounts most likely referred to wages paid variously to Mary and her sister Alice: "Cash to Girls" on 19 and 20 October; wages to "Sis Stillwell" on 28 October and to "M. Stillwell" on 2 November are representative entries. These references lead the editors to believe that both Mary and Alice worked in some capacity for Edison as he and his partner, William Unger, set up the fledgling company. From late November until the company ceased operations around the end of the year,

April–June 1884  566
a woman listed as “Miss Hodges” seems to have received seven dollar weekly wages for the work previously done by Mary (Cat. 1213:100–105, Accts. [TAED A202]).

Additional evidence that Mary worked for the News Reporting Telegraph Co. came later from P. J. Boorum, one of the company’s handful of employees. Writing to Edison for financial assistance in 1878, he sent his greetings to Mary: “How is Mrs Edison? Ask her if she remembers the Surprise Party we were trying to get up when she was learning to transcribe [that is, operate the keyboard of a printing telegraph transmitter] in the old Daily Building” (Boorum to TAE, 29 Aug. 1878, DF [TAED D7802ZWR]). Biographer William Adams Simonds asserts that Mary and Alice were together when Mary first encountered Edison and that during the courtship Edison brought Mary to his shop to assist him (Simonds 1934, 81–83).

6. The 1870 federal census enumeration, conducted in June 1870, identified Mary as a student. Mary turned sixteen in September, and her wages from the News Reporting Telegraph Co. in November and December (see note 5) suggest that she did not attend school in the fall. Mary lived at 92 Jefferson St. in Newark with her parents, Nicholas and Margaret Stilwell, and her siblings, Alice, Charles, Eugenie, and Margaret. U.S. Census Bureau 1965 (1870), roll M593_880, p. 423A [77], image 230 (Newark Ward 5, Essex, N.J.); Holbrook 1870, 613; ibid. 1871, 668.

7. Born on 9 September 1855, Mary would have been fifteen and a half in spring 1871. At that time, both the American Telegraph Works, at 103 New Jersey Railroad Ave., and the Newark Telegraph Works, at 15 New Jersey Railroad Ave., were doing work related to Edison’s printing telegraph. The latter concern changed its name to Edison and Un- ger and relocated to 4-6 Ward St. on 1 May 1871, but it did not begin operating until the late spring. See Docs. 92 n. 1, 156 n. 2, and 157; a map identifying these locations is in TAEB 1 (148).

8. Thomas and Mary were married on 25 December 1871 at her parents’ home at 92 Jefferson St. in Newark (see Doc. 218), “in the presence of her friends and relatives,” as Mary’s sister Alice recalled years later. Mary Edison Holzer to William Simonds, 2 July 1932, MiDbEI (TAED X001D81).

In 1889, Olive Harper wrote a newspaper article entitled “Edison’s Real Courtship,” which combined her account in “In the Wizard’s Home” with her description of their honeymoon in Doc. 2718. Harper added a few new details, such as identifying “Miss Lucy Hamilton War- ner” as Mary’s bridesmaid. (The article appeared in the Atchison [Kan.] Daily Globe on 23 August and in at least five other papers in the next few days.) Lucy Hamilton Warner (c. 1857–1905) became a well-known children’s book author and married Henry D. Tyler in 1893. Lucy’s sister, Clara Harris Warner, wrote to Edison in 1917 asking “if you re- member the little girl, Clara Warner who used to visit you and my dear friend, the late Mrs Edison at your home in Menlo Park so many years ago?” U.S. Census Bureau 1970 (1880), roll T9_842, p. 288,3000, image 0578 (Brooklyn, Kings, N.Y.); “Notes of the Social World,” NYT, 7 May 1893, 10; “Weddings Yesterday,” ibid., 2 June 1893, 4; “Obituary Notes,” Publishers Weekly, 22 Apr. 1905, 1156; Clara Warner Fisher to TAE, 3 June 1917, NCB (TAEM 278:1007).
9. Mary’s father, Nicholas Stilwell, had died on 9 April 1884.

10. Numerous receipts for apparel and household items from Lord & Taylor and other distinctive retailers are in the Vouchers series (1883–1884). Mary’s daughter, Marion Edison Oser, recalled years later that

Mother, being socially inclined, gave many parties. I still have photographs of some of the costumes Lord and Taylor made for her. One unusual one was a red and black brocade decorated with stuffed red birds with black wings, poor birds! Mother also gave many children’s parties for me and when I came home for dinner at noon and found a beautiful satin dress on my bed with slippers and stockings to match, then I knew what the surprise was to be. She must have gone to a lot of trouble to have my dresses unusually pretty. Among those I particularly remember were a Nile green satin, decorated with hand painted flowers and a yellow satin decorated with daisies. [Oser 1956, 4]

Mary had a red and black brocade dress with red birds (eight cardinals) made by Mme. A. Duval, a New York dressmaker. The total cost for the dress materials and its construction was $391.90 (Voucher no. 46 [1884]). There is scant direct contemporary evidence of Mary as a hostess, but see Doc. 542 and TAEB 6 chap. 3 introduction. Other festive events may be inferred from grocery receipts in the Laboratory Vouchers. In New York, Mary had the material means to gratify her tastes. Nye 1983 (90–97) analyzes the Edisons’ responses to their changed material conditions in New York and also discusses the inventor’s work habits in relation to the prevailing norms of Victorian domesticity.

11. Marion remembered that her “Mother was not very happy in Menlo Park, as my father neglected her for his work, or so it seemed to her. He never would come to her parties and he would often skip meals and very often not come home until early morning, or not at all” (Oser 1956, 4). Edison employees Alexander Campbell and Edward Ten Eyck, Jr. also remembered that Edison prioritized working in his lab over time with family or socializing at home (Marshall 1931, 56, 108).

