The Papers of Thomas A. Edison

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Edison spent increasing time in his laboratory in July, leaving to Samuel Insull the day-to-day tasks of closing up the operations of the Edison Construction Dept. This included settling accounts with the local illuminating companies and dealing with complaints regarding the operation of their stations. Edison and Insull also sought to settle accounts with the Edison Electric Light Company, in regard to canvassing and engineering expenses, and with Ansonia Brass & Copper Company, which had extended credit for the cost of conductors for the stations. During this time, Edison also decided to give up his offices on the third floor of 65 Fifth Avenue and to carry out what little business he still conducted there in his library, which he still maintained on the top floor. That business included negotiations between Edison and his manufacturing partners and Edison Electric and the Edison Company for Isolated Lighting regarding the latter company’s assumption of the central station business. These discussions culminated in a series of agreements signed on 1 September in which the Isolated Company took over the central station business and Edison Electric received the right of first purchase of stock in the manufacturing shops and of any patents obtained by the shops. These agreements were part of a larger reorganization of the Edison lighting companies that culminated with a proxy fight waged by Edison at the October meeting of Edison Electric.

During the last two weeks of July, Edison was spending most of his time in the laboratory conducting experiments on the direct conversion of coal into electricity. He also experimented with batteries to run small motors and sketched
out experimental apparatus related to his growing interest in the conversion of heat and light into electricity and magnetism. In an interview with the *New York Daily Tribune* that appeared on 4 August, Edison noted, “I am keeping pretty busy. I am going into original experimenting again. I'll get out a new crop of inventions during the next year in the electrical line.” 1 With his attention again focused on invention, Edison also sought changes in the division of electricity at the Patent Office, which was having trouble adequately dealing with this growing class of patents.

It is unclear whether the Edison family spent much time in Menlo Park during June and July although Edison did place an impressive order for fireworks to be delivered there for the Fourth of July.2 The family was likely away from Menlo Park on 21 July when a sheriff’s sale of the property was held to satisfy Lucy Seyfert’s judgment against Edison; Charles Batchelor bought the property and later reconveyed it to Edison. Mary and the children appear to have been at Menlo by the end of July.3 Why Edison, who was spending most of his time in the laboratory, returned suddenly to Menlo on the evening of 7 August, a Wednesday, is unknown, but it may have been due to his wife’s health.4

Little is known of the circumstances, but Mary Edison died unexpectedly at their Menlo Park home on the morning of 9 August. The doctor in attendance reported only that she died of congestion of the brain, a general diagnosis based on symptoms that could result from several more specific causes of death. Newspaper reports later claimed that Edison sought to revive his wife using electricity but to no avail. Daughter Marion remembered that she “found my father shaking with grief, weeping and sobbing so he could hardly tell me that mother had died in the night.”5 Marion also recalled driving her father around the countryside at least once a week during the rest of the summer, and she became her father’s almost constant companion over the next several months. In September, she accompanied him to Philadelphia; in early October, she also spent time in his laboratory. Marion and her brothers Thomas and William were placed in the care of their maternal grandmother, who helped keep house when the family moved back to New York in September. They did not return to their Gramercy Park home but instead took up residence on the third floor of a house at 39 E. 18th Street.

Edison and Marion traveled to Philadelphia on 4 September to visit the International Electrical Exhibition, which opened
two days earlier. Although he had accepted an appointment to the National Conference of Electricians, which sought to develop standards for electrical measurement, Edison left on 6 September and did not attend its meeting from 8 to 13 September. Edison and Marion did return to Philadelphia on 16 September and spent three days touring the exhibition. The Electrical Review reported, “He is a very important part of the exhibition, and is welcomed wherever he shows his face. His little daughter, in deep mourning for her mother, is his constant and inseparable companion, and it is a touching and pathetic sight to see them going about hand in hand, the observed of all observers.” It is not known if Marion accompanied Edison when he returned to Philadelphia at the end of the month. By then she may have been attending Madame Mears’s school on Madison Avenue, between Thirty-sixth and Thirty-seventh Streets. Her brother, Thomas Jr., was enrolled in M. W. Lyon’s Collegiate Institute located on Twenty-second Street at Broadway.

The exhibits of Edison and his companies, which were located directly opposite the main entrance, were the largest and most prominent, leading an Associated Press agent to claim they were “the center of attraction.” The combined exhibit of the Edison companies featured both the central station and isolated lighting systems, while Edison’s own display showed his many electrical inventions, including what became known as the Edison Effect lamp, his telegraph and telephone inventions, and the phonograph. The centerpiece of the Edison exhibits was a tower made up of 21,000 colored lights. During one of his visits to Philadelphia, Edison also sat for a portrait taken by the art photographer William Curtis Taylor with the aid of electric lights, which was then hung in one of Edison’s exhibits. A later addition to the Edison exhibit was a bronze bust of the inventor by artist Rupert Schmid, whose own display in Philadelphia included two casts of “Edison’s hands in bronze, holding incandescent lamps.”

While the acclaim Edison received in Philadelphia was no doubt satisfying, the most gratifying experience may have been reconnecting with his old friend Ezra Gilliland. Gilliland, whom Edison had known since their days together as telegraphers in Cincinnati, was then head of the American Bell Telephone Company’s experimental shop in Boston. During their meeting in Philadelphia, Edison “mentioned that his electric light was completed and practically off his hands and he was talking of what would be a good thing to take up next.”

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This led Gilliland to suggest several ideas to which Edison could turn his attention. Edison was most intrigued by Gilliland’s work on long-distance telephone transmitters for the Bell Company, and he decided that this would be “the best thing to turn his attention to at that time and soon after made an arrangement with the American Bell Telephone Company whereby he was to carry on some experiments with the view of improving the transmitter." Telephone technology would become the focus of Edison’s efforts over the next few months.

2. Edison ordered nearly $90 worth of fireworks to be delivered to Menlo Park. Unexcelled Fireworks Co. bill, 2 July 1884, Voucher no. 371 (1884). Evidence from bills suggest the family was either spending some time or preparing to spend time in Menlo Park during June and early July; see Gilman Collamore & Co., 1 June 1884; B. Y. Ford, 4 June and 1 July 1884; Manning Freeman, 7 July 1884; Alex Ayres, 7 July 1884; Voucher nos. 312, 314, 386, 405, 406 (1884).
3. Edison wrote “my family is away from City” on a letter from Rupert Schmid dated 30 July 1884 (DF [TAED D8403ZFE]); see also Doc. 2712 (headnote).
4. On the same day he returned to Menlo Park, Edison had written to Princeton professor Charles Young, “I spend a good deal of my time at my Laboratory . . . so that when you come into Town it would probably be best to call there.” Lbk. 18:209 (TAED LBo18229).
5. Oser 1956, 5.
6. Continental Hotel bill, 19 Sept. 1884, No. 533 (1884), Vouchers; see also Doc. 2732 n. 4.
8. On 25 September, Samuel Insull wrote George Forbes that Edison had received his letter “of yesterday’s date just as he was leaving for Philadelphia” and that Edison “expects to remain in Philadelphia for the next few days.” Lbk. 18:425 (TAED LBo18425).
11. Clipping enclosed with Chester Pond to TAE, 21 Oct. 1884, DF (TAED D8403ZHX); Doc. 2722 n. 3.
12. Gilliland’s Testimony on Behalf of Edison, p. 2, Edison and Gilliland v. Phelps (TAED W100DKB [image 2]).
MY DEAR WIMAN:—

Some one has sent me a copy of the Chicago Inter-Ocean, containing your interview with a reporter of that journal, which I read with great attention.

How much would Western Union lose under the following circumstances? Suppose in sixteen of the largest cities of the United States all the branch offices were closed, and no business was taken in at the main office or branches, the main office being simply used as a repeating office for the general business of the country.

Again, suppose Western Union should refuse to transmit the messages originating in any of the sixteen cities, for delivery within the sixteen cities, what would Western Union lose?

What I believe is, that business originating in the sixteen principal cities destined for delivery within the same is a very small percentage of the general business. Further, that any competing telegraph companies who act on the theory that to get the cream of the business, in a dividend point of view, they should only run between the principal cities, will make a most dismal failure.

Would it not be well for you to ascertain the amount of the telegraph business existing in sixteen of the largest cities with each other, and see whether or not your views will find additional confirmation from this suggestion. Truly yours,

THOMAS A. EDISON.

PL (transcript), Wiman 1884, 33 (TAEDPA436). Followed by “(OVER.)” to indicate page turn.

1. Erastus Wiman (1834–1904) was a Canadian journalist associated with R. G. Dun & Co., the mercantile reporting agency. After managing its Canadian business, he moved to New York in 1866 as a partner and later general manager of the firm. In 1881, he became president of the Great Northwestern Telegraph Co. of Canada and also served as a director of the Western Union Telegraph Co. (Edison obtained Wiman’s permission to conduct telegraph experiments on the Great Northwestern lines in 1885–86). Wiman was a major figure in the development of Staten Island in the 1880s, establishing the Staten Island Rapid Transit Railroad Co. (on which Edison conducted railway telegraph experiments in 1885–86) and gaining control of ferry service to New York. In 1882, he visited Edison at Menlo Park in relation to the electric railroad and later became a director of the Edison Electric Light Co. Wiman became the first president of the Canadian Club in New York in 1885 and was a strong proponent of commercial union between Canada and the United States. He suffered financial reverses in the 1890s and was convicted of embezzling funds from Dun & Co. Although the convic-
tion was overturned, he lived the rest of his life in straitened circumstances. *DCEO*, s.v. “Wiman, Erastus” (accessed May 2010); Reid 1886, 608–11; Poor 1889, 309; Morris 1898, 235–36, 358, 460, 466; *TAED*, s.v. “Wiman, Erastus”; Israel 1998, 239.

2. Founded as the morning *Chicago Republican* in 1865, this paper was renamed the *Chicago Inter-Ocean* in 1872. After 1895, it became the property of Chicago traction boss Charles T. Yerkes. *Ency. Chgo.*, s.v. “Newspapers” (accessed May 2010).

3. That lengthy interview and Edison’s response to it were published in pamphlet form as Wiman 1884. Wiman had enclosed his interview in a 20 June letter to Edison, in which he indicated that “one of your associates yesterday spoke of your opinions about such matters, which seem strongly to confirm the impression I have given.” Insull noted on Wiman’s letter that “Edison replied w[ith] autograph letter not copied.” On 7 July, Wiman asked Edison’s permission to reprint his letter along with the interview in pamphlet form. At the same time, Wiman sent a formal reply to Edison’s critique (also printed in the pamphlet). Edison agreed but asked to see the proof before publication. Edison’s response to the proof has not been found, but Wiman later expressed his “fear that you are repenting the permission you gave me to publish the letters and my reply.” Edison evidently relented. The published pamphlet was circulating by 24 July, when Josiah Reiff saw it. Reiff characterized it as a Western Union publication and expressed surprise that Edison would support that company’s views. Edison responded that he thought “both the Western Union and the opposition companies are too much of a ‘muchness,’ one is about as bad as the other.” Wiman sent Edison copies of the pamphlet on 27 August. Wiman to TAE, 20 June, 7, 10, and 15 July, 27 Aug. 1884; Reiff to TAE, 24 July 1884; all DF (*TAED* D8471N, D8471Q, D8471Q1, D8471S, D8493ZGB, D8471T); TAE to Reiff, 28 July 1884, Lbk. 19:261 (*TAED* LB019261).

Wiman’s interview took place in early June, during the Republican presidential nominating convention in Chicago, in the context of recent Congressional hearings regarding whether the government should build a postal telegraph system. This issue was a long-standing one in post–Civil War American politics, and it would continue to crop up periodically through the 1890s. Wiman criticized the hearings and especially the role of Josiah Reiff, a determined opponent of Western Union, whom he claimed was the person “who had more to do with shaping the Congressional telegraph investigation than any other single individual.” The focus of the interview concerned the question of whether it was possible to sustain competition with Western Union or whether the telegraph was a natural monopoly. Wiman discussed the financial standing of competing telegraph companies, especially the Postal Telegraph and Cable Co., which he thought would “make an effort to become identified with the government and thus form part of the Post-Office Department.” In fact, Postal Telegraph, after its reorganization in 1886, became the most successful of Western Union’s competitors. Wiman 1884, 5, 22–23; “To Urge Arthur’s Claims,” *NYT*, 29 May 1884, 2; U.S. Senate 1884; Harlow 1936, chaps. 16, 20–21.

The key passage to which Edison was responding was Wiman’s assertion that the widespread “belief that the telegraph business between the great cities was the main element of profit” was not only false but
the reason for “the long array of failures in competitive telegraphy” (Wiman 1884, 10). Wiman contended that the expenses of this business were disproportionately large due to the necessity of having so many branch offices in each city. In addition, “a still greater mistake is made in supposing that it is the business between the large cities that makes up the business of these places” (Wiman 1884, 11). He argued instead that the local traffic to nearby towns made up about three-fourths of the business. He faulted competing companies for focusing

business between the great cities, and not the business that emanates from, and centres in the cities themselves, from the extended local areas around them of social, financial, and commercial interchange, which does more to make them great centres than contributions from other great rivals. This is what gives Western Union an enormous advantage, among many others, which any other telegraph company without an equally complete system covering all small points cannot hope to divide; and even if divided, is too small in each locality to yield a profit to the new comer. [Wiman 1884, 12]

Western Union’s great advantage was having offices in 13,000 localities while no competitor had succeeded in establishing more than 900. Wiman’s 7 July response to Edison, also published in the pamphlet (Wiman 1884, 34–35), took up Edison’s suggestion to investigate how much actual business there was between the principal cities. Finding that it made up only about 15 percent of Western Union’s total business confirmed for Wiman his argument about the difficulties faced by Western Union’s competitors.

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**From George Bliss**

**CHICAGO, July 15 1884**

Dear Sir:

The United States Co. are blowing about some new form of Incandescent light claiming 3 250 Candle Power lights Per HP. which is to displace arc light & everything else.¹

Can you tell me what sort of a ——— humbug this thing is.

They talk about delegations going to see it & 500 men being put at work etc

They must be getting in the last ditch. Sin Yr

Geo. H. Bliss

¹ Bliss likely referred to one of the large lamps designed by Edward Weston for the United States Electric Lighting Co. and later displayed
at the Philadelphia International Electrical Exhibition. Rated at up to 130 candlepower, they were favorably compared with arc lights; they reportedly could operate in arc light circuits at 160 volts and were more efficient than ordinary carbon lamps. At an unknown date, William Hammer added two of the 125-candlepower “Mammoth” lamps to his comprehensive historical lamp collection (see TAEB 5 App. 3). “The United States Electric Light Co.’s Exhibit,” Sci. Am. 51 (18 Oct. 1884): 246; “The Edward Weston Exhibit at the International Electrical Exposition,” ibid. 51 (8 Nov. 1884): 287; Woodbury 1949, 133–34; website of Edward J. Covington devoted to Hammer’s collection (accessed March 2010), http://home.frognet.net/~ejcov/hammer.html.