12. Regarding Edison’s initial negative opinion of Mary’s capabilities related to his work, see Docs. 241 and 248.

13. Olive Harper was the pen name of Mrs. Helen Burrell Gibson D’Apery (1842–1915), a prolific newspaper writer and novelist. Born in Pennsylvania’s Wyoming Valley, Helen Burrell moved with her family to California in 1851. She married at age fifteen, becoming Helen Gibson, but was widowed with three children a few years later. A prolonged illness left her with anchylosis of the knee joint and dependent on crutches for the rest of her life. It was during her convalescence that she began to write, and she reportedly decided to “own the crutches and not let them own her.” Her first publication in Harper’s was followed by a series of articles in the Oakland Daily News. These stories led to a reporting relationship with San Francisco papers that took her all over California by train, stage, horseback, and mule (her children having been sent to boarding school). Her work for the California papers led to an affiliation with the St. Louis Globe (soon to become the Globe-Democrat). NCAB 5:215; “Olive Harper Dies,” NYT, 4 May 1915, 15; “Olive Harper,” New Brunswick (N.J.) Daily Times, 24 Aug. 1887,
Harper made her name as a newspaper writer, although she eventually authored or translated scores of books, mostly novelizations of mystery-themed or romantic stage plays. She covered the Vienna Exposition in 1873 as the representative of the *St. Louis Globe-Democrat* and other newspapers. While there, she married a French engineer in the Turkish Army, Colonel T. E. D’Apery, with whom she had a son. After the Vienna exhibition, she began a long tour of Europe, including Romania, Russia, Turkey (where she spent a year), and England. *The Writer: A Monthly Magazine for Literary Workers* 23 (Jan.–Dec. 1911): 55; *New Brunswick (N.J.) Daily Times*, 24 Aug. 1887, 1; “Olive Harper, New Orleans Times Picayune, 7 July 1873, 2; Mighels 1893, 119.

Mary Edison in an undated portrait, apparently wearing the dress decorated with natural birds that she had made in late 1883.
Harper gained some notoriety for the carelessness or inventiveness of her reporting in the early 1870s. She caused a minor trans-Atlantic scandal in 1873 when she wrote a gossipy letter for publication in the *New York Daily Graphic* about Americans in European society. In it, she made disparaging comments about the writer and journalist Ambrose Bierce’s use of the military title Major in civilian life. Bierce took umbrage, as did the subject of an unrelated Harper article, the British writer Algernon Charles Swinburne. These reports (and perhaps others) led to Harper being parodied in an 1876 satirical essay in the *London Athenaeum* entitled “The Art of Interviewing.” About the middle of the decade, Harper’s newspaper writing became primarily about and directed at women and their putative domestic concerns. She may also have been the basis for Henrietta Stackpole, a minor character in *The Portrait of a Lady*, which Henry James began drafting in 1880. Grenander 1980, 406–13.

---

**PHILADELPHIA, U.S.A. June 3rd, 1884.**

Dear Sir:

As you are doubtless aware, it is the intention of the Franklin Institute to hold an International Electrical Exhibition which shall fully illustrate the state of the science at present. We are receiving great encouragement from all parts of the world and we have every prospect that the exhibit will be an exceedingly successful one.

I have been requested to write to you urging upon you the propriety of making an individual exhibit of your numerous electrical inventions; several of our Institute friends have promised to speak to you concerning this matter. We are frequently asked by the general public as to the names of the probable exhibitors and there is always considerable dissatisfaction expressed on not finding your name among the individual exhibitors. It is true that your company intend making a full exhibit of your electric light apparatus, but this forms so small a part of your electrical inventions that we are exceedingly desirous of having your individual exhibit as complete as possible.

Could you not find it convenient to exhibit the valuable collection you have made for the Exhibitions in other countries?

Trusting you will be able to give us a favorable reply to the above matter, I am Very Truly Yours,

Edwin J. Houston.

Electrician International Electrical Exhibition
〈Write him that it will be very Expensive for me to do it, but I will consider the matter〉


1. The International Electrical Exhibition in Philadelphia followed electrical exhibitions in Paris (1881), London (1882), Munich (1882), and Vienna (1883) and was the first of its kind in the United States (though one of nine large industrial U.S. exhibitions that year). When Gardiner Hubbard mentioned the idea to Edison in January 1883, Edison offered his assistance but suggested that “next year [1884] or the year after would be quite early enough” after the European and London events. Unlike those exhibitions, the host country predominated in Philadelphia; with the exception of precision instruments, the machines filling the exhibition building (adjacent to the Pennsylvania Railroad depot and near the Schuylkill River in West Philadelphia) were largely American. Opening on 2 September and scheduled to run for about six weeks, the Exhibition overlapped with scholarly or professional gatherings in the city, most notably a meeting of the American Association for the Advancement of Science, and closely followed the British Association’s August meeting in Montreal. It also provided the rationale for convening a concurrent federally chartered National Conference of Electricians (organized in part by Edwin Houston), to which Edison was invited (Gibson 1984, 3, 19–20, 39–42, 155–57; Franklin Institute exhibition circular, 2 Sept. 1884; Hubbard to TAE, 27 Jan. 1883; U.S. Electrical Commission to TAE, 20 Aug. 1884; all DF [TAED D8303X, D8464Q, D8464O]; TAE to Hubbard, 29 Jan. 1883, Lbk. 15:213 [TAED LB015213]). This confluence of events and the expected presence of so many distinguished academic electricians and physicists in the city helped stimulate the formation of the American Institute of Electrical Engineers to ensure the proper representation of self-identified practical electricians (see Doc. 2668).

2. Edwin James Houston (1847–1914) was the founding chair of Natural Philosophy and Physical Geography at Philadelphia’s Central High School, which was effectively an undergraduate college. He was a member of the Franklin Institute and the first president of its electrical section; he was also a member of the new Institute of Electrical Engineers (which he served as president, 1893–1894). Houston and his Central High colleague Elihu Thomson made significant inventions in arc lighting and dynamos, and they created the Thomson–Houston Electric Co. in 1879 to commercialize their patents. Houston left the firm in 1882 to focus on educational efforts; it later rivaled the Edison lighting companies and was merged with them into the General Electric Co. in 1892 (ANB, s.v. “Houston, Edwin James”). The Philadelphia pair had crossed paths with Edison, their challenge to his announcement of a new “etheric force” in 1876 having touched off a cordial debate over the phenomenon (TAEB 2 chap. 11 introduction; see Docs. 718 n. 2, 726, 764 n. 1; Carlson 1991, 57–64). They were angrily accused by Edison in 1878 of seeking credit for a carbon microphone that he claimed to have invented (see Docs. 1374 and 1460; Carlson 1991, 78–80). Late that year,
having conducted an authoritative set of dynamo tests at the Franklin Institute (1877–1878) and with their successful arc lighting experiences in mind, Houston and Thomson argued publicly that it would be impossible to operate economically an incandescent lighting system such as that which Edison was trying to develop (Doc. 1664 nn. 6–7).

3. Edison’s marginalia formed the basis for a noncommittal reply on 7 June to Houston’s “very flattering invitation.” Edison evidently made up his mind by 10 June, when he personally requested Babcock & Wilcox to arrange for boiler power at Philadelphia “as we desire to have a large exhibit.” When he received an itemized estimate a few days later about the cost of finishing a Jumbo dynamo, he commented: “I think we should make Exhibit.” TAE to Houston, 7 June 1884; TAE to Babcock & Wilcox, 16 June 1884; TAE marginalia on Batchelor to TAE, 17 June 1884; all DF (TAED D8416BTH, D8464J, D8464K); records of Edison’s expenses related to putting up his exhibit are in Vouchers (1884) Box 4.

Edison mounted a comprehensive review of his inventive career, comparable in size to his 1881 display in Paris and similar to the one at London’s Crystal Palace in 1882 (see Docs. 2111 and 2226). It contained examples from the full dynamo catalog of the Edison Machine Works (plus the Jumbo), lamps, and ancillary lighting appliances. There were also some three dozen telegraphic and telephonic instruments, the phonograph, odoroscope, tasimeter, and improved motophone. Edison’s display was managed by William Hammer, who resigned in June as chief engineer for Deutsche Edison Gesellschaft after a dispute with Emil Rathenau. Though listed separately in the exhibition’s official catalog, Edison’s exhibit overlapped physically with those mounted by the various Edison lighting companies, and with which it was often conflated in journalistic accounts. The companies (including the Edison Electric Light Co., the Edison Co. for Isolated Lighting, and the three manufacturing shops that Edison controlled) exhibited dynamos, lamps, conductors, meters, and other equipment, as well as a working three-wire system that provided much of the Exhibition’s lighting. Among the “large assortment” of lamps provided by the Edison Lamp Co. was “a variety of toy lamps, for stage-jewelry, scarf-pins, etc., and . . . small pocket-batteries for lighting the same.” Sherburne Eaton appointed William Hammer to oversee these exhibits as well (“Hammer, William J.,” Pioneers Bio.; Jackson 1934, 771; Hammer to TAE, 16 June 1886, DF [TAED D8436ZCU]; Franklin Institute 1884, 25–26, 61; “Opening of the International Electrical Exposition, Philadelphia, Pa.,” Sci. Am. 51 [13 Sept. 1884]: 168; Edward Johnson to John Hoskin, 8 Sept. 1884, Series 1, Box 1, Folder 3, WJH). One of the most popular sites of the entire exhibition reportedly was an Edison lighting spectacle consisting of a tall column studded with 2,100 colored lamps, representing one day’s production at the Lamp Works. The various colors were automatically switched in and out of the circuit, while flashing lights successively spelled out the word “EDISON” at the tower’s base. Taken as a whole, the International Exposition reportedly contained 50,000 incandescent lamps and 350 arc lights aggregating to more than 1,000,000 candlepower (“International Electrical Exhibition,” Indiana [Pa.] Democrat, 25 Sept. 1884, n.p.; Stieringer 1901b, 285; “Electrical Wonders,” Chicago Daily Tribune, 3 Sept. 1884, 1; “Electrical Wonders,” ibid., 13 Sept. 1884, 9).
Scientific American's illustrations of Edison exhibits, with lighted tower, at the International Exposition.
Dear Mr. Edison:

In response to another sudden summons from Europe, I sail today.¹

I have not been able to find time, to see you again, to say goodbye to you.

I expect to return early in August, and hope that in the meantime some progress will be made towards a definite solution of the pending problems. I am not at all discouraged, but believe as strongly as ever in the light.

But our general situation is certainly anything but satisfactory, and we must all act in a spirit of concession.² Yours truly,

H. Villard  S[pofford].³

L., NjWOE, DF (TAED D8403ZDV).