2. Edison’s marginalia was the basis for a short typed reply in which he noted that “We frequently get hold of some of their lamps” for testing purposes (TAE to Bliss, 18 July 1884, LM 20:31 [TAED LBCD7031]). One report of such tests on the United States Electric Lighting Co.’s ordinary carbon lamp is John Marshall to TAE, 11 Apr. 1884, DF (TAED D8430P); cf. Doc. 2697.

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My Dear Barker,

I received your telegram dated Chicago with relation to your appointment on the Electrical Commission

Of course I am very anxious that you should be on the Commission but I do not see what influence I can use to bring this about. Even if I had the influence, if I attempted to use it our friend “the enemy” would bring it up as a proof that I desired you appointed in my interest

Cannot you suggest some other way of fixing the matter

With Kind regards Yours very truly

Thos A Edison

LS (letterpress copy), NjWOE, Lbk. 18:110 (TAED LBo18110). Written by Samuel Insull.

1. George Barker (1835–1910), professor of physics at the University of Pennsylvania, had a long and generally friendly association with Edison going back to 1874 (Doc. 500 n. 8). Barker was partly responsible for having renewed Edison’s interest in electric lighting in 1878, and he provided some important early assistance and validation for the inventor’s research in the field. However, relations between the two men had been strained in recent years (see note 3).

2. Barker had wired Edison on 14 July about a “strong effort being made to defeat my appointment on electrical commission on ground of my being in your interest if you can bring any influence on the president do so at once appointment will be made Wednesday.” Congress had approved legislation on 7 July authorizing the president to appoint a commission of electrical authorities. The commission was intended to organize a conference of electricians in conjunction with the Exposition

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in Philadelphia. Barker was eventually named the commission’s corresponding secretary (see Doc. 2720); other members included Henry Rowland (chair), Edwin Houston, Simon Newcomb, John Trowbridge, and Charles Young. Barker to TAE, 14 July and 20 Aug. 1884, both DF (TAED D8405ZEQ, D8464O); “Notes and News,” Science 4 (1 Aug. 1884): 107; “The National Conference of Electricians,” ibid. 4 (15 Aug. 1884): 127; Report of the Electrical Conference 1886, 3–9, 30.

3. Edison likely referred to a principal rival, the United States Electric Lighting Co., and perhaps particularly to its electrician, Edward Weston, whom he had reason to distrust for both personal and competitive reasons (see Doc. 2479 n. 2). Barker, in conjunction with Henry Rowland, had conducted independent tests on the efficiency of Edison’s lamp in 1880 but had since become tangled in the commercial rivalry between the Edison and United States Co. interests. As a consequence, he was not fully trusted by either side, and his friendship with Edison cooled considerably. Stung by unfavorable reports attributed to Barker in the daily press, Edison came to believe by late 1880 that the physicist was “affiliated with the Maxim Co.” Barker nonetheless accepted both a retainer from the Edison Electric Light Co. and Edison’s gift of electric light company stock shares in 1881. See Docs. 1914 esp. n. 3, 2022, 2033, 2110, 2173 esp. n. 11, and 2188 n. 4.

4. The editors have not found a reply from Barker.

WASHINGTON, D.C., July 18th, 1884

From George Dyer

Dear Sir.

I have this morning your letter of the 16th, in regard to the formation of a new class, by division of the class of Electricity,¹ and the placing of Mr George Seeley² in charge of it. I found Mr Buckingham,³ who professed to have authority to speak for the Western Union Telegraph Company, and together we called upon the Commissioner of Patents,⁴ who gave us a very frank and quite lengthy interview.

He explained that he had appointed a commission consisting of Examiners Catlin,⁵ Stocking,⁶ Kintner,⁷ and Seeley,⁸ to make a thorough inspection of the work of the Examiners, and their several methods of work, and report with recommendations as to methods of work, and also to determine in what way their new classes might best be formed,—at the head of one of which the newly authorized Examiner should be placed, while both of the others should be in charge of First Assistant Examiners.⁹ He should wait for the report of his Commission, before he would designate the persons to be put in charge of the new classes. His own impression was from conversation with members of the Commission, that a division would be made of the Class of Electricity, and electrical engines, and
some other things put into the new class. He told me that Mr Whittaker did not strike him as the proper person to be put at the head of this new proposed class. He said also that Lyons or George Seeley would naturally appear to best suited for the place, and that he would be glad to talk with me about the matter as soon as the Commission reported.

This Commission is to meet to day, and go to work, and keep at it until completed, and probably will occupy several days. In conversation with them, I find that they are all agreed upon a division of the class of electricity, but are not agreed as to the line of division. I find that Mr Kintner is desirous of having the new class embrace electrical engines, and to have Mr George Seeley at the head of it, and Examiner Seeley agrees with him. I find also, that Mr George Seeley understands that he is not to be appointed an Examiner in any event, and if placed in charge of the new class in Electricity, it will be with his present rank of First Assistant

I think the Commissioner is disposed to be fair, and regards Lyon and George Seeley as equally competent, and really does not care so much about the men, as about the methods of work. He feels proud in having got not only an increase of appropriations, but and an increase in the Examiners force of nearly twenty, but in having crowded out the Indian Bureau from the Patent Office Building, and got the promise of a portion of their rooms.

The Commissioner is very fond of his friends, and thinks very highly of Mr Hiscox of New York. Possibly if this gentleman were coming over here early next week, and received some points from myself, he could do much in inclining the Commissioner to put Mr George Seeley at the head of this new class in Electricity.

Mr Lyon is supposed to be the favorite of the Brush Co and of the Bell Telephone Co. but I see no indication yet of their movements on his behalf. Yours very truly

Geo W Dyer.


1. Edison’s letter has not been found. In early 1883, Edison had sought to make changes in the Examiner of Interferences at the Patent Office (see Doc. 2402).

2. George Dallas Seely (1838–1908) had earned a degree in chemistry from Yale College in 1859 and, in 1877, joined the Patent Office, where he was at this time a first assistant examiner of electricity. He
was the brother of Franklin Austin Seely (see note 8) and the uncle of Henry W. Seely, the associate of George Dyer's son Richard in their law practice dealing with Edison's patents. "Yale College Commencement," NYT, 30 June 1859, 3; Torrey 1885, 17, 22; U.S. Department of the Interior 1883, 93; Yale University 1909, 1129.

3. Charles L. Buckingham (1852–1909) left his position as assistant examiner in the Patent Office in 1880 to become legal counsel for the Western Union Telegraph Co. He held a degree in civil engineering from the University of Michigan and, in 1880, earned an L.L.B. from the Columbian University Law School in Washington, D.C. Morris 1896, 89; University of Michigan 1913, 192; MacDonald 1896, 107–9.

4. Benjamin Butterworth (1837–1896), a former congressman from Ohio, took over as acting Commissioner of Patents on 1 November 1883 and was confirmed the following month. Reelected to Congress in November 1884, Butterworth resigned the commissionership to take his seat on 23 March 1885, and he remained in Congress until his retirement in 1891. He resumed his position as Commissioner of Patents in April 1897 at the request of President McKinley, and he served until his death. DAB, s.v. “Butterworth, Benjamin”; Hopkins and Bond 1915, 358; United States 1901, 101–2; Dobyns 1994, 195.

5. Benjamin Rush Catlin (b. 1829) was the principal examiner in the Patent Office for gas, metallurgy, brewing, and distillation, having been appointed in 1871. Catlin graduated from Hamilton College in 1851 and attended the Auburn (N.Y.) Theological Seminary. During the Civil War, he was chaplain of the 115th Regiment of United States Colored Troops. Beecher 1883, 104; Berly 1883, 292; U.S. Department of the Interior 1877, 13.

6. Solon Walter Stocking (1834–1905) was the principal examiner for metalworking. He was first appointed as a third assistant examiner in 1873 and continued with the Patent Office until his death. Stocking was valedictorian of the 1855 class at Hamilton College, from which he earned a law degree in 1858. He interrupted his law practice in May 1861 to serve in the Union Army, rising to the rank of captain of artillery. Prior to his appointment to the Patent Office, Stocking had served as a law clerk with the Freedmen's Bureau and as a division chief in the Census Bureau. Stocking 1903, 64, 130–31; Squires 1905, 241–42, 246; Berly 1883, 292; U.S. Department of the Interior 1881, 18.

7. An 1870 graduate of the University of Michigan, Charles J. Kintner (1848–1921) joined the patent office in 1878 as second assistant examiner for electricity and became the principal examiner by 1884. Kintner left the Patent Office in the late 1880s and moved to New York, where he worked as a patent attorney. He also served on the state Board of Electrical Control and was an inventor in his own right, with a number of U.S. electrical patents to his credit. Carter 1921, 22–23; Polk's 1922, 285; “Brooklyn’s Eligible List,” NYT, 3 June 1888, 1.

8. Franklin Austin Seely (1834–1895) was the principal Patent Office examiner for trademarks and instruments of precision. An 1855 graduate of Yale College, he served in the Civil War as an officer in the quartermaster’s department and afterward was a high-ranking official in the Freedmen's Bureau in North Carolina and Missouri. He joined the Patent Office in 1875 and served until his death. Torrey 1885, 17; Berly 1883, 292; Yale University 1909, 1129.
9. In his portion of the commission’s report, Kintner noted that the number of patents originated in the division of electricity had grown from 2,000 in 1880 to 6,000 in 1884, with consequent overcrowding and overtaxing of the workforce. In February 1884, Commissioner Butterworth, in his report to Congress, made special mention of the need to increase the staff in the Patent Office to handle the burgeoning caseload. Kintner 1884, 7–9; “Patent Office Work of 1883,” Sci. Am. 50 (16 Feb. 1884): 97; Dobyns 1994, 195.


12. The division of electricity was partitioned into two classes by the end of 1884. Class A, headed by Kintner, dealt with telegraph and telephone patents. Class B dealt with electric generation and distribution; George D. Seely was appointed its head in 1886. Congressional Directory 1884, 138; U.S. Department of the Interior 1894, 129, 135; Yale University 1909, 1129.


Mount Vernon [N.Y.,] July 168th 1884

Sir.

Our Son entered your Laboratory a year ago last March, and we thought it such a good place for him.1 he was pleased and liked the work. stayed there all Summer without any vacation we thought little of that as he went late mornings and came home early at night. about the middle of August, he had an epileptic fit, caused as we thought by fright about a fire. he had no more till the first of Oct. then2 did not know the cause, and let him keep on with his work as he seemed well only his
face was much broken out with sores. he had the fits several
times during the winter and was nervous and very irritable,
always had them before Seven o’clock in the morning at such
times going to his work without eating much breakfast. the
first of March he had one Sunday afternoon. then we became
alarmed and took him from his place, for we knew he was not
able to stay. Sent him into the Country, to try the effect of an
entire change—but he received no permanent benefit\(^2\) though
he had been under a Dr’s care all winter.\(^2\) and why? because
he had inhaled and\(^c\) absorbed so much mercury and chemi-
cals that his system could not recover itself.\(^3\) we did not know
it then. he was and has been\(^d\) handle very strangely. the Dr’s
could not tell what ailed him besides epilepsy, and its only
within a few weeks that the above cause has been found out.
it was in his blood. now his nerves and muscles are so affected
he cannot control them, are partially numb his mouth is con-
stantly full of water. his mind is weakened so he is like a boy
Six or 8 years old. he has a fit nearly every week, but not as
hard as formerly. we fear he is ruined for life and wonder who
is \(\text{is responsible?}\) we have been told from the Laboratory that he
was too young for the place. that boys of his age were apt to be
thus troubled why was it not told us at first? it was probably
known as well then as now. he worked a year without compen-
sation. that is of small account we feel as if it was a dreadful
thing for him to be so ruined, and would like to have others
know of the danger before going into it. I think he wrote you
about the first of April.\(^4\) I don’t know what, or, if you ever re-
ceived it. We feels as if you ought to know about him. that you
may not take others there to be thus injured. perhaps you did
not know it

Our Son’s name is Eddie Kellogg Respectfully
Mrs M. C. Kellogg

P.S. Since writing the above Eddie has told the Dr. that he
had about a pt. of quicksilver poured over him by accident.
continued wearing the Same clothes. likely he was careless and
did not understand the danger of \(\text{case}\) using such things I
feel a Mothers anxiety that other boys should be made to thor-
oughly\(^e\) understand their danger in handling poisons. perhaps
you may know of an antidote in his favor.\(^6\) Mrs M.C.K.

ALS, NjWOE, DF (TAED D8413ZAS1). \(^1\)Interlined above. \(^b^\)“no per-
manent benefit” interlined above. \(^c^\)Obscured overwritten text. \(^d^\)“and has
been” interlined above.

1. Edward Kellogg (1866–1886) was involved with experiments on
chemical paper for recording readings of central station ampere meters.

2. John Ott reported in March 1884 that Kellogg had left work for three months because “His folks want to send him to the country for his helth, as he is subject to Apoplexy.” Kellogg died in January 1886 at Red Bank, N.J., near the home of an uncle, George Kellogg. Ott to Samuel Insull, 22 Mar. 1884, DF (TAED D8467K); Obituary, NYT, 9 Feb. 1889, 5; U.S. Census Bureau 1965 (1870), roll M593_98, p. 656, image 84 (New Canaan, Fairfield, Conn.); ibid. 1970 (1880), roll T9_791, family history film 1254791, p. 314.3000, image 755 (Neptune, Monmouth, N.J.).

3. While mercury was used throughout the nineteenth century as a treatment for various illnesses—it was taken internally, in the form of calomel, or “blue pill”—acute exposure, especially in cases of over-medication, was known to cause excessive salivation, sweating, cramps, paralysis, “mercurial tremors,” “gangrene of the mouth,” disorientation, and sometimes death. Acute exposure in industrial settings was more controversial. Mercury was used most notoriously in felting hats, but also to bind mirror silver to the glass, to separate gold from other materials, and in electric lamp manufacture. Francis, 1813, 476–519; “Lead and Mercury Poisoning,” Manufacturer and Builder 9 (Oct. 1877): 232–33; Quain 1883, s.v. “Mercury, Diseases arising from”; “Mercury,” Manufacturer and Builder 24 (Aug. 1892): 180–81.

4. Not found.

5. Emilie E. Kellogg (1837?–1889) lived in Mount Vernon, N.Y., with her husband, Minot C. Kellogg (1835?–1915). He was the proprietor of a hardware store at 27 Park Row in New York City, which his wife used as her return address. In addition to their son Edward, the couple had two daughters. Obituary, NYT, 9 Feb. 1889, 5; Obituary, ibid., 9 Jan. 1915, 11; Trow’s 1885, 909; U.S. Census Bureau 1970 (1880), roll T9_945, p. 188.3000, image 377 (East Chester, Westchester, N.Y.).

6. Edison’s response is Doc. 2702.

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From John Marshall

East Newark, N.J., July 18 1884

Column 1 shows life of 10 Swan lamps at 160 candles per HP., calculated from a curve of 10 lamps set up 20 candles and giving 226 candles per HP.

Column 2 shows life of 10 Swan lamps at 160 candles per HP calculated from a curve of 10 lamps set up at 60 candles and giving 446 candles per HP.

<table>
<thead>
<tr>
<th>1 Hours</th>
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<td>59</td>
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</tr>
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<td>224</td>
<td>2709</td>
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<td>279</td>
<td>3547</td>
</tr>
</tbody>
</table>
J. T. Marshall

(Why is the life so different with the same invoice of Lamps & calculated set up at same candle power.

This seems to show that treated Lamps last longer at high Cp than normal while untreated is just opposite)

ALS, NjWOE, DF (TAED D8430U). Letterhead of Edison Lamp Co. “East Newark, N.J.” and “188” preprinted.

1. John Trumbull Marshall (1860–1909) was identified in the 1880 federal census as a teacher, one of five in his immediate family. Marshall received a scientific degree from Rutgers College in 1881 and that fall took charge of the photometer room at Edison’s lamp factory, succeeding his brother William Marshall, who had recently died of typhoid. Marshall became a photometric expert, devising several instruments that were widely used in lamp testing. He followed Edison to the new West Orange laboratory in 1887 and subsequently worked for General Electric until his death. U.S. Census Bureau 1970 (1880), roll T9_790, p. 268.1000, image 0377 (East New Brunswick, Middlesex, N.J.); ibid. 1982? (1900), roll T623_985, p.14A (Metuchen, Middlesex, N.J.); Marshall 1930, 161–62; J. F. Riddle to TAE, 11 Jan. 1910, DF (TAED D1016AAF; TAEM 195:322); Obituary, Metuchen (N.J.) Recorder, 15 Jan. 1910, Unbound Clippings 1910 (TAED SC212B; TAEM 221:545).

2. The editors have not determined how the Swan lamps were “treated,” but Edison may have referred to a new process for making a so-called “squirted” cellulose filament. At the very end of 1883, Joseph Swan filed a British provisional patent specification (5,978 [1883]) for a method of forming filaments “by forcing a mixture or solution of nitro-cellulose in acetic acid through a hole or die in a liquid capable of causing the ‘setting’ of the filament as it issues from the jet.” Although the process met Swan’s desire for producing highly uniform filaments, the Edison and Swan United Co. did not put it to commercial use for several years (other manufacturers subsequently adopted squirted cellulose filaments as well). Since about 1880, Swan’s commercial lamps had filaments made of cotton thread that was first “parchmentised” by an acid treatment and then carbonized amid powdered carbon. Bowers 1982, 123–24; Swan 1946, 24, 28, 36–39; Bolton 1886, 487; Woodings 2000, 20 n. 3.

Samuel Insull returned Marshall’s letter to him with a request for comment on Edison’s notes (Insull to Edison Lamp Co., 19 July 1884, DF [TAED D8430T]). Marshall explained in reply that
The calculations of life on Swan lamps . . . were made from the law derived from experiments on our own lamps: viz. The life varies inversely as the 3.65 power of the candle-power.

The fact that the life calculated from the 20 C.P. lamps, is so different from that calculated from the 60 C.P. lamps, would seem to show, as you say, that the Swan lamps do not follow the same law, as to candle-power and life, as ours do. [Marshall to TAE, 21 July 1884, DF (TAED D8430V)]

John Tomlinson to Samuel Insull

New York, July 21st 1884

My dear Insull,

The sale of the Menlo Park property takes place tomorrow at 2— It will be necessary for me to have the $600 the first thing in the morning1 Yours

John C. Tomlinson


1. This sale, arranged to satisfy Lucy Seyfert’s judgment against Edison (see Docs. 2662 and 2671), became a protracted and complex affair. Edison took $50 cash and $550 in a check to Tomlinson. This money was evidently an advance to Charles Batchelor, who purchased the property and then returned the money in August (Cash Book [1 Jan. 1881–30 Mar. 1886]: 267, 272, Accts., NjWOE; Conot 1979, 219). Mary Edison gave Seyfert $230 in sale proceeds, identified in a 22 July receipt as 20 percent of the total. A retrospective accounting by Seyfert’s attorney listed the proceeds as $2,750, still well short of the judgment due (Lucy Seyfert to TAE, 22 July 1884, Kellow [TAED HK069AAC]; Strong & Son to Tomlinson, 8 Feb. 1886, DF [D8603ZAA]). Tomlinson advised Insull on 8 August that Edison should arrange to pay the $2,200 balance. Mary Edison died the next morning, however, evidently without ever having received a deed for real estate that had been conveyed in her name (Tomlinson to Insull, 8 Aug. 1884; Strong & Son to Tomlinson, 15 Aug. 1884; both DF [TAED D8465ZAF1, D8403ZFO]). As a result of the uncertainty over the property’s legal ownership, the sale proceeds were frozen and an alias writ of execution was issued to authorize a second sheriff’s sale on 21 October. Edison again gave Tomlinson $600, but the retrospective reckoning by Seyfert’s attorney listed only $11 in proceeds from the second event. The twenty-one Menlo Park lots advertised for that occasion, presumably the same ones auctioned in July, were evidently bought by Charles and Rosanna Batchelor, who held them until they deeded the property back to Edison in 1891 (Opinion of Edward Scudder, 18 Nov. 1884; Strong & Son to Tomlinson, 20 Aug. 1884; Thomas Ecclesine to Tomlinson, 21 Aug. 1884; all DF [TAED D8403ZIN, D8403ZFQ, D8403ZFS]; Cash Book [1 Jan. 1881–30 Mar. 1886]: 280–81, Accts., NjWOE; Charles and Rosanna Batchelor agreement with TAE, 30 June 1891, Kellow [TAED HK070AAO]).
Edison resisted a resolution of the Seyfert case with bitter determination and at increasing expense. Because of the confusion surrounding Mary Edison’s putative ownership of the auctioned property, the plaintiff sought to name a receiver that would allow Mrs. Seyfert access both to the money paid to the sheriff and to “whatever other interest Mr. Edison may have” in New Jersey. Edison was accordingly ordered in November 1884 to testify under oath about his property in the state. Refusing this order and a second one in 1885, he was held in contempt by the state Supreme Court (Abraham Schenck to Tomlinson, 8 Jan. 1886; New Jersey Supreme Court decision, 4 Dec. 1885; both DF [TAED D8603E, D8503ZEG]). Facing both the contempt citation and his pending remarriage, Edison apparently authorized payment of about $3,200 to settle the Seyfert matter in early 1886 (Strong & Son to Schenck, 20 Jan. 1886; Strong & Son to Tomlinson, 3 and 8 Feb. 1886; Schenck to Tomlinson, 14 Apr. 1886; all DF [TAED D8603T, D8603Z, D8603ZAA, D8603ZAS]).

—2699—

To Sherburne Eaton

[New York,] July 22nd. 1884.

Dear Sir:—

I beg to notify you that I have no further use for the third floor offices in this building, as what little business I have now got at 65 Fifth Avenue can as be easily attended to in my library on the top floor.

Inasmuch as the books in my library have been mainly collected for use in connection with the Light Company’s affairs, and, furthermore that the library would be of practically no utility to the Company, unless it was kept in this building, I presume that no rent will be charged me for the use of the attic floor. It is not my intention to conduct any considerable business on that floor, as I shall simply leave one clerk, as a rule, with a view to his answering any inquiries in connection with my affairs. Very truly yours,

Thos A Edison

TLS (carbon copy), NjWOE, Lbk.18:141 (TAED LB018141).

—2700—

To Sidney Paine

[New York,] July 22nd. 1884.

Dear Sir:—

Referring to your favor of the 19th. inst., 2 I beg to inform you that I no longer have an engineering force in connection with the Construction Department, as I am closing out that business, and I therefore cannot very well give you the infor-
mation you desire. I have referred your communication to the Isolated Co. Very truly yours,

Thos. A Edison Insull

TL (carbon copy), NjWOE, Lbk. 7:051 (TAED LBCD7051). Signed for Edison by Samuel Insull.

1. Sidney Borden Paine (1856–1940), a nephew of Spencer Borden, had briefly been in textile manufacturing in Massachusetts and the stove business in Cleveland before becoming an assistant in Borden’s Massachusetts agency of the Edison Co. for Isolated Lighting (then called the Eastern Agency) in 1882. In April 1884, Paine succeeded Borden as principal agent of what had been renamed the Isolated Co.’s New England Dept. After the formation of General Electric, Paine was appointed manager of its new Mill Power Dept., where he spent the rest of his career. Doc. 2274 n. 12; “Paine, Sidney B.,” Pioneers Bio.; U. S. Census Bureau 1967? (1860), roll M653_491, p. 311, image 312 (Fall River Ward 5, Bristol, Mass.); ibid. 1970 (1880), roll T9_1004, p. 102.1000 (Cleveland, Cuyahoga, Ohio).

2. Not found.

---2701--

[New York,] July 22, 1884

Not strong only 3 deg[ree]s with no resis, shows its not the gas from the Perox Mn but actual contact.

[B]
Carbon & platina Electrodes, filled in between with Lump perox Mn & Sul Acid

Splendid gives 10 deg[rees] through 37 ohms res

We put porous partition powdered Carbon in Contact with Carbon & Perox mng on plat OK But porous partition consid[erable] res

We now try pyrusulite against Carbon & nothing on plat, instead of against plat, not much dif —

Sul [acid] Perox Barium Carbon & platina gives good deflection but unstable all Ox comes off

We now try peroxide Lead

TAE M. N. F[orce].


1. See Docs. 2520 (headnote) and 2620. Edison had begun experimenting on 21 July with a variety of solutions and oxides for the “direct oxidation” of carbon (N-82-05-15:104–7, Lab. [TAED N203104]). A 19 July drawing related to these experiments is in 1884 Unbound Notes and Drawings, Lab. (TAED NS84ACM1).

2. Figure labels are “carbon,” “plat,” “sul acid,” “Lead chamber perforated Containing Lumps perox Manganese,” and “heat.”

3. Edison drew a line from this text to the drawing.

4. Edison probably meant pyrolusite, another name for black oxide of manganese. Essentially manganese dioxide, it is the most common manganese mineral. Hawley 1987, s.v. “pyrolusite.”

—2702—

To Emilie Kellogg


Dear Madam:—

Referring to your favor of the 18th. inst. I state that we have at our lamp factory boys who do nothing but clean mercury. Occasionally they get slightly salivated some and they take a teaspoonful of a weak solution of iodide of potassium every day, and in about three weeks they are all right again. I have had boys much younger than your son in my laboratory for years doing the same work that he was engaged on, and they were never troubled in the way you speak of.

I think that your doctor must be the wrong thing altogether, but if he is right, iodide of potassium is the sovereign remedy for mercurial salivation, and in all French factories where mercury is used, the employees are compelled by law to take the above, as any third rate doctor in this country ought to know.
I sincerely sympathize with you in your trouble, and reassure you that I would not for one moment endanger the life of any youth by keeping him on work that would effect his heath.

I may remark that both myself and my principal assistants have for years been engaged in work necessitating the use of all kinds of chemicals, and notwithstanding this the health we all enjoy is something phenomenal.6

I really [think that your doctor must be mistaken when?]7 he ascribed your son’s sickness to mercury.7 Very truly yours,

Thos. A Edison Insull

TL (letterpress copy), NJWOE, Lbk.18:146 (TAED LBo18146). Signed for Edison by Samuel Insull. //Faint copy//.

1. The word “Void” was written across both pages of this document, probably by Samuel Insull. There is no indication whether the letter was actually sent, nor is there other extant related correspondence apart from Doc. 2696.

2. Doc. 2696.

3. Mercury was poured through the vacuum pumps to evacuate glass bulbs at the lamp factory. The mercury was cleaned before its initial use and again periodically to remove moisture, sulphur, and other impurities (see Doc. 1950 [headnote, esp. n. 18]). Also, Edison briefly had prescribed the regular application of an amalgam to the commutators of his central station dynamos, a practice he discontinued for health reasons (see Docs. 2149 esp. n. 4 and 2228.)

4. A standard treatment for mercury poisoning was iodide of potassium; this compound was thought to interact with mercury in a way that would allow it to be excreted. Quain 1883, s.v. “Mercury, Diseases arising from”; “Lead and Mercury Poisoning,” Manufacturer and Builder 9 (Oct. 1877): 232–33.

5. In July 1883, George Stickle, a worker at the lamp factory in Harrison, brought a $5,000 suit against the Edison Electric Light Co. for damage to his health caused by incautious handling of mercury and a company doctor’s subsequent prescription of medication. The editors have not determined the outcome of the suit. At least one doctor later identified “the progress of electric illumination” and the manufacturing of glass bulbs for lamps as a cause for a resurgence in industrial mercury poisoning cases. He singled out the Harrison plant as the probable cause of several cases of mercury poisoning. He noted that even with strict safeguards, the process of evacuating glass bulbs made it impossible to avoid breathing mercury vapor, particularly in winter when ventilation was more difficult. He reported that the factory employed its own doctor to provide free treatment to the sick, who may “form not a small percentage of the whole” labor force. He also contended that the condition was sometimes diagnosed there as “malaria, or some other convenient scape-goat of medical terminology to cover the plain fact of quicksilver poisoning.” “Health Injured by Mercury,” NYT, 13 July 1883, 8; Lehlbach 1886, 343–44; cf. App. 1.F.19.

Edward Kellogg’s symptoms, as described in Doc. 2696, were consistent with a contemporary medical authority’s description of mercury poisoning. Quain 1883, s.v. “Mercury, Diseases arising from.”