¹. The editors have not identified the “summons.” Villard’s departure came two days before a U.S. Circuit Court permitted a stockholder lawsuit to proceed against Villard and the Oregon Railway and Navigation Co. According to one news account, Drexel, Morgan & Co., to whom Villard had defaulted on personal loans, blocked a plan by the Edison Electric Light Co. to send Villard to Europe as its representative in May. Another report denied, seemingly authoritatively, that there ever had been such a plan. In any case, Villard received warm welcomes in London and Bavaria. He apparently returned to New York on 2 August but departed again on the 20th, and he did not resume full-time residence in the United States until 1886, when he came as a representative of Deutsche Bank. “Western Railways,” Boston Daily Advertiser, 8 May 1884, 2; “Suing a Villard Company,” NYT, 7 June 1884, 8; “Mr. Villard Will Not Sail,” ibid., 4 May 1884, 2; “Departures for Europe,” ibid., 21 Aug. 1884, 3; Passenger Lists 1962, microfilm M237–479, line 15, list number 977; ANB, s.v. “Villard, Henry”; de Borchgrave and Cullen 2001, 343–50; Kobrak 2007, 35–44.

². Villard probably referred not only to the difficulties of the Edison Electric Light Co. and the central station construction business, but also to the general economic climate. Generally poor business conditions had turned to near-panic in mid-May with the collapse of several banks and brokerages, starting with the partnership of former president Ulysses Grant. With credit tightening, stock prices fell sharply in the latter part of the month. “On the Verge of a Panic,” NYT, 15 May 1884, 1; “The National Bank Failures,” ibid., 20 May 1884, 1; Editorial, ibid., 25 May 1884, 8; “The Financial World,” ibid., 25 May 1884, 9; Strouse 1999, 244.

³. Charles A. Spofford (1853–1921), an attorney, was Villard’s personal secretary and a director of the Northern Pacific Railway and, subsequently, other companies. A native of Ohio, Spofford was the son of the longtime Librarian of Congress, Ainsworth Spofford. Obituary, NYT, 7 Mar. 1921, 10; Villard to Edison Electric Light Co. of Europe, Ltd., 29 June 1886, DF (TAED D8630ZCA).
April–June 1884

[New York,] June 4th. 1884.

Dear Mr. Edison:—

T.A.E has requested me to send you four checks, for $50. each, which please find enclosed. You will notice that one is dated to-day, another on the 11th., another on the 17th. and another on the 23rd. I trust these will answer your purpose.\(^2\)

T.A.E. is in very good health, and so is his family. They have left the Clarendon Hotel and are living again at 25 Gramercy Park.

I presume you have heard of the death of old Mr. Stilwell, Mrs. Edison’s father.

I was very sorry I could not be here to see you, when you came on last Winter. When are you coming on again?

With my hearty congratulations at your being eighty years of age and all sound,\(^3\) believe me, Very sincerely yours,

SI

TLS (carbon copy), NjWOE, DF (TAED D8416BST).

---

1. Edison’s father, Samuel Ogden Edison (1804–1896). Insull addressed this letter to his home in Fort Gratiot, Mich. TAE 1 chap. 1 introduction, esp. n. 2; Obituary, NYT, 27 Feb. 1896, 4.

2. Samuel Edison had asked his son in May for $100 or $200 to complete construction of a store building in Fort Gratiot. He expected to rent the new store for $15 monthly and claimed to earn $58.84 in monthly rents from a handful of properties in town, including the office of the Fort Gratiot Sun. Samuel pointed out that it had been “some month since I have heard from you or any of yours” (Samuel Edison to TAE, 30 May 1884, DF [TAED D8414K]; History of St. Clair County 1883, 422). Since 1870 and as recently as December 1883, Edison had occasionally advanced—or offered to send—money to his father (see, e.g., Docs. 99, 129, 178; TAE to Samuel Edison, 21 Oct. 1877, EP&RI [TAED X001A1BD]; TAE receipt to Samuel Edison, 22 Jan. 1880; Samuel Edison to TAE, 14 Jan. 1883; both DF [TAED D8015C, D8314A]; Insull to Samuel Edison, 21 Mar. 1881, Lbk. 8:94A [TAED LB0808094A]; Cash Book [1 Jan. 1881–30 Mar. 1886]: 222, Accts., NjWOE).

Samuel Edison had offered to hold all or part of any check from his son. The fact that Edison had the money sent in four separate checks, three of them with different future dates, likely reflected his poor cash situation. Large sums flowed into his two checking accounts, but they flowed out just as quickly. On 1 June, Edison had $18.64 on deposit at Drexel, Morgan & Co. and $3.80 at the Bank of the Metropolis. Cash Book (1 Jan. 1881–30 Mar. 1886): 254, 260, Accts., NjWOE.

3. Samuel had closed the letter to his son (see note 1): “Ever yours 80 years of age and all Sound.”
Dear Sir:—

As you aware there was a very great necessity of having a bill passed through the New Jersey legislature permitting Municipalities to grant the right of way for electric light companies.¹

It was quite impossible for us to do any central station business in New Jersey until this bill was passed.

After the failure of the Gramme Company² to get a bill through, I had a bill drawn up, and employed Mr. J. F. Fisher³ to get the bill through. You undertook to be responsible for $1,000. on behalf of the Light Co. in connection with this matter.⁴ In addition to this amount there were Mr. Fisher’s personal expenses, amounting to $753.00., which I have paid out of my own pocket.⁵

I shall be glad if you will bring this matter before the next meeting of the Executive Committee, or Board, of the Light Co, with a view of their reimbursing me this amount.