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**Notebook Entry:**
**Primary Battery and Direct Conversion**

[New York,] July 23—[1884]

[A] Plated carbon with peroxid Mang put it with fresh Carbon in Strong Sul acid gave 10 deg[rees] Cold through 10 ohms—I now heat slight heat 10 deg thru 20 deg goes down as heat increases great many bubbles formed again goes up as it gets hotter. nearly boiling. [goes bac?]
then suddenly goes Zero
Regular Carbon cell but with small porous cup packed with Carb[oni]z[ed] Anthracite & peroxide Lead carbon Electrode, Zinc & Chl ammonium 100 ohms 10° on strap [-] with Res box 11½—1215 pm—1220 12 deg Black ox man[ganese] Com packed with powdered Coke—Zinc & Carbon Dilute SO₄—11½ 1225 pm—polarizes goes to 7½ at 1227 stays at 7½/1230


1. Figure labels are “pressure on this to make contact,” “zinc,” “Lumps of carbonized anthracite & Blk ox Mang—,” “Sul acid,” and “sewing Mac Motor.” While this notebook entry is related to Edison’s ongoing research on direct conversion, it also marks the beginning of his efforts to develop a primary battery to run the sewing machine motor mentioned in Docs. 2459 and 2579. For his subsequent work on such a battery between 28 and 31 July, see N-85-2-15:147–79 (Lab. [N203147,
These designs appear to be modifications of zinc (anode)-carbon (cathode) batteries, especially the Leclanche, in which manganese was used as a depolarizer, and the Bunsen carbon battery (see note 3). Edison altered the type of carbon and the chemical solutions used in these batteries and also substituted other oxides for magnesium. For these and other batteries see Niaudet 1880.

2. Figure label is “filled with Peroxide of Barium.”

3. This was a common name for the battery developed by German chemist Robert Wilhelm Bunsen, who replaced platinum with carbon in the cathode of the Grove battery. Like the Grove, it used a zinc anode in a porous cup filled with a dilute solution of sulfuric acid. Silliman 1871, 579.

4. Edison meant either “common” or “commercial,” both of which were frequently used in association with black oxide of manganese.

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To Frank Hastings

Dear Sir:—

It is of very great importance that my account for canvassing should be brought before the Finance Committee for settlement immediately, as the account has been running now for such a long time. It represents cash paid out by me, and inasmuch as there is no profit whatever on the account, I must press for an early settlement of same.¹ Very truly yours,

Thos. A Edison Insull


¹. The editors have not reconstructed details of the canvassing account, which apparently was at least part of the sum that Edison tried to collect from the Edison Electric Light Co. in December 1883 (see Doc. 2569). A March 1884 statement itemized $11,090.63 in expenses for canvassing, mapping, electrical determinations, and general office expenses chargeable to nearly eighty projected central stations. Edison charged the company $1,925.96 for similar expenses in April and $832.99 in May, plus $1,867.86 for work on behalf of the New York Second District (Edison Construction Dept. statement to Edison Electric Light Co., 25 Mar. 1884, DF [TAED D8441K2]; Insull to Hastings, 15 May and 13 June 1884, LM 19:191, 425 [TAED LBCD6191, LBCD6425]). Samuel Insull asked Hastings to make partial payments of $5,000 on 1 May and $3,000 on 10 May, but the company requested verification of the total. Insull averred that he could not spare the time to produce the documentation but offered to make the books and vouchers available to the Finance Committee chairman (Insull to Hastings, 22 Apr. and 15 May 1884; Hastings to Insull, 6 May 1884; Hastings to Edison Construction Dept., 29 Apr. 1884; all DF [TAED D8416BJJ, D8416BPE, D8427ZAT, D8439ZAW]). Edison’s Construction Dept. cashbook noted a number of modest
checks received from the Electric Light Co. during the spring and summer, including several loans and payments for the salaries and expenses of “experts.” The company also paid checks of $1,500 on 26 April and $1,000 on 21 July. Like most entries in the Construction Dept. book, the purpose of these payments was not indicated. The fact that the book was often used for transactions not directly related to the Construction Dept.’s obligations or credits only compounds the difficulty of understanding these records, but the matter of Edison’s full reimbursement remained unresolved in late September. Edison Construction Dept. Cash Book (1 June 1883–28 Feb. 1886), esp. pp. 73 and 93, Accts., NjWOE; see Doc. 2736.


[Dear Sir:]*

[I have?]¹ your favor of the 24th inst.¹
[Regarding your?]¹ suggestion as to my taking my balance [in stock shares of the?]¹ Company in reply I would state that I have a such large capital invested in stocks of the various Edison Companies, and also in the manufactories that produce their material, and furthermore I require such a large floating capital to carry on my business, that it would be quite impossible for me to take the stock in your Bellefonte Company. I should be most happy to do so were it not for the above reasons, as I consider that the stocks in all the local illuminating companies in connection with the Edison System to be an extremely good investment, and should take advantage of same had I any large amount of superfluous capital to invest.²

Very truly yours,

Thomas A Edison


1. Harris’s letter was in reply to one from Edison on 22 July (not found) requesting payment of the unspecified remaining balance on the Bellefonte central station (Harris to TAE, 24 July 1884, DF [TAED D8453ZFHI]). Harris asked Edison to accept stock in the Bellefonte illuminating company because the firm was short of cash, having not allocated capital to pay for wiring and related expenses. The sum in question was likely the third and final installment on the Bellefonte plant. The local company had made the second payment in February with great reluctance after questioning the station’s capacity, but it promptly paid Edison in April for a modest expansion of the distribution network (Harris to TAE, 7, 13, and 23 Feb., 29 Apr. 1884; Samuel Insull to Harris, 16 Feb. 1884; all DF [TAED D8453ZAM, D8453ZAT, D8453ZBB, D453ZDN, D8416AOH]).

2. This matter dragged on for months. Edison peppered Harris with
demands and pleas for at least a partial settlement, while the Bellefonte company considered ways to raise the cash and Harris lamented that the business was not as successful as the investors had been led to expect. The company at one point offered $1,000 of its mortgage bonds, a suggestion that Edison firmly refused. The company remitted about $455 in March 1885, but the full balance remained unpaid as of July 1885.

Harris to TAE, 11 Dec. 1884, 20 Jan., 28 Mar., and 23 July 1885; all DF (TAED D8453ZFP, D8523F, D8523ZAC, D8523ZBK); TAE to Harris, 26 Jan. 1885, Lbk. 20:52B (TAED LBo20052B); also TAED s.v., “Harris, James.”

Notebook Entry: Direct Conversion

—2706—

[New York,] July 28 1884

Direct production E[lectricity] from Carbon Expts.¹

We sealed Sul Acid, in glass tube with leading in platina wires one pole platina other Wallace Carbon.² put Lumps black oxide Manganese crude with 104 ohms in ckt gal[vanometer] Kinney³a went to 8 @ 9 9 only after while when tube Exploded violently—it went quickly to 8. There was too much water in acid—going use strongest acid then try=

Tried phosphoric anhydride & peroxide manganese. gal went to 3 without resistance cell cracked. its very syrupy must try in crucible as glass melts—b

Its acts on perox mang to form a violet⁴ colored Sub-

stance.⁵

We now try caustic soda & also Caustic potash from sticks—

Note= With sul acid I think the action is either 1 of 2 ways: Sul⁶ Acid Decomp to SO₂ & O O combines with Carbon to CO. SO₂ reduces O from peroxide to form SO₃—or water of Sul A decomp & O combines with Carbon to eCO & H re-

duces O of peroxide Mang to form H₂O.⁶

Caustic Soda & peroxide Mang crude— cracks glass when put in large lumps:— we now powder & put in & it goes up to 12 with lots peroxide, but with 7 ohms only 5. longer heating make it go down nearly to Zero with no Res. There is Evi-

dently great deal Oxy given off from peroxide Mang.

We now try some Nordhausen fuming sulfuric acid⁴ with peroxide Mang Crude with plat & Carbon Electrodes heated to boiling in test tube cell. This acid is as bad as 3 square Miles of Hell. Martin [Force] got burnt on the face. 〈No better than Com[mercia]l 27@ 30 ohms 10 deg—〉

Boiler large Scale for direct Conversion Carbon into Elec-

tricity⁵
Things to try in direct Conversion Carbon into E. 6
Peroxide Potassium fuses higher point than Caustic K at white heat decomp into K monoxide & O. Use this.

Also Sodium Dioxide
" Calcium Dioxide
Strontium "

for withstanding Hot Sul A.

Chromosono-Chromic oxide formed by Electrolysis Solution
Chromous containing Chromic Chloride by Current Low intensity  black powder insoluble in any acid Cr$_3$O$_7$

TAE

X, NjWOE, Lab., N-82-05-15:127 (TAED N203127). Document multiply signed and dated. aInterlined above. bFollowed by dividing mark and “over” to indicate page turn. cObscured overwritten text. dFollowed by dividing mark.

1. See Docs. 2520 (headnote) and 2620.
2. Little is known of the chemical makeup of carbons used in the arc lights of Wallace & Sons, electrical and wire manufacturers in Ansonia, Conn. However, Edison had tried them in experimental carbon telephone transmitters in 1879. He found them composed of finer particles, with fewer impurities, than those of another manufacturer (see Docs. 1615 n. 1 and 1806). Dredge (1882–85, 1:412) notes that the Wallace firm had for some time had trouble obtaining suitable carbons, as crude retort carbon proved unsuitable.

3. Edison referred to the galvanometer being monitored by Patrick Kenny. Kenny, a former superintendent of the Gold and Stock Telegraph Co. ’s manufacturing shops, had begun collaborating with Edison on facsimile telegraphy in the spring of 1878 and started working at the Menlo Park laboratory in December of that year. At this time, Edison and Kenny were working on a chemical stock quotation telegraph for which they had filed a patent application in March 1884; the specification issued in March 1885 as U.S. Patent 314,115. See Docs. 1328, 1388 n. 6, and 1638.

4. Nordhausen fuming sulfuric acid consists of sulphuric acid containing more or less sulfuric anhydride in solution. Its name derives from the small Saxon town where an industry producing the acid first developed. Also known as oleum, it is a thick oily liquid that is distin-
guished from ordinary sulfuric acid by the fact that it fumes strongly in moist air. Lock and Lock 1878, 233; Kolbe and Humpidge 1884, 163; Hawley 1987, s.v. “sulfuric acid, fuming.”

5. Figure labels are “Stuf[in] box,” “float,” “pump,” “pressure Electrode,” “Carbon anthracite heated or coke,” “platinzed [welder?] on nickel or iron,” “glass,” “Strong Sul,” “glass,” “Peroxide mang,” and “furnace.”

6. Edison continued these experiments the following day, concluding with a set of trials that involved heating “in crucibles in forge Sul Acd & Blk ox. ok but fumes so bad of SO$_3$ that Martin [Force] spit blood & I was nearly overcome.” N-82-05-15:141–45, Lab. (TAED N203141).


Notebook Entry: Energy Conversion

For turning light into electricity

Ditto

TAE

M[artin]NF[orce]

1. Text is “Black” and “black the tube.” The design of these instruments is unclear, but this set of drawings is the earliest extant evidence of Edison’s interest in the conversion of heat and light into electricity. This effort became part of his search for an unknown force he called the “XYZ.” For his work on this force between December 1885 and April 1886, see especially New York Notebook N-85-12-08 and Fort Myers Notebook N-86-03-18, both Lab. (TAED N313, N314).


Dear Sir:—

I enclose you herewith memorandum of amounts due our Construction Dept. by various electric illuminating companies. In addition to this the Edison Electric Light Co. owe us about $17,000., on work in connection with the Construction Dept., and with relation to which we are now arranging settlement.¹ I will send you a statement of the affairs of the Machine Works in the course of a few days.² I would do so immediately, but inasmuch as our books are just being closed for this month, it would be far more easier for me to supply you with this information after the bookkeepers have got out their monthly balance sheet. Very truly yours,

Saml Insull

Enclosure.

ENCLOSURE³

[New York, August 1, 1884]

<table>
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<td><strong>Total</strong></td>
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TLS (carbon copy), NjWOE, Lbk. 18:196 (TAED LBo18196). *Enclosure is a TD (carbon copy).
1. Cowles requested the information in this document in July. According to terms of Doc. 2515, the Ansonia Brass & Copper Co., one of Edison’s largest suppliers, could claim at least a portion of the payments Edison received from local illuminating companies. An October 1884 statement showed that Edison owed the Ansonia firm about $18,000; the amount decreased to $7,690 by the end of the year. In late December, Edison was trying to negotiate a settlement with the Edison Electric Light Co. and hoped to use those funds to pay Cowles. Insull promised that, if money from the Light Co. were not forthcoming, Edison would “make arrangements to gradually liquidate” his account with Ansonia. Cowles to Insull, 24 July 1884; Ansonia Brass & Copper Co. statement, n.d. [Oct. 1884]; both DF (TAED D8421W, D8421ZAB1); Insull to Cowles, 26 Feb. 1884, Lbk. 19:475 (TAED LBo19475).

2. Not found.

3. As transcribed, these figures sum to $32,897.21. The disparity may be due to an erroneous transcription from the faint and smudged carbon copy.


To Frank McCormick

Dear Sir;

Your favor of 2nd came to hand this morning

If you will read my letter of 1st & substitute Thomas A Edison for the Construction Dept mine of 1st will be correct. I should have used my own name instead of the Constn. Dept in writing you.¹

I cannot understand what you mean by your being trifled with I would remind you that I had a Contract with your Co by which you were to pay me in cash for your plant. This you have never been able to do; furthermore a basis of settlement with your Coy was arrived at by your Board of Directors as representing your Coy & Mr. Insull as representing myself came nine months ago & under that settlement you were to pay balance due⁴ me in the Stock of your Company. $4100 Stock was delivered to me—the balance was to be paid immediately your Capital could be increased & which was forth with done but I have never received the balance of the Stock & for a very considerable time could get no answer to my letters in relation to same. My accounts as rendered were accepted by your Company & I must confess that if anyone has been trifled with I think that person is myself & I do not feel at all disposed to do anything with relation to the matter [−]² you complain of until I have some guarantee that the settlement agreed upon by your Board will be carried out. Yours truly

Thos A Edison
1. Edison responded on 1 August to McCormick’s letter of complaint about the Sunbury plant, saying he did not wish to discuss the matter until the Edison Electric Light Co. had made arrangements regarding the business of the Edison Construction Dept. McCormick explained that the Sunbury illuminating company initially had withheld the stock owed to Edison since 1883 (see Doc. 2498 n. 3) because they hoped to sell the shares and pay in cash. More recently, however, local managers concluded that the company had “not received value” for what they considered to be a substandard station, and that ongoing repairs to the plant and equipment would consume all its profits. After enumerating seven of “the most glaring defects” of construction, including a leaky roof and an inadequate steam engine, McCormick charged that Edison’s business with the company “looks very much like a swindle.” He expressed a desire to settle accounts with Edison and the Edison Electric Light Co., but only on terms that would put the plant in satisfactory condition and reimburse the company its expenses for repairs already made. TAE to McCormick, 1 Aug. 1884, Lbk. 18:203 (TAED LB018203); McCormick to TAE, 18 July 1884, DF (TAED D8458ZAE).

McCormick wrote again on 2 August after receiving Edison’s letter of the previous day. He pointed directly to Edison’s ongoing liability for the work of the now-disbanded Construction Dept.:”

I do not understand how any arrangements between the Edison Electric Light Co. and the Construction Department can influence our settlement with you— We have made no contract with the Construction Dept. and are in no way interested in its arrangements with the Edison Electric Light Co.— But we have a contract with you individually for the construction of our plant in a “good and workmanlike manner” and if anything is to be done before the central station falls down it must be done at once— We do not like the way we are being trifled with, and we demand a settlement of our accounts. [McCormick to TAE, 2 Aug. 1884, DF (TAED D8458ZAF); see also Doc. 2737]
ing March, when the Edisons were in Florida and her father’s health was failing (Eugenie Stilwell to Samuel Insull, 12 and 27 Mar. 1884, both DF [TAED D8465N1, D8414D]).

2. The editors have not identified the purpose of this message, specifically whether it was related to Mary’s health (see Doc. 2712 [headnote]).

Santiago, Chile, Aug. 8th, 1884.

No 22

Dear Sir:—

I have your favor #25 of June 30.¹

I regret exceedingly that my letters to Maj. Eaton have involved matters regarding the Santiago Station. On the day of my sailing from New York Maj. Eaton particularly and earnestly requested me to write him by every mail regarding this Station & its progress, and of my success in keeping it running. On this account I have regularly sent him details, & have furnished you copies of most of my communications.

Last month Maj. Eaton communicated to me the Co’s. decision not to do anything for this Station, which I answered rather sharply, as I felt. I enclose copy of this letter for your perusal.² I say that under existing circumstances I shall not form a Santiago Co., although I can do so at any time. My care and labor has completely revolutionized this Station; we are daily adding new & picked consumers; receipts have doubled; confidence is so well restored that we are lighting places previously closed, including the Banks & private residences of the best men in the city; I am now adding a lot of all-night consumers, & the new dynamo is almost ready. The Government is on our side, & I have earnest and influential partners and assistants. This means that so far as Santiago people are concerned everything is ready for large business.³ But as Kendall & Co. can make $200,000 in an hour by closing the Station when my contract expires, you may be quite sure that they will do it. Ed. Kendall is now here, angry with the Co. for sending me, angry with you for giving me a contract, angry at his cool reception in New York, angry with me because I plainly expose¹ his trickery here & threaten him with the penitentiary, & angry because he cannot play the same game in Valparaiso that has been played here. Do you suppose that a man in this frame of mind will earn a dollar for you or the Co.²⁴

I have Valparaiso nearly arranged,⁵ & when you get Santiago I will arrange that also. Tell Maj. Eaton that if he wants
to save this Station he must act at once & firmly. If not, there will be a fine scandal here in December or before.

The materials ordered by Mr. Waters⁴ should be sent. I will remit for them on receipt of the bill.

My future communications on this subject will be sent only to you.⁵ Yours Truly,

W. N. Stewart.

(Enclosure.)


1. This letter has not been found. Edison sent Stewart letter number thirty-two, also on 30 June, regarding an order of seven ampere indicators, which he considered unnecessary for the Santiago station. Edison’s office staff began numbering Edison’s correspondence to Stewart on 27 May. TAE to Stewart, 30 June 1884, Lbk. 18:103 (TAED LB018103); TAE to Stewart, 27 May 1884, DF (TAED D8416BRL).

2. Stewart probably enclosed a copy of his 10 July letter to Eaton acknowledging receipt of a 26 May letter (not found) and unspecified memorandum. The memorandum was likely the three-page critique that Eaton prepared on 21 May in response to Stewart’s request for the Edison Electric Light Co. to help finance the operation of the Santiago station, of which Stewart hoped to gain control. Edison recommended Stewart’s proposal to Eaton: “I am willing to do personally what Mr Stewart wants your Company to do provided your directors will undertake to give me half of what they receive in stock or money from the Santiago Company. I think it would be a very serious blow to your business if the Santiago Station were allowed to stop and if your Directors are not willing to take the risk necessary to save it.” Stewart indignantly replied to Eaton on 10 July that he had “asked you to help me to rescue the business and save its good name by a slight sacrifice, if such should prove necessary, which you decline. I therefore choose to take all the responsibility myself, as I shall take the profits.” Stewart to Eaton, 10 July 1884; Eaton memorandum, 21 May 1884; both DF (D8435ZAT, D8435ZAH); TAE to Eaton, 22 June 1884, LM 19:498 (TAED LBCD6498).

3. Enrique Lanz, a prospective partner with Stewart, sent Edison on 8 August his views of the station’s operations and the intentions of Kendall & Co. Stewart withdrew from direct work for the Compañía de Luz Eléctrica de Edison de Santiago by early 1885. The Santiago station kept operating but, if Stewart’s reports were accurate, it lost many large customers in 1885 because Kendall instituted a 60 percent price increase and also because of poor management of its lamp supplies (Lanz to TAE, 8 Aug. 1885; Stewart to Samuel Insull, 26 Dec. 1885; both DF [TAED D8534P, D8534X]). While Stewart still hoped to wrest control of the situation in Santiago, he withdrew to Valparaíso and the Compañía Eléctrica de Edison, his general agency for Chile, Peru, and Bolivia. He was assisted there by William J. Clark, a veteran of Edison’s telephone business in Chile as well as the Santiago station. Stew-
art suggested that Edison “organize a special bureau for foreign work,” but no reply to this suggestion has been found (Compañía Eléctrica de Edison, undated 1885, PPC [TAED CA101B]; Clark testimony, 26 Mar. 1881; Stewart to TAE, 14 Mar. 1884 and 31 Jan. 1885; Stewart to Insull, 26 Dec. 1885; all DF [TAED D8345J, D8435E, D8534D, D8534X]). During a two-month visit to New York in mid-1885, Stewart secured cooperation from W. R. Grace through its own branch in Valparaíso; Samuel Insull encouraged the alliance, if only to help recover Stewart’s considerable indebtedness to the Edison Machine Works. Stewart had fallen out of favor with Charles Coster and the Edison Electric Light Co. by that time (Stewart to TAE, 24 Jan. and 30 Oct. 1885; Stewart to Insull, 26 Dec. 1885 and 28 Apr. 1886; all DF [TAED D8534C, D8534T, D8534X, D8630ZAJ]; Insull to TAE, 25 June and 21 Aug. 1885; TAE to Enrique Lanz, 30 Sept. 1885; Lbk. 20:380, 20:444A, 21:35B [TAED LB020380, LB020444A, LB021035B]). In March 1886, he was reprimanded by Eugene Crowell, president of the New York company, reportedly for “embarrassing the Santiago Co.” and “slander[ing]” the station superintendent (Stewart to TAE, 28 Apr. 1886, DF [TAED D8630ZAI]).

4. Stewart continued to complain about Kendall & Co.’s business principles. The firm was later sued by others alleging fraud; it was acquitted in at least one case. In late 1884, Kendall reportedly also initiated negotiations for a takeover of the Santiago station by Brush lighting interests. Riesco 1897, 246–48; Stewart to TAE, 10 and 24 Jan. 1885, both DF (TAED D8534A, D8534C).

5. Stewart promised to form a company in Valparaíso after the successful installation of a 100-light dynamo in that city. Stewart to TAE, 8 Aug. 1884; Stewart to Edison Machine Works, 8 Sept. 1884; both DF (TAED D8435ZAZ, D8435ZBE).

6. Stewart probably referred to the order for ampere meters mentioned in note 1. George Wellington Waters (b. 1860), a Newark native, had installed an Edison isolated plant at the Prospect House in the Adirondacks, the first hotel to introduce electric lighting throughout its establishment (William Meadowcroft to Edward Babcox, 4 Jan. 1917, Lbk. 115:495 [TAED LB115495; TAEM 277:668]; Tolles 2003, 81, 180; Edison Electric Light Co. Bulletin, 12:4, 27 July 1882 [TAED CB012]; Edison Co. for Isolated Lighting Bulletin 6:4–6, 25 July 1885, CR [TAED CC006]). At this time, Waters was the engineer at the Santiago central station. He served as plant superintendent in 1885, when Stewart was highly critical of his work ethic, effectiveness, and loyalty (Stewart to TAE, 23 May 1884 and 10 Jan. 1885; Stewart to Samuel Insull, 26 Dec. 1885; all DF [D8435ZAK, D8534A, D8534X]). He subsequently became associated with Spencer & Waters, a machinery and munitions trading concern in Santiago (“Membership: Candidates for Membership,” Bulletin of the American Institute of Mining and Metallurgical Engineers, 84 [Dec. 1913]: xxvii).

7. Stewart evidently hoped to avoid working through Sherburne Eaton. Acknowledging a 9 July letter from Edison (not found), he predicted that “The reorganization of your foreign business under care of the Machine Works cannot but be a benefit to all concerned.” In September, Edison did consolidate at least the invoicing and bookkeeping aspects of his foreign lighting business at the Goerck St. shop. Stewart
MARY EDISON’S DEATH  Docs. 2712–2713 and 2718

Early in the morning of 9 August 1884, Mary Stilwell Edison died at the age of twenty-nine in her Menlo Park home; the telegrams in Docs. 2712 and 2713 are the first extant acknowledgments of the fact. The latter stated that she succumbed to “congestion of the brain,” an explanation repeated in a few newspapers and one that some biographers have since adopted.¹ As it appears nowhere else among the extant documents from 1884, however, congestion of the brain falls short of being a definitive cause of death. In fact, the postmortem medical certificate failed to register any cause, and it also lacked such standard information as the length of illness or the names of attending physicians.² Congestion of the brain (also termed cerebral congestion or cerebral hyperemia) was a common, if imprecise, diagnosis in the late nineteenth century, and one contemporary medical dictionary cautioned that “many symptoms have been erroneously ascribed” to it. Another authority pointed out that “Under this name there are to be included several forms of disease very different from each other in the general character of their symptoms.”³ Its bafflingly heterogeneous manifestations have been linked to, among other causes, cerebrovascular apoplexy (apparently its most frequent diagnosis, later attributed to hypertension), and they also found a place in the literature of menstruation, uterine displacement, and other female conditions.⁴

The ambiguity about the immediate cause extends to other circumstances around Mary’s death. A number of obituary notices indicated that her demise came suddenly and unexpectedly, after a brief but grave illness, and at least one condolence letter supports this view of events.⁵ None of the extant documents suggests a mounting crisis in late July, when Edison often was working in New York,⁶ or in early August, when his movements are largely unknown. Unable to reconstruct a context for Doc. 2710, Edison’s terse announcement of his planned
return to Menlo Park on the afternoon of 7 August, the editors cannot speculate whether that telegram represented anything out of the ordinary. Other evidentiary fragments, though, raise more questions than answers about Mary’s final days. One physician, Frank Beardsley Norton of Metuchen, N.J., billed for “medicines” and “visits” to the Edison home on 25 and 26 July and another consultation on 9 August.7 One news item printed after Mary’s funeral pointed out that Charles Stilwell, Mary’s younger brother, was en route from Hamilton, Ontario, when she died, but he “arrived a few hours too late to see his sister alive.”8

After the funeral, a New York World article (Doc. 2718) offered the novel and plausible—but unverifiable—explanation that Mary died from an accidental overdose of medicinal morphine. The article claimed that she had been using the opiate in the course of treatment for the chronic pain of “obstinate neuralgia” since 1878.9 In the newspaper’s account, Mary had been coping with a recent bout of gastritis, perhaps caused by the opiate itself, and her effort to escape the pain led to an overdose. The World’s claim for this particular cause of death, attributed to the sotto voce remark by a “friend of the family,” was apparently unique. Still, Mary Edison fit the gender, class, and age profile of the patient for whom doctors most typically prescribed the drug at the time, and her medical history (specifically “uterine troubles”) would have indicated its use.10 Contemporary medical authorities also recognized “congestion of the brain” as a physical symptom of fatal morphine overdose.11 Many medicinal preparations, particularly cough syrups and also Edison’s own analgesic compound, polyform,12 contained morphine, and Edison’s incomplete system of payment vouchers indicates the household’s occasional purchase of such compounds. More noteworthy is a purchase record in November 1883 for two one-half ounce bottles of the sulphate of morphia, a form suitable for hypodermic injection.13 However circumstantial the case for its role in Mary’s death, morphine makes a more plausible explanation than typhoid fever, which family members introduced to the lore decades later.14

Scattered documents dating back to 1878 touch upon intermittent ailments, both mental and physical, but the underlying state of Mary’s health is unknowable. In brief, the surviving record from the summer and fall of 1878 is unusual for its details about Mary’s pregnancy with her third child, during which she reportedly experienced considerable anxiety.15 Edison hastily summoned a doctor for her on the last day of
that year, not necessarily a remarkable event in mid-winter for a mother of two young children and an infant. After that incident, the editors have found no further reference to Mary’s ill health until 18 January 1882, when Dr. Leslie Ward wrote of her recurrent “uterine troubles” and suggested travel as a way to calm her nervous system. Mary did travel that winter, to Detroit, South Carolina, and Florida; she and Thomas returned to Florida in February 1884. In September 1883, Edison claimed that his wife’s illness forced her to give up housekeeping in favor of hotel life. When moving day arrived, Samuel Insull advised Edison that “she seems considerably better,” but would be escorted by a doctor “in case of any mishap.” Soon after returning from their 1884 Florida trip, both Mary and Thomas became sick, but their reported symptoms point to nothing more than seasonal allergies or ordinary—enough colds. A news report after Mary’s death, printed a few days before Doc. 2718, referred to long episodes of illness since 1878.

It is not clear what connection, if any, these incidents have with each other or with those reported in Doc. 2718. From a vantage point more than fifty years later, one of Mary’s nieces emphasized her ailments, fancying that her “very earliest recollection” was the sight of family women assisting “Aunt Mame” at Menlo Park after “one of her frequent fainting spells.” Yet many contemporary sources also place Mary beyond the sickroom and show her as socially active—giving parties, attending balls, going to the theater—and otherwise engaged in a range of domestic functions. Mary may have been mostly well, or she could have disguised some underlying condition, trying to live as normally as possible. What is clear is that when her health history is examined alongside Edison’s—including his own bouts with neuralgia and severe colds—the last years and months of her life do not show a pattern of decline ending in death.