I annex a memorandum of amounts paid to Mr. Fisher, duly certified by him.⁶ Very truly yours,

TAE

¹ A bill permitting “cities of the second and third class” to authorize electric lighting companies to put up poles or lay wires under the streets passed the New Jersey legislature in April and was signed by the governor in mid-May. Similar legislation applying only to second-class cities had been introduced in the Senate in January and quickly withdrawn. In its place, the Gramme Electrical Co. found backers in both houses for a more prescriptive proposal requiring municipal consent and direction for any company to place “tubes, wires or conductors for any purpose, electrical or otherwise” (presumably including gas transmission) through public streets. Edison disliked the Gramme bill, reportedly thinking it both unconstitutional and private in nature, or applicable only to specific individual interests. Acts 1884, 94; Joseph Fisher to TAE, 16 Apr. and 13 May 1884; Senate Bill No. 84, 28 Jan. 1884; Rowland Hazard to TAE, 8 Feb. 1884; all DF (TAED D8403ZBO,D8403ZDG, D8427G, D8427L).

² The Gramme Electrical Company was a consortium of electric companies organized in 1881 to coordinate patent infringement settlements, legislative efforts, and other shared business interests. It was headed by Rowland Hazard. The Edison Electric Light Co. joined in 1882. Docs. 2103 n. 4 and 2274 n. 9.

³ Joseph F. Fisher (1835–1885) was a former local official, banker, and postmaster in New Brunswick, N.J. Fisher had been arrested for bank fraud and embezzlement in 1878 and, when similar allegations surfaced in 1881, he was dismissed from the office of Postmaster. The
following year, he was identified as having attempted to bribe a state legislator. Later, in September 1884, Fisher was named as a key member of a long-term conspiracy to defraud the city of New Brunswick; he committed suicide twelve months later. “Death from Escaping Gas,” NYT, 11 Sept. 1885, 2; “Directors Accused of Fraud,” ibid., 24 Nov. 1878, 1; “New Brunswick Postmaster,” ibid., 1 Oct. 1881, 1; “Saving the Jersey Shore,” ibid., 1 Apr. 1882, 1; “The Bankrupt City,” ibid., 9 Sept. 1884, 1.

4. Fisher later complained, in an undated letter to “Friend Edison,” that the Edison Electric Light Co. had unfairly deducted $150 from the $1,000 promised him when, in fact, “that amount was for other partys.” Edison noted, “OK I saw Fisher,” to whom he gave a check for $150 (charged to the Construction Dept. account) on 3 July. Fisher to TAE, n.d. [1884], DF (TAED D8431ZAU); Edison Construction Dept. Cash Book (1 June 1883–28 Feb. 1886): 92, Accts., NJWOE.

As part of his efforts in the state legislature, Fisher helped win a reduction of the state tax levied on the gross income of electric light, telegraph, telephone, and cable companies not owned by railroads. Edison associate Frank McLaughlin had some evident involvement in Fisher’s work, having instructed Alfred Tate in January to send Electric Light Co. Bulletins and other printed material to Fisher in Trenton. Acts 1884, 232–35; Fisher to TAE, 16 Apr. 1884; McLaughlin to Tate, 29 Jan. 1884; both DF (TAED D8403ZBO, D8427H).

5. This amount was reimbursed to Edison, through a Construction Dept. account, on 30 September. Edison Construction Dept. Ledger (1883–1886): 209, Accts. (TAED AB033 [image 102]).

6. Not found.

New York, June 9th 1884

We have just heard a recitation of the understanding between Mr. Edison and Col. Geo. W. Sherman in regard to a proposed Electric Light Company to operate in the Argentine Republic which is as follows:—

Mr. Edison and Col. Sherman entered into an agreement to use their endeavors to form a company for the purposes as above stated, Mr Edison having received authority from the Edison Elec. Light Co’y. enabling him to engage in such enterprise.

Mr Edison has stated and Col. Sherman assented, that the mutual understanding between them is that if they are successful in forming the Company they will make a division of the stock, in accordance with the written agreement between them under date May 24th 1884 but if they should be unsuccessful in organizing the Company neither of them will look to the other for compensation but they will simply regard the time as lost which they have spent attempting to form the Company.
They further state that this is the true spirit and essence of the agreement between them above referred to under date May 24th 1884—

A. O. Tate

Saml Insull

The above is in accordance with our understanding

Thos A Edison

G. W. Sherman


1. George W. Sherman was born in Mexico in 1848 and is identified in the prospectus of the Argentine Edison Electric Light Co. as a civil engineer who had been in Buenos Aires for several years (Passenger Lists 1962, microfilm M237_477, line 1, list number 376; Argentine Edison Electric Light Co. prospectus, 17 May 1883, DF [TAED D8336O]). Besides his interest in the Edison electric light, Sherman appears to have had or sought business relations with several American companies (Fuller Electrical Co. to TAE and Albert Chandler, 1 Dec. 1883; F. M. Wilder to TAE, 18 July 1884; Sherman power of attorney to Richard Kolb, 1 Aug. 1884; all DF [TAED D8336ZAM, D8403ZEV, D8468ZBI]). His first connection with the Edison electric light was in the spring of 1883 in connection with the organization of the Argentine Edison Electric Light Co. (see Doc. 2495). Negotiations between Sherman, Edison, and the Edison Electric Light Co. continued over the course of the next year. During that period Sherman became quite ill twice and ended up in the hospital both times, with Edison paying the bills for his hospitalizations (J. M. Callum to TAE, 14 July 1883, DF [TAED D8336X]; New York Hospital bill, 18 July 1883, Cat. 1164, Accts.; New York Hospital bill, 4 Nov. 1883, Voucher no. 150 [1883]). Edison later recalled that Sherman “has a fair Knowledge of Electric Lighting” and was “honest but very erratic & impracticable in business but a fair engineer He exaggerated also. . . . [and] claimed relationship with prominent persons in Argentine Repub which I knew was untrue” (TAE marginalia on Juan Navarro to TAE, 24 Mar. 1888 and on N. C. Romero to TAE, 19 Apr. 1888, both DF [TAED D8805ABT, D8805ACH]).