1. Edison biographers citing “congestion of the brain” as the cause of Mary’s death include Baldwin 1995 (143), Israel 1998 (233), and Stross 2007 (143). Conot 1979 (219) added to this diagnosis his own interpretation: “apparently a tumor.”

2. A sheet of paper that had been attached to the death certificate was torn off at some point in the past, leaving only the words “Menlo” in the upper right corner and “to certify” in the center. Mary Stilwell Edison death certificate, 9 Aug. 1884, Nj–Ar (TAED X147B).


4. Concerning the history and evolution of medical understandings
July–September 1884 623

of “Congestion of the brain” or “hyperæmia of the brain,” see Román 1987, passim; and Blustein 1986, passim. For a contemporary understanding of these diagnoses, see Quain 1883, s.v. “Brain, Hyperæmia of”; Minton 1884, 60, 343, 356; Jones 1884, 30, 379.

5. See Doc. 2716 n. 3 regarding published death notices. Dr. Edwin Ruthvin Chadbourne, a physician who had attended the family, wrote in a condolence letter that he was “very anxious to learn what the trouble was that carried her off so suddenly” (Chadbourne to TAE, 13 Aug. 1884, DF [TAED D8414ZAJ]). An 1879 graduate of the Columbia College of Physicians and Surgeons, Chadbourne was an attending physician at the New York Foundling Asylum; he also maintained a private practice (Medical Society 1895, 53, 322; “Columbia’s New Doctors,” NYT, 1 Mar. 1879, 2; “Thurlow Weed at Rest,” ibid., 23 Nov. 1882, 2). For Chadbourne’s invoices to Edison for unspecified medical services, see vouchers for payments of $255 (no. 209 [1883]), $325 (attached to no. 143 [1884]), and $152 (no. 510 [1884]).

6. Edison recorded a number of experiments in his New York laboratory in late July (see, e.g., Docs. 2701, 2703, 2706, and 2707). On 23 July he also attended a meeting of the Edison Shafting Manufacturing Co. trustees at the Edison Machine Works. Edison Shafting Co. minutes, 23 July 1884, DF (TAED D8432C).

7. Family members recalled years later that another physician who had attended the Edisons, John Daly of Rahway, N.J., came to the home immediately after Mary’s death. Voucher no. 514 (1884); Eugenie Stilwell to John Randolph, 9 Feb. 1895, DF (TAED D9506AAG).


9. For a contemporary definition of neuralgia, as well as diagnostic and treatment directives, see Quain 1883, s.v. “Neuralgia.”


11. Quain 1883, s.v. “Opium, Poisoning by.”

12. See Doc. 1287.

13. Mary Edison shopping list, 20 Nov. 1883, DF (TAED D8314P); voucher no. 44 (1883) for McKesson and Robbins (New York druggists, for purchases of Bull’s cough syrup); Kane 1880 (chs. 2–3) gives contemporary recommendations on the preparation, dosage, and subcutaneous injection of morphine for medicinal purposes.

14. While the attribution of typhoid fever did come from Mary’s sister, Alice Stilwell Holzer, and her daughter, Marion Edison Oser, the editors have found no evidence to corroborate this cause (Holzer to William Simonds, 2 July 1932, MiDb Eli [TAED X001D8I]; Oser 1956, 5). Simonds 1934 (231) and Josephson 1959 (290) both attribute Mary’s death to typhoid fever.

15. See Docs. 1394, 1402, 1408, 1523–1525, 1531, 1534.


17. See Doc. 2213.

18. See Docs. 2213 n. 4, 2233, and 2234; see Doc. 2618 (headnote) concerning the Edisons’ 1884 Florida trip.
20. Insull to TAE, 4 Oct. 1883, DF (TAED D8316AYJ).
21. See Doc. 2663.
24. Instances of Edison’s illness are reported in, e.g., Docs. 1539, 1549, 1644, 1730, and 2263–64.

August 9, 1884
Menlo Park NJ 10.19 [a.m.]
Sam’l Insull
Minnie and dot went on nine thirty to grammach will let you know by telegraph if want anything
Edison
New York
Thos A Edison
Have seen Minnie. Have telegraphed Pitt and just going to Newark to see Compton Undertaker If you have any special instructions telegraph Care operator Market St depot Newark shall go on to Menlo from Newark
Insull
Menlo Park NJ 12:22
Samuel Insull
Come immediately
T. A. Edison
(Wired Mr Edison that you had left for Menlo Park Cooke)"
Marion E. Oser, p. 6, typescript, Box 16, Edison Biographical Collection, NjWOE.

5. Charles W. Compton (1833–1914) was a prominent Newark businessman and second-generation undertaker. The Compton funeral parlor was located at 216 Market St. Leary 1893, 255; U.S. Census Bureau 1982? (1900), roll T623_964, p. 5B (Newark Ward 6, Essex, N.J.); Obituary, NYT, 3 Mar. 1914, 9; letterhead of 12 Aug. 1884 Compton invoice (Doc. 2716).

6. Charles Cooke’s 9 August telegram to TAE is in DF (TAED D8465ZAH).

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**Robert Lozier to John Tomlinson**

New York, Aug 9th, 1884

Dear Mr. Tomlinson,

Mrs Edison died this morning at 2 o’clock from congestion of the brain, funeral at Menlo Park, N.J. Tuesday, Aug 12th, in the morning.1 Yours respectfully,

Robert T. Lozier


1. See Doc. 2712 (headnote).

2. Robert Ten Eyck Lozier (1868–1921) began working for Edison as a clerk at the 65 Fifth Ave. offices in February 1883. After three and a half years, he was assigned to electrical work. Soon after leaving Edison’s employ in 1889, Lozier became a consulting engineer and reportedly took out a number of electrical patents. Lozier to Alfred Tate, n.d. [Nov. 1889], DF (TAED D8920ABC); “Lozier, Robert Ten Eyck,” Pioneers Bio.; Obituary, NYT, 23 Aug. 1921, 11.

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**From Grosvenor Lowrey**

My dear Edison

I learned yesterday of poor Mrs Edison’s sudden death, but too late to go out and see you, & yet reach home,1 where my children are along, their mother being on a visit to Canada— I know the sorrow which you now feel— Nothing is or can be like it; for however the occupations of life may for a time draw a man apart from the woman he loves, & who is the mother of his children, & his most intimate friend, still there is no love like love for her, & no friendship like her friendship for him, & when she dies the greatest loss which a man can suffer has come to him— Having felt it2 in its bitterness, I offer you my sincerest, warmest sympathy.

When I heard the news, in a moment my heart warmed to

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you, as it used to do—& indeed always has done, whenever I have been able to get into relations with your true nature—& I felt that we were brothers in misfortune.

God has brought to me the dearest compensation in the health & happiness of my growing children, & the love of another woman, as nearly like my dear first wife in gentleness of spirit, intelligence, affectionateness and every womanly virtue as is possible— Thus I have been shown how in the order of the creator the sense of loss, is displaced by time, occupation & the ever-springing, new life of the affections.

May God bless you, my dear friend & your little children, and ease the pang which now seems to you without cure  Ever Sincerely Yours

G. P. Lowrey

ALS, NjWOE, DF (TAED D8414V).  *Interlined above.*

1. This letter is one of about a score of condolence messages to Edison that were filed in Edison—Family, DF (TAED 8414). Correspondents included associates such as Henry Villard and George Bliss, as well as strangers who read of Mary Edison’s death in newspapers. Lowrey had telegraphed from New York the previous day: “Dear Edison I have just heard of your loss and send you my heartfelt Sympathies.” His telegram was the first communication known to the editors from him to Edison or Samuel Insull since March 1884. Lowrey to TAE, 9 Aug. 1884; Lowrey to Insull, 17 Mar. 1884; both DF (TAED D8414T, D8465P).

2. Lowrey’s wife, Laura Tryon Lowrey, died of cancer in 1879. He married again in 1880, to Kate Armour (b. 1855?), a Canadian whose father was Chief Justice of the Court of the Queen’s Bench of Ontario. Taylor 1978, 23, 45–46.

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Dear Brother

Your telegram¹ arrived too late for me to reach Menlo Park in time for the funeral I was shocked to hear of Mary’s death I supposed she was well and Enjoying herself for you know Alva She and yourself² never answered my letters and I only know from outsiders anything about you— I feel hurt sometimes you never write to me or notice me in any way Im your only Sister Now Alva I want you to come here right away and bring your little children and stay here two or three weeks and make me a little visit think how long it is Since I have Seen you I have never seen your youngest Son² do come and bring them all the old house does Seem so lonesome since

Rose Hall [Milan, Ohio] Aug 11th [1884]

From Marion Page

July–September 1884  626
Belle went so far away to kiss the little children for me. Now answer this letter, won't you! Do come good bye. Ever your loving sister

Marion

ALS, NjWOE, DF (TAED D8414X). Obscured overwritten text.

1. Not found.
2. William Leslie Edison was born in October 1878; his closest sibling, Thomas, Jr., had arrived in January 1876.
3. Marion Page’s daughter Isabella (b. 1852?), known as Belle, married George Washington Ristine. The couple lived in Cleveland in 1880 but did not appear in the city directory the following year. According to a childhood friend of Edison’s, Isabella was living in San Francisco in the spring of 1884. By 1888, Isabella and George had apparently relocated to Chicago, where he was general manager of the Erie Dispatch, a freight agency. U.S. Census Bureau 1965 (1870), roll M593_1197, p. 120A, image: 245 (Milan, Erie, Ohio); ibid. 1970 (1880), roll T9_1006, p. 25.2000, image 0054 (Cleveland, Cuyahoga, Ohio); Cleveland Directory 1880, 226, 438; ibid. 1881, 453; Alva Richardson to TAE, 13 Nov. 1884; George Ristine to TAE, 10 Nov. 1888; both DF (TAED D8414ZBE, D8807ACM).
4. Marion Wallace Edison Page (1829–1900) was Edison’s oldest sibling. She married Homer Page in 1849, and the two reportedly bought the home “Rose Hall” and surrounding acreage along the Huron River from the estate of a local farmer-entrepreneur in about 1861. TAEB 1 chap. 1 introduction, n. 4; website of the village of Milan, Ohio (http://milanarea.com/index.htm, accessed 14 Apr. 2010); Thorndale 1900, 721.

Newark, N.J. August 12th 1878

For the burial of his wife Mary S Edison

To Crape and Ribbon
" Iceing and use of preserver and expenses to and from Menlo park
" publishing death Newark and New York papers
" best quality drab silk plush covered Casket, draped, tuft lid.
Satin lined full length and Silk covered extension handles and plates
" polished cedar Casket Case brass mounted & plate
" Hearse and team with white drapery
" 20 Coaches
" 12 pr 2 button black Kid gloves
" notices and serving

Bill from Charles Compton

3.00
28.00
49.25
425.00
95.00
15.00
80.00
1.85
22.20
2.50

Smilax & Cut flowers. $110.00
"Receiving tomb Fairmount Cemetery. $20.00
"6 Casket Carriers $24.00
"Gloves for Carriers $3.50
"Services of Undertaker & assistance $30.00

$877.45

D, NjWOE, Vouchers (1884), no. 492 (TAED VC84492). Ruled bill head of Charles Compton, Funeral Furnishing Ware-Rooms. Monetary expressions, in which ditto marks indicated double zeroes, have been standardized for clarity. “Newark, N.J.” and “187” preprinted.

1. “To” was used in the accounting sense of denoting a debit entry or specifying an amount paid for goods or services. OED, s.v. “to” prep. 34.

2. Edison separately paid a bill of $12 to one Alex Ayres for a “woman to lay out body” and for “preserving body on ice for Mrs. T. A. Edison. Dec[eased].” Voucher no. 509 (1884).

3. Several New York newspapers published the following standard announcement between 10 and 12 August:

Edison.— Suddenly, at Menlo Park, N.J., on Saturday, August 9, 1884, Mary Stilwell, in the 29th year of her age, wife of Thomas A. Edison.

Funeral services at her late home, Menlo Park, N.J., on Tuesday, Aug. 12, at half past twelve o'clock. Relatives and friends are invited to attend.


Different death notices also appeared in the New York Tribune (11 Aug. 1884, 5); the New York Sun (10 Aug. 1884, 5); and the New York Times (10 Aug. 1884, 2).

In addition to the formal death announcement, the New York Herald also published on 10 August (p. 8) an article entitled, “Death of Mrs. Edison: The Celebrated Inventor’s Brief Courtship and Happy Married Life.” The article gave one sentence to Mary’s death, followed by several paragraphs retelling the traditional story of the Edisons’ courtship (see Doc. 2683 [headnote]). The Herald article was widely reprinted in the following days. “Inventor Edison’s Wife. Romance of Their Marriage Recalled by Her Death,” Sioux County (Iowa) Herald, 28 Aug. 1884, 7; “Death of Mrs. Edison. The Celebrated Inventor’s Brief Courtship and Happy Married Life,” Salt Lake City Daily Tribune, 24 Aug. 1884, 6; “Current Comments,” St. Paul (Minn.) Daily Globe, 14 Aug. 1884, 4; “Mrs. Edison,” Titusville (Pa.) Herald, 30 Aug. 1884, 3; “Gotham Gossip . . . Sudden Death of Mrs. Thomas A. Edison,” New Orleans Daily

4. Fairmount Cemetery was incorporated in 1855 in Newark, N.J. Its design reflected the influential landscaped garden cemetery movement that began in the mid-nineteenth century. (Veit and Nonestied 2008, 63–64). Mary’s body was later moved to its final resting place at Mount Pleasant Cemetery in Newark (see Doc. 2717 n. 4).

5. A signed receipt for two payments was appended to the bottom of the bill. The first payment was by a $500 check on 15 September. Bergmann & Co. evidently wrote the check to Compton, and Edison credited this amount back to Bergmann under an accounting entry for Compton. The second, on 30 September, was Edison’s three-month note for $377.45, payable 2 January 1885. Journal Book (6 Jan. 1881–14 Nov. 1885): 396, 398 Accts., NjWOE.

[Newark, August 13, 1884]

Anonymous Article in the Newark Morning Register

The Funeral of Edison’s Wife.