2. According to the 24 May 1884 agreement between Edison and Sherman, there was a separate agreement between Edison and the Edison Electric Light Co. regarding the assignment of patent rights to the Argentine Edison Light Co. (Miller [TAED HM840218]); presumably this is the agreement of 2 July 1883 mentioned in Doc. 2677.

3. The 24 May agreement between Edison and Sherman (see note 2) called for Edison to give Sherman 280 shares in the Argentine Electric Light Co. and to pay Sherman’s travel expense from New York to Buenos Aires. In addition, Edison was to use his influence to procure for Sherman the position of consulting engineer to the Argentine company for three years at a salary of $2,000 per year. In exchange, Sherman was “to obtain from time to time all such grants, privileges and concessions as may be necessary to enable” the Argentine company to build central stations in Buenos Aires and elsewhere in Argentina. He was also “to devote his time and energies to the development and suc-
cress” of the Argentine company and “to cause the introduction of the Edison Incandescent Light in the Argentine Republic, so far as he may be able.” However, some disagreement appears to have arisen between Edison and Sherman over compensation for the “time and money” Sherman had already expended in regard to the electric light in Argentina, probably a reference to his return to Buenos Aires in early 1884 when he helped negotiate a grant for the whole city (Sherman to TAE, 5 Mar. 1884 and 18 July 1884; George Bidgood to TAE, 5 Aug. 1884; all DF [TAED D8337ZAH, D8403ZEU, D8434ZAG]; see also Doc. 2495 n. 3). Nothing further appears to have come of this arrangement (but see note 4 below).

4. Alfred Tate was to have accompanied Sherman as a technical expert and to have shared in his contract with Edison. However, on 3 August Tate expressed surprise in a letter to Insull that he had “received a telegram from Sherman stating that he had arranged things satisfactorily with Mr. Edison and was prepared to sign contracts and adding ‘Come immediately I leave on Saturday [August 2].’” Tate wondered “if Mr. Edison and yourself have decided to take him into the business again” and suggested that “you can have contracts drawn such as were at first proposed.” Insull telegraphed back that “Sherman left Saturday [August 2] we have made no arrangements with him.” Sherman power of attorney to Richard Kolb, 1 Aug. 1884; Tate to Insull, 3 and 6 Aug. 1884, all DF (TAED D8468ZBI, D8465ZAD, D8465ZAE); Insull to Tate, 6 Aug. 1884, LM 21 (TAED LBCD8496A); Tate 1938, 82–84.

NEW YORK, June 10 1884

Technical Note: Electric Light and Power

No 1

April–June 1884
show on 3 wire System Use where water power—Long distance high electro motive force—straggling Village or Town—

No 2

show it on 3 wire System

[Figure E]

[Figures G, H, I]

April–June 1884 580
Nut used instead Screw—

X, NjWOE, Lab., Cat. 1150 (TAED NM019AAL). Document multiply signed and dated. First four figures and associated text on letterhead of Thomas A. Edison; final three figures and text on lined paper; remainder on message forms of Western Union Telegraph Co. “NEW YORK,” preprinted.

1. Edison executed a patent application based on this note on 16 July. The resulting patent applied to methods of controlling “the energy consumed by an incandescent electric lamp . . . independent[ly] of the tension of the current and the resistance of the lamp . . . by interrupting the flow of current to the lamp” so rapidly that “the light can be made to appear constant to the eye.” Edison intended for current to flow through the lamp circuit “for only a fraction of the time . . . that fraction being inversely the number of times the tension used is a multiple of that required when the lamp is constantly in circuit.” He proposed to use “a rapidly-acting circuit controller, which will throw the current first through one lamp-circuit and then through another . . . This circuit-controller is preferably a revolving shaft carrying circuit-controlling wheels upon which rest suitable springs or brushes,” the shaft being revolved by a motor in the high-voltage circuit. U.S. Pat. 391,595.

2. This drawing, corresponding to figure 1 in Edison’s U.S. Patent
In the adaptation of circuit-controlling motors to the three-wire system, motors $B$ are in circuit with high-voltage lines 1 and 2 and compensating conductor $3$; $D$ represents local house circuits.

391,595, represents a high-voltage circuit from the dynamo, at bottom, divided among three local feeder circuits through the rotating make-and-break circuit controller so that each circuit is “completed for one-third of the entire time.”

3. The two sketches associated with “No 2” represent this system applied to a local house circuit. They correspond generally to figures 3 and 4 in the patent specification. The high-voltage lines (at right) extend directly to the house; the motor would control the lamp circuit (or multiple circuits, as in the second figure) at left, inside the dwelling. In the patent drawing, the motor controlling a single circuit was depicted with a spring governor. U.S. Patent 391,595.

4. Patent figures 5 and 6 depicted three-wire versions of the single and dual house circuits represented in the drawings of “No 2” above (see note 3).

5. This schematic diagram shows the arrangement represented in the first drawing above as it could be applied to the three-wire system. It was the basis for figure 2 in Edison’s U.S. Patent 391,595.

6. Edison suggested in his U.S. Patent 391,595 that each motor, whether in a feeder or a local house circuit, should be equipped with a speed governor. The governor would open the circuit when the motor’s speed dropped below a certain threshold, in order to prevent high-voltage currents from reaching the lamps for an excessively long interval.
New York, June 18, 1884

Report of the Committee of Three to the Directors of the Edison Electric Light Co.2

The Committee of Three appointed at the meeting of the Board of Directors on May 12th, 1884, report:1

FIRST. That they have had two full meetings, since which time the illness of Mr. Adams2 has made it necessary for the other two members of the Committee to conduct negotiations with Mr. Edison and his associates, with whom they have almost daily held either formal or informal meetings.

SECOND. At the outset they determined to submit a proposition which should have the effect of securing to the Company a suitable interest in, and large influence over the manufacturing business; re-organize the business of exploitation in a manner satisfactory to Mr. Edison; and at the same time reduce the expenses of the parent Company to the minimum, but with a maximum of efficiency and benefit, having in view the purpose for which it was originally organized.3

THIRD. The proposition was substantially as follows:4

(a) That the various shops should sell to the parent Company an interest of twenty per cent, and to the Isolated Company a like interest, making an aggregate of forty per cent., and receive in payment therefor, stock of the two Companies at par; the interests in the shop to be appraised. (b) That the Light Company should make a contract with the Isolated Company, conferring upon it power to install central stations and plants, and requiring it to maintain the requisite staff of engineers, officers, &c. and offering to it such inducements as might be proper to lead it to undertake and develop the business.5 (c) That the Isolated Company should be re-organized by the election of such executive officers as would meet Mr. Edison’s desire that the business should be pushed with great energy. (d) That the staff of the Light Company should be reduced to a President, who should also be Treasurer, one engineer, and an Attorney, all to be employed upon salaries; the President to give his attention especially as director in the Isolated Company to its interests there; and in his own proper office as President, to the initiation and prosecution of suits, the perfection of patents, the revision, if desired, of the contract now proposed to local illuminating Companies &c., &c. (e) That Mr. Edison should extend his contract with the Light Company for at least three years,6 and returning to his laboratory, undertake the perfection of old and the production of new inventions.
FOURTH. This plan was first explained by one of the Committee privately to Mr. Edison, who appeared at the time to make no objection to any part of it, except the extension of his contract, which he exhibited strong disinclination to assent to. Subsequently the paper containing this proposition was considered by Mr. Coster, Mr. Lowrey, Mr. Johnson, Mr. Batchelor and Mr. Edison together; but no definite determination was reached except that it was learned that both Mr. Johnson and Mr. Batchelor were strongly disinclined to part with the interest in their shops upon the ground that those interests furnished to them present means of livelihood which they were indisposed to change for shares of a greater speculative value, but without present income.

FIFTH. Co-incidently with our pressing this plan, the making of contracts with the shops by which their profit should be limited, and they should be led to recognize all the patents of the Light Company, and also to assign to it all patents now belonging to them or which they might hereafter acquire, (except those of Mr. Edison) was discussed.

SIXTH. This method without change of interest was strongly urged by Messrs. Edison, Batchelor and Johnson.

SEVENTH. After many meetings Mr. Edison declared positively his unwillingness at this time to extend his contract, or to enlarge his interest in the parent Company by an exchange for an interest in the shops; and declared at the same time, as the Committee understood it, that his objection was solely based upon his disbelief in the ability of a Company to carry out the projects which he had in view; but that should the re-organization take place with the result of introducing the element into the management, which he thinks is now lacking, he would then feel disposed to consider such a proposition.

EIGHTH. In the meantime a conference with Mr. Edison had shown that it was his desire that Mr. Johnson should take the presidency of the Isolated Company, to carry on its business subject to the control of a small Executive Committee, for the composition of which Major Eaton, Mr. Upton, Mr. Coster, were named. Before Mr. Johnson was named for this place by Mr. Edison, he had announced his willingness to make an exchange of all his interests in all shops for an interest in the Light Company upon terms to be agreed upon under the general principle of appraising, as your Committee understood, all interests in the shop and taking the Light Company’s stock at par therefor. Mr. Upton also expressed in a general way his willingness to make a similar exchange. But in respect to the in-
terests of Mr. Upton, no definite conversation has taken place. At the time of writing this report the Committee is still negotiating with the Manufacturers for some partial exchange of interests and will make a verbal report should anything further develop in this connection. Irrespective of such exchange it is the belief of the Committee that if reasonable limit of profit to the Manufacturers be fixed nothing better can be adopted at this time than to make contracts with them in general like the one now submitted, giving to the Parent Company the right to terminate the same at will upon a prescribed notice. The Committee further recommend that the Light and Isolated Companies be re-organized in the manner proposed, and that the Light Company’s staff be reduced under the advice of Major Eaton, so that it shall carry the lowest salary and general expense account, consistent with keeping it in full possession of such knowledge of the business as would enable it at a future time to resume all that it may now part with with effect.

A subject requiring early attention is a readjustment of the relations between the Light Company and the Illuminating Company of New York City. A verbal suggestion will be made on this matter.

An outline of a contract between the Parent and the Isolated Companies is herewith submitted; (Copy of this proposed contract is not sent herewith but will be submitted at the meeting.) but in connection with this as with other points all further report can in the opinion of the Committee be best made orally at the Meeting of the Board.

(Signed)  
G. P. Lowrey, C. H. Coster

TD (printed copy), NjWOE, DF (TAED D8427ZBJ). Document multiply dated. Heading handwritten and printed lithographically on separate slip.