Mrs. Mary Stilwell Edison the wife of Thomas A. Edison, the electrician, was buried this morning in this city. Her remains were placed in a casket which rested in the centre of the parlor in the Menlo Park residence preparatory to removal. Around it were ranged many beautiful floral tributes, while cut flowers were strewn on the remains and on the floor underneath. Shortly after eleven o’clock Mr. Edison, who had remained in his room, was conducted to the parlor by Mr. Samuel Insull, his private secretary; the doors were closed, and he was left alone with the dead. At half-past twelve o’clock the Rev. Mr. Mason, of the Presbyterian Church, Metuchen, N.J., entered, and read the funeral service for the dead. At its conclusion those who were there passed in front of the casket to take a last look at the face of the deceased. The casket was then closed. The pallbearers, ten in number, forming on either side, with relatives to the number of forty, and the throng of friends, the procession moved up to the railroad station, where a train was in waiting to convey the funeral party to Fairmount Cemetery, in this city. There the remains were placed in the receiving vault, pending the decision of Mr. Edison as to their final resting place. There were no services at the cemetery. There were present at the funeral many of the
representative business men of New York and Newark, as well as a number of Mr. Edison’s employes. 5

PD, Newark Morning Register, 13 Aug. 1884, 1 (TAED D8414ZA2).

1. See Doc. 2716.

2. The Rev. Dr. James Gilbert Mason (1841–1938) was pastor of the Presbyterian Church in Metuchen, N.J., from 1877 to 1930. A graduate of Williams College in 1863 and the Union Theological Seminary (New York City) in 1866, Mason received his Doctor of Divinity from Maryville College, Tenn., in 1884. During his career, he was a Commissioner of the General Assembly of the Presbyterian Church six times and was active in New Jersey politics, focusing on the issue of Prohibition. Williams College 1939, 5; Dudley 1903, 105–8; Spies 2000, 105; Scannell 1917, 344–45.


4. Another newspaper reported that Mary’s body would be kept at Fairmount Cemetery “until the vault which is now being built for it is completed” (New Brunswick, N.J., Daily Times, 14 Aug. 1884, 2, reprint from Newark Advertiser). Undertaker Charles Compton billed Edison $100 on 1 October for the services involved in transferring Mary’s body and interring it at Mount Pleasant Cemetery, also in Newark (voucher no. 569 [1884]). Incorporated in 1844, Mount Pleasant Cemetery was the first in New Jersey to reflect the mid-century landscaped garden cemetery movement. Mount Pleasant had become Newark’s most fashionable cemetery by the 1870s, and it continued to be the final resting place for prominent citizens into the early twentieth century. Veit and Nonestied 2008, 85–86, 92; Newark Daily Advertiser 1872, 65–66.

5. About four hundred people attended the funeral, according to New York press stories. Among them were Edison’s brother, William Pitt Edison, and Mary’s brother, Charles Stilwell, who reportedly arrived from Hamilton, Ont., “a few hours too late to see his sister alive.” Grosvenor Lowrey and José De Navarro were among Edison’s business associates present. “Funeral of Mrs. Edison,” Newark Evening News, 13 Aug. 1884, 1; “Mrs. Edison’s Funeral,” NYT, 13 Aug. 1884, 2; “Funeral of Mrs. Thomas A. Edison,” New York World, 13 Aug. 1884, 8.

[New York, August 17, 1884]

SORROW AT MENLO PARK. 6

Last Hours of Mrs. Thomas A. Edison—a Life Full of Joyous Hope Suddenly Goes Out.

The 200 souls who make up the little hamlet of Menlo Park, N.J., are in mourning. They grieve over the untimely death of Mrs. Mary Stillwell Edison, wife of Thomas A. Edison,
the famous electrical inventor. She died suddenly on last Fri-
day. Isolated as the village is, without any especial commer-
cial importance other than raising some of the finest fruit and
vegetables, the humble farmers felt themselves as important
as the citizens of the larger cities on the Pennsylvania Rail-
road, where Menlo Park is but a side station and trains only
stop once or twice a day. The engineers of the accommodation
trains treat the hamlet with respect, and never fail to slow up
when the youth in charge of the station hangs out the blue
and white flag, which means that some farmer, or perhaps Mr.
Edison himself, has business important enough to call him to
town.

The good people keenly appreciated that in their midst
there lives a man towards whom the eyes of the whole civilized
world was directed. They are proud to talk about him, never
failing to point out to the visitor the little brown-gabled labo-
rary at the end of the long lane, skirted on both sides with
most luxurious vegetation, where Edison drew the vital force
from nature and placed a bridle on the electric current. They
were proud to discuss electricity, and prefaced their conversa-
tion with the story of the mysterious force which had always
been a mystery, a curiosity to scientists, until at the hand of
their great citizen the current yielded and became the most
docile and at the same time the most irresistible power and
incalculable aid to man. All this they said was born in the little
laboratory at the end of the land. Every tree in the park of
the “Wizard’s” homestead is held in high esteem, and the sun
shines brighter when the wizard himself walks by their cot-
tages and exchanges a friendly smile, and inquires solicitously
about their affairs. In short, Edison to them is more than a
monarch, and when it was made known that death had robbed
him of his wife, the mother of his little children—two bright
boys and a flaxen-haired girl—their grief was hardly less than
his. Few persons heard of her illness, as only the immediate
friends of the family were allowed to approach her bedside
during the last moments of her life. Many of them had never
seen the gigs of the doctors from miles around driving rapidly
through the village on Thursday and stop at the house, but all
they could glean was that Mrs. Edison was very sick and not
expected to live. The death was as mysterious as it was sud-
den, and a day after the funeral a life-long friend of the family
deepened the mystery by involuntarily remarking:
“Shi is dead, now, poor thing, but no one will ever know
what she died of.”
From this story of the past few years of the dead lady’s life was revived. To the casual observer Mrs. Edison presented a picture of health. Her face, full and rounded and of a handsome contour, was well set off by bright, sparkling blue eyes. She was not tall, although she weighed in the neighborhood of 200 pounds; but the flesh was so well distributed that if anything it added to her striking beauty. Since the birth of her last child, six years ago, Mrs. Edison seldom enjoyed a day free from pain. She suffered from obstinate neuralgia that refused all manner of treatment. The best physicians were called in, but their remedies proved useless. At last for temporary relief she tried morphine, and soon learned the great palliative powers of the seductive drug—a ready dose of which was always close to her side—and when the premonitory symptoms of an attack came on she knew the value of her white powder. Some said that she became so accustomed to the morphia that she had to be closely watched lest she should take an overdose.

The eminent neurologists whom she consulted advised her to travel, and at the request of Mr. Edison she took a trip to Florida last winter. Instead of obtaining relief she fell victim to gastritis, due to the peculiar atmosphere or perhaps the long acquaintance with morphine. She returned to Menlo Park in a more troubled condition. Her pain intensified, and at times she was almost frantic. Morphia was the only remedy, and naturally she tried to increase the quantity prescribed by the doctors. From the careless word dropped by the friend of the family it was more than intimated that an overdose of morphine swallowed in a moment of frenzy caused by pain greater than she could bear brought on her untimely death. The doctor in attendance said she died of congestion of the brain. When a reporter put the question to him he positively asserted that it was the immediate cause, but about the more remote causes he preferred to remain silent.

The scene during her last moments are truly pathetic. Mr. Edison standing close to the doctors, who checked off the last beats of the pulse as the heart flickered, waited heroically for the fatal moment, when the physician folded the motionless arms across the bosom and tremulously said:

“She is beyond all human aid.” Mr. Edison silently drew forth a cabinet and instantly a powerful current of electricity responded to his will. For two hours he kept life from fleeing, but at last he appreciated that his science, like that of the doctors, was powerless. Taking his children by the hand he led them into his study. There they remained for a long time and
when he came out his blue eyes glistened and the lids were red and swollen.  

The story of Edison’s marriage is romantic and truly describes his peculiar greatness. It was told by Mrs. Edison herself not long ago to a friend who told it yesterday. They met by chance, a rainstorm having forced Miss Stillwell and two other young ladies to seek shelter in Mr. Edison’s factory at Menlo Park, and that slight acquaintance ripened into friendship and finally, after five months and a half, resulted in their marriage, Mrs. Edison being then sixteen years old. During all this time Miss Stillwell was attending school and only left it a very short time before their marriage. Immediately after the wedding they started on their bridal trip, took the night boat for Albany and spent a couple of weeks away before returning to their home, and the silly pleasantry about Mr. Edison’s leaving his bride to wonder at his absence while he returned to his work was simply told as a joke and like many other things of a like nature has been accepted as fact by those who did not know any better. In point of fact, though, Mr. Edison is greatly absorbed in his inventions. He never for an instant forgets that his first duty is to his family and his late wife always attested to his entire devotion and constant watchfulness for their comfort. No woman ever had a more tender or devoted husband, and it seemed as if she could never say enough to prove how keenly she appreciated his goodness to her. Although Mrs. Edison was a great sufferer she performed the duties of a wife and mother, and went into society, received friends and made no complaint, and few knew her dreadful sufferings. Few, too, knew of her abundant charities and far-reaching kindnesses, but her most intimate friends, and they only knew it as almoners of her bounty. The outside world regarded Mrs. Edison simply as a beautiful woman, with little thought beyond the pleasure of living, of being handsomely dressed and admired, but there was a deep undercurrent of noble character and a mind of unusual power beneath the surface.

She was in all things her husband’s true helpmeet, his confidential friend and adviser and his intelligent co-worker, and they were in all things in true sympathy. Mrs. Edison mastered the difficult study of electrical science for the sake of being more to her husband than she could otherwise have been, and she was also ambitious of a literary success. Many a tender and pretty poem that has pleased the people came from her anonymous pen, and she had planned and begun a novel that
would have, without doubt given her the prominence she de-
sired, as I saw some of it and recognized evidences of power
and beauty, couched in language of simple, womanly grace.\textsuperscript{11}

Mrs. Edison’s influence in her short life has been gentle
and sweet and above all good, but it has been felt further than
people generally knew. She died suddenly—taken from the
bloom of her youth and beauty—and has left her husband
more desolate than any one knows but himself, her children
bereft of the tenderest of mothers and her mother deprived of
a daughter to be proud of, and her friends, and above all the
poor and sorrowing, have lost one of whose gentle ministra-
tions and womanly sympathy never failed them in their need.
For every such woman as Mrs. Edison was the world is better
and purer, and the tears of all who knew her are eloquent trib-
utes to her worth.

PD, New York World Supplement, 17 Aug. 1884, 1 (TAED D8414ZAP1).
\textsuperscript{1}Followed by dividing mark.

1. The editors believe that this unsigned article likely was written
by Olive Harper (Helen Burrell Gibson D’Apery), the author of Doc.
2683, who claimed some familiarity with Mary and her family. In mid-
September, Harper contacted Edison about a future book that she had
intended to dedicate jointly to him and Mary Edison. She sought Edi-
son’s approval to dedicate it instead “To Mrs Thomas A. Edison whose
untimely death has left a void in the hearts of all who knew her; this
book is inscribed with the sincerest affection and as an humble tribute
to her many virtues and her pure and noble womanly influence by the
author Olive Harper.” She also asked for a loan of $225 toward the
$600 needed to publish the book. Samuel Insull declined this request on
Edison’s behalf, citing the state of “business affairs.” Harper to TAE,
14 Sept. 1884, DF (TAED D8403ZGM); Insull to Harper, 16 Sept.
1884, Lbk. 18:378 (TAED LBo18378).

2. See Doc. 2712 (headnote) concerning Mary’s health and the cir-
cumstances of her death.

3. Both Mary and Thomas Edison had apparently gained weight in
recent years; he reportedly added about 40 pounds since 1880 or 1881.
Cf. Docs. 1525 illustration and 2683; “Personal,” San Francisco Evening
Bulletin, 6 Mar. 1885, 1.

4. For contemporary understandings of gastritis or inflammation of
the stomach, see Quain 1883, s.v. “Stomach, Inflammation of”; cf. Kane
1880, 246, 265.

5. Therapeutic uses of electric current, by physicians and lay per-
sons, had a long history by this time, and a wide variety of devices was
available for this purpose (see, e.g., Peña 2003, chap. 3). One contempo-
rary authority specifically recommended applying a “faradic current”
in opiate overdose cases (Quain 1883, s.v., “Opium, Poisoning of”).
Edison and a partner had manufactured an “Inductorium”—basically
a battery and induction coil—in 1874 and promoted it successfully as a
cure for rheumatism (see Doc. 435 [headnote]). However, in response
to an unrelated December 1884 inquiry from a self-described invalid, Edison commented: “don’t believe in Elec appld to curative Purposes” (TAE marginalia on B. G. Amies to TAE, 29 Dec. 1884, DF [TAED D8405V]).

6. Many years later, Mary’s daughter, Marion Edison Oser, remembered that “I found my Father, shaking with grief, weeping and sobbing so he could hardly tell me that mother had died in the night.” Oser 1956, 5.

7. See Doc. 2683 (headnote) regarding the Edisons’ courtship and wedding.

8. Thomas and Mary apparently spent their honeymoon in Boston (Doc. 218 n. 2; Mary Edison Holzer to William Simonds, 2 July 1932, EP&RI [TAED X001D8I]; Simonds 1934, 83). Josephson 1959 (99) asserts that the Edisons traveled to Niagara Falls. Olive Harper, in her 1889 article on “Edison’s Real Courtship” (see Doc. 2683 n. 8), claimed that bridesmaid Lucy Hamilton Warner accompanied the couple: “They left on the Albany boat, all three, for Niagara Falls that same evening, and remained away a week or so.” On the other hand, Simonds 1934 (83) asserts that Mary did not wish to be separated from her sister and insisted that Alice go with them. Concerning possible itineraries that the Edisons could have used, see Appleton’s Hand-book 1870.

9. Cf. Doc. 2683 n. 11.


11. The editors have uncovered no other indication of such a literary project. If indeed Mary was planning such an undertaking, it conceivably could have been with the assistance of Olive Harper, who was later a prolific ghost-writer in a variety of genres. “Offers Fame for Cash. Aged Woman Cripple Writes Melodramas While You Wait,” Washington Post, 5 Feb. 1911, E4; The Writer: A Monthly Magazine for Literary Workers, 23 (Apr. 1911): 55.

—2719—

To Samuel Flood Page

[New York,] Aug. 22nd. 1884.

Dear Sir:—

You will doubtless remember having some conversation with Mr. Insull, when he was in London, with relation to the patents I have taken out and applied for subsequent to the signing of the agreement between myself and the Edison Electric Light Co.¹

I beg to enclose you herewith further account, showing total amount expended by me of $11,215.28² I am very anxious to make some kind of an arrangement with your Company, by which they will either make some settlement with me in relation to this matter, by which the patents go to your Company, or else I will serve formal notice, in accordance with the terms of my contract with the Edison Electric Light Co., of London, so as to enable me to make other disposition of those patents, if your Company, as the successors of the Edison Elec-
tric Light Co., do not require them. I would suggest that the patents should all be turned over to your Company, and that the enclosed account should be passed to your debit with me, as against the amount that the Edison Electric Light Co., of London, advanced on the central station dynamos, which we manufactured on their order, and which we are now holding for their account. Or, in other words, that I should buy from you the central station dynamos up to the amount that I have expended in connection with taking out patents in England since the signing of the agreement between myself and the Edison Electric Light Co., of London.