1. This body apparently succeeded the Special Committee on Manufacturing and Reorganization after Henry Villard, its chairman, reported to the Edison Electric Light Co.’s board about unsuccessful negotiations with Edison (see Doc. 2661 n. 1). As noted in this document, the committee consisted of Charles Coster, Edward Adams, and Grosvenor Lowrey (who had helped Edison negotiate with the bankers forming the Edison Electric Light Co. in 1878). The group planned to convene for the first time on 14 May, and Lowrey apparently sought to meet with Edison a few days later about its business. Eaton to TAE, 14 May 1884; TAE to Lowrey, 19 May 1884; both DF (TAED D8427ZBE, D8416BPR).

2. Financier Edward Dean Adams (1846–1931), a partner in the New York banking firm of Winslow, Lanier & Co. (1878–1893), was a trustee of the Edison Electric Light Co. (1882–1886) and a director of the Edison Electric Illuminating Co. (1884–1889). A former student at the Massachusetts Institute of Technology (1865–1866), Adams used his
engineering knowledge in official positions at several railroads around this time and, later, as a principal developer of hydroelectric generation at Niagara Falls. Doc. 2189 n. 3; ANR, s.v. “Adams, Edward Dean.”

3. The company was organized for the purpose of owning, “making, using and vending and licensing others to make, use and vend . . . all the inventions, discoveries, improvements and devices” of Edison relating to electric lighting, power, and heating. See Doc. 1576.

4. This proposal was probably based on a draft contract that Coster submitted to Edison on 2 June, following a discussion between the two men. Coster acknowledged that he did not “know how the other members of the Committee will view it. I want your ideas first.” Coster to TAE, 2 June 1884, DF (TAED D8402J).

5. The Edison Co. for Isolated Lighting effectively absorbed the engineering function by July (TAE to Sidney Paine, 22 July 1884, LM 20:51 [TAED LBCD7051]). A formal agreement between the Isolated Co. and the Edison Electric Light Co. was executed on 1 September 1884 along with a series of agreements between Edison Electric and the manufacturing firms (Doc. 2725).

6. The contract (Doc. 1576) entitled the company to all of Edison’s electric light and power patents for seventeen years from November 1878. The committee likely referred to the initial five-year period during which the company could acquire Edison’s inventions or improvements without giving him additional compensation.

7. On the recommendation of Egisto Fabbri, J. P. Morgan selected Charles Henry Coster (1853?–1900) to succeed Fabbri as a partner in Drexel, Morgan & Co. at the start of 1884. Coster was also named to fill Fabbri’s place as trustee of the Edison Electric Light Co. and the Edison Co. for Isolated Lighting in September 1883, and he served on the latter firm’s executive committee from November. Coster had started his business career as a clerk for a New York shipping company that was acquired by Fabbri & Chauncey in 1872, and he remained with Fabbri & Chauncey for the next eleven years. Coster developed a renown for his ability, like Morgan’s own, to analyze and recall highly detailed information. The effort to reorganize the Edison lighting interests was among Coster’s first assignments at Drexel, Morgan & Co. From the mid-1880s until his death, Coster engineered the firm’s reorganization of numerous railroad lines—a process called “morganization”—and became known as “Morgan’s right arm.” U.S. Census Bureau 1970 (1880), roll T9_880, p. 89.4000, image 0120 (New York [Manhattan], N.Y.); Obituary, NYT, 14 Mar. 1900, 7; “Changes in Banking Firms,” ibid., 23 Dec. 1883, 4; “The Business Career of Charles H. Coster,” ibid., 18 Mar. 1900, 24; Eaton to TAE, 28 Sept. 1883, DF (TAED D8327ZBF); Edison Co. for Isolated Lighting annual report to stockholders, 18 Nov. 1884, PPC (TAED CA002D); Carosso 1987, 168; Strouse 1999, 245–46.

8. See Doc. 2725 n. 6.
My Dear Ott,

Edison wants you to come down to Goerck St early this morning take charge of my experimenting.¹ He says leave the other thing just at present.² We are anxious to have a lot of experiments made quick.³ We have three men there and you can get a good deal of work out of them by directing their work well.

‘Come right away’

Batchelor


¹. Batchelor took the title of general manager of the Edison Machine Works soon after his return from Paris, likely at a 21 May meeting called to discuss “the future conduct of the Machine Works.” These events followed a complete shutdown of the shop for maintenance. Batchelor also seems to have assumed day-to-day operational responsibilities from Gustav Soldan. By October 1884, the shop’s letterhead identified him as general manager and treasurer. Edison Machine Works to Batchelor, 19 May and 10 June 1884; Samuel Insull to Soldan, 6 May 1884; all DF (TAED D8416BPL, D8416BTU, D8416BNF); letterhead, Edison Machine Works to TAE, 8 Oct. 1884, Miller (TAED HM840231A).

². The most recent surviving records of Ott’s work show he had been experimenting on 5 June with the method of annealing wire for which Edison had already filed patent applications (see Doc. 2675). In late May, Ott had been testing a dynamo on quadruplex telegraph circuits (see Docs. 2651 and 2676). Unbound Notes and Drawings (1884), Lab. (TAED NS84ACL, NS84ACK2).

³. The editors have not determined what Batchelor had planned. From the time of his return to New York until early June, he had been making calculations related to dynamos, first to determine the distribution of energy (especially heat) in the machines and then to evaluate possible changes in the winding of field coils, perhaps with slow-speed operation in mind. Records of Batchelor’s experimental work (on dynamos and arc lights) during the summer are scant. Cat. 1306, 1235:72–78, Cat. 1234:12; Batchelor (TAED MBN011AAO–MBN011AAW, MBN012072, MBN012073, MBN012076, MBN012077, MBN012078, MBN005012).