Very truly yours,

Thomas A Edison

Enclosure.

TLS (carbon copy), Lbk. 18:260 (TAED LBo18260).

1. Under the sixth article of Edison’s 18 February 1882 agreement with the Edison Electric Light Co., Ltd., the British company could acquire his patented improvements in electric lighting by reimbursing his experimental expenses and patent expenses (CR [TAED CF001AAE1]). If the company failed to do so within three months of written notice from Edison, its rights to these improvements would terminate. These terms would apply to the company’s successor, the Edison & Swan United Electric Light Co., Ltd. Samuel Insull later recalled that he had suggested to Page in London that Edison would waive his right to reimbursement of experimental expenses (Insull to Flood Page, 8 Mar. 1886, Lbk. 21:364A [TAED LBo21364A]).

2. Enclosure not found.

3. See Docs. 2270 n. 4, 2374 nn. 4–5, and 2572 n. 4 regarding the order of six “C” dynamos in 1882.

4. The editors have found no immediate reply from Flood Page but see Doc. 2738. The United Co. seems not to have acted on the matter until prompted by Insull in March 1886. At that time, they offered to compensate Edison for expenses on the fifteen patents they considered valuable by consigning to him one of the “C” dynamos; they were prepared to allow nineteen other patents to lapse. Edison declined this proposal. Insull to Flood Page, 8 Mar. 1886; Lbk. 21:364A (TAED LBo21364A); Flood Page to TAE, 31 Mar. 1886; TAE to Flood Page, 16 May 1886; both DF (TAED D8630Z, D8630ZAP).

[New York,] Aug 23rd, 1884

Dear Sir:—

I have your favor of August 20th., and have much pleasure in accepting the appointment as a member of the “National Conference of Electricians.” Very truly yours,

TL (carbon copy), NjWOE, Lbk. 18:266 (TAED LBo18266).
1. Barker had sent Edison a preprinted request to join the Conference, signing it as corresponding secretary of the U.S. Electrical Commission (Barker to TAE, 20 Aug. 1884, DF [TAED D8404O]). The Conference met from 8 to 13 September and largely concerned itself with standards of electrical measurement. Edison does not appear to have been in Philadelphia during that period. His name did not appear in the final list of approximately one hundred (mostly American) conferees, a list that included current or former associates Charles Clarke, John Howell, Frank Sprague, and Francis Upton (Report of the Electrical Conference 1886, 3–9, 36; TAE to Charles Young, 29 Aug. and 1 Sept. 1884; Samuel Insull to H. Alabaster, 16 Sept. 1884; Lbk. 18:299, 307, 379 [TAED LB018299, LB018307, LB018379]; Gibson 1984 [chap. 5] discusses the organization and activities of the Electrical Conference).

To Samuel Insull

[New York, c. August 23, 1884]1

Insull,

Pryor says that if I will get out on the 1st sept he will take off one months rent. please see Pryor & get this in writing quickly as I will then make arrangements to have Everything out by that time & save the $400.2 perhaps he would give you till Sept 2nd as [?]3 reducing payment in proportion

Edison

ALS, NjWOE, DF (TAED D8403ZFW). Canceled.

1. The editors have not found a letter to James Pryor based on Edison’s instructions to Insull. A letter was evidently sent to Pryor, however, and it crossed in the mail with one that Pryor posted from Mount Desert, Maine, on 23 August, asking if Edison would vacate the 25 Gramercy Park house on 15 September. Edison had that inquiry in hand by 28 August. Pryor to Insull, 23 Aug. 1884, DF (TAED D8403ZFW); TAE to Pryor, 28 Aug. 1884, Lbk. 18:285 (TAED LB018285).

2. In response to Pryor’s inquiry about leaving the Gramercy Park house on 15 September (see note 1), Insull stated that Edison would do so on that date or earlier, if Pryor would reduce the rent accordingly. Pryor declined to accept an earlier termination date, pointing to an understanding he said Mary Edison had with his sister, Caroline Pryor, that such an arrangement would have to be made before the first of August. Edison ultimately accepted the 15 September date. Pryor to Insull, 29 Aug. 1884, DF (TAED D8403ZGD); TAE to Pryor, 28 Aug. 1884; Insull to Pryor, 2 Sept. 1884; Lbk. 18:285, 19:268 (TAED LB018285, LB019268).

Meanwhile, on 26 August, while still making plans with Pryor, Edison signed a lease for the 1 September rental of the third floor (east side) of a house at 39 E. 18th St., a few blocks from his present residence. The rent was $1,300 for one year, payable in monthly increments of $108.33. Edison and his children presumably moved to the new apartment on or about 15 September. In October, he contacted Pryor about a velocipede and several other items he believed had been left behind at Gramercy Park.
July–September 1884

–2722–

To Rupert Schmid

[New York,] Aug. 23rd. 1884.

Dear Sir:—

I have your favor of August 20th.²

I do not desire a bust of Mrs. Edison made at the moment, but will communicate with you later as to the matter.³ Yours truly,

Thos. A. Edison G[ilmore]


1. A portrait sculptor from Munich, Rupert Schmid (1864–1932) began his American career in New York in March or April; he later relocated to California. Soon after arriving in New York, Schmid drew on his friendship with August Riedinger, a Bavarian industrialist with ties to the Edison interests in Germany, to request an appointment to show Edison some of his work. He evidently had in mind the upcoming International Exposition at Philadelphia, as he lamented the absence of an Edison bust from the 1882 international exhibition in Munich. Stover 1982, 35; “Fine Arts,” New York Herald, 1 June 1884, 8; Ludwig von Eisinger to TAE, 5 Apr. 1884, DF (TAED D8403ZBC); see also note 3.

2. Schmid asked if Edison would like to order a bronze or marble portrait bust of Mary Stilwell Edison as a family remembrance. During the springtime, Mary had visited Schmid’s atelier for a “five minutes portrait” in plaster. The artist had asked her to sit again as recently as 25 July in order to proceed with a clay model. Schmid to TAE, 20 Aug. 1884; Schmid to Mary Edison, 20 May and 25 July 1884; all DF (TAED D8414ZAU, D8414J, D8414O).

3. Although Edison apparently did not take up Schmid’s offer in October of two versions of Mary’s portrait bust, his business with the sculptor was not finished. Edison himself had also had more than one sitting before the end of June, when Schmid reportedly was working on a quarter-length bust of the inventor at “the moment when he made the discovery of the electric light.” Schmid ultimately seems to have produced at least two versions of a less idealized likeness, from which Edison was asked in July to select one to be produced in plaster for display at the Philadelphia Exposition. Edison did accept the offer of a bronze for himself, but he asked to postpone its delivery while his family was away in early August and no one would be home to accept it (”Fine Arts,” New York Herald, 1 June 1884, 8; Schmid to TAE, 20 June, 11, 25, and 30 July 1884, all DF [TAED D8403ZEA, D8403ZEP, D8403ZFA, D8403ZFE]; TAE to Schmid, 1 Aug. 1884, Lbk. 18:208 [TAED LBo18208]; see also Doc. 2741). In addition to the Edison bust, Schmid’s display in Philadelphia included two casts of “Edison’s hands in bronze, holding incandescent lamps,” allegorical figures representing.
electricity, and several lighting fixtures (Schmid to TAE, 25 Aug. 1884, DF [TAED D8403ZFZ]; Franklin Institute 1884, 57).


Bordendown, N.J., Aug 25th 1884

From William Bowen

Dear Sir

Your letter of the 24th is at hand. We shall be pleased to see Miss Stillwell and sister Sept 1st.

If Miss Stillwell is in the Preparatory Department, her expenses will be as follows. viz

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board &amp;c Tuition</td>
<td>$60.00</td>
</tr>
<tr>
<td>Church</td>
<td>1.00</td>
</tr>
<tr>
<td>Books about</td>
<td>8.00</td>
</tr>
</tbody>
</table>

$69.00

These will be used throughout the year. A few Copy books & Blanks besides also needed after first quarter

Should she be in the Collegiate Dept. exp. would be

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board &amp;c</td>
<td>70.00</td>
</tr>
<tr>
<td>Church, 1.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Books, about 6.00</td>
<td>18.00</td>
</tr>
</tbody>
</table>

$95.00

Should she take Music add $18.00
to the other expenses—or Art, add $10.00

And you will have about the first quarters expense.

Should a language be taken I have not included in cost of books for it in the above items for books.

Should Music or Art be taken there will be some additional expense for Sheet Music & Art Materials.

This will be charged in the next quarter’s bill.

I have thus answered as nearly as possible your question.

Yours very truly

W. C. Bowen.

--2723--

1. Edison’s 24 August letter has not been found, but he sent it after receiving a reply to a recent inquiry to the Bordentown Female College (also not found). Edison and his wife had considered sending their daughter Marion and one of Mary Edison’s sisters (likely Jennie.
Stilwell) to the school in 1882. Marion and Jennie attended school in New York that year (see Doc. 2344), but the Bordentown Female College again raised the question of enrolling Marion, at least, in 1883. In September 1884, Edison paid “Miss Stilwell’s tuition and board” at Bordentown (sending the school a $100 check drawn on Bergmann & Co.) but kept Marion in New York City (see Doc. 2732). Bowen to TAE, 19 Aug. 1884, 20 Sept. 1882, and 10 Aug. 1883; Mary Edison to Samuel Insull, 19 Sept. 1882; all DF (TAED D8414ZAT, D8214V, D8314L, D8214U); TAE to Bowen, 29 Sept. 1884, Lbk. 18:427 (TAED LB018427).

2. The school sent Edison an itemized term bill for $107.86 on 19 November, which was paid on 3 January 1885. Voucher no. 20 (1885).

3. The Rev. William C. Bowen (1832–1891), a Wesleyan University graduate and son of a noted Methodist minister in New York, purchased the Bordentown Female College and became its president in 1875. Established in 1851, the school overlooked the Delaware River from a high bluff near Trenton. Under Bowen’s direction, it emphasized music and art instruction but did not offer Greek. Bowen acquired the nearby New Jersey Collegiate Institute in 1881 and began to operate it as a military school for boys. Obituary, NYT, 6 June 1891, 5; “Among the Schools,” Christian Advocate 57 (22 June 1882): 2; Murray 1972, 70.
make further sacrifices, and to weaken itself by giving up the slight advantages still remaining to the Company.¹

Mr. Eaton was requested to notify Mr Bailey of the above resolutions, and at the same time to intimate to him that for a proper consideration in cash, the Board might be willing to make some concessions in regard to matters in Germany, although not such considerable concessions as are now asked for.²

1. Robert Livingston Cutting, Jr. (1836–1894) was an incorporator of the Edison Electric Light Co. of Europe, Ltd., the Edison Electric Light Co., and several other Edison firms operating in the United States and abroad (certificates of incorporation for Edison Electric Light Co. of Europe, Ltd., 2 Jan. 1880; Edison Electric Light Co., 16 Oct. 1878; Edison Telephone Co. of Europe, Ltd., 2 May 1879; all DF [TAED D8024A, D7820ZAM, D7940R1]; Edison Ore Milling Co., Ltd., 9 Dec. 1879, CR [TAED CG001AAD]; Edison Electric Illuminating Co. [New York], 16 Dec. 1880, NNNC-Ar [TAED X119JA]; see also Doc. 2055). Part of a socially prominent family of New Yorkers, Cutting bore the same name as his son (1868–1910) and his father (1812–1887), with whom the editors confused him in Doc. 1728 n. 1 (“Obituaries,” New York State Bar Assoc. 1911, 491; Obituary, New York Tribune, 26 Feb. 1887). He earned degrees from Columbia College and Harvard Law School prior to joining Robert L. Cutting and Co., the banking and brokerage house in which his father was the senior partner, and he presently led its successor firm, R. L. Cutting, Jr. and Co., at 19 William St. Cutting had been a member of the New York Stock Exchange since 1864 (Harvard Law School 1905, 72; “R. L. Cutting’s Sudden Death,” NYT, 14 Jan. 1894, 7.

2. Sherburne Eaton prepared a seven-page typewritten summary of eight modifications proposed by the Deutsche Edison Gesellschaft (DEG) to its contract with the Edison European Co., as well as seven ancillary points of negotiation among the Compagnie Continentale Edison and Siemens & Halske, co-parties in the original contract (see Docs. 2379 n. 2 and 2392 n. 5). Points under discussion for DEG included the addition of Russia, Denmark, and Austria to its market territory, the removal of restrictions against its sale and licensing of non-Edison dynamos, and permission to manufacture its own dynamos. It also sought to calculate lamp royalties on a fixed rather than a percentage basis. Joshua Bailey, acting as a liaison among the parties, advised that the Compagnie Continentale Edison seemed likely to consent but that Siemens & Halske was more resistant to the proposed changes, particularly with regard to dynamo rights. Siemens & Halske complained that it already suffered heavy losses because DEG procured dynamos and materials from other suppliers. To satisfy Siemens & Halske, Bailey proposed that it participate in the lamp factory, receive a royalty on all dynamos manufactured by DEG, and also get exclusive rights as DEG’s supplier.
of central station dynamos. Bailey reported that DEG was firmly opposed to granting the Continentale Co.’s desire for a share of its profits. Eaton to directors of Edison Electric Light Co. of Europe, Ltd., 15 Aug. 1884, DF (TAED D8428ZAD).

3. These resolutions were consistent with the view expressed by Eaton in his memorandum (see note 2) that

We are continually called upon to make concessions and are giving away first one thing and then another, so that in the end, judging from what has already occurred, it seems to me that we will have given away everything and will have little or nothing left. Has not the time come to hesitate before we make any further concessions? The status of our business in Europe cannot be much worse, and it may improve, consequently, it seems to me, we might take the risk of refusing to make further concessions so far as they involve a lessening of possible profits.

4. Bailey submitted a modification of the proposed terms in early October, the details of which are not known. The matter was placed on the agenda for a regular quarterly meeting of directors on 1 November and again at special directors’ meetings on 26 November 1884 and 5 and 22 January 1885. At the last conference, the board voted to accept the proposed concessions with several alterations. Austria and Hungary would be excluded from the amended DEG contract, and 50,000 German marks would be paid by DEG to the Compagnie Continentale Edison as a nonrefundable premium, with half that amount to be paid immediately to the Edison Electric Light Co. of Europe, Ltd., for the satisfaction of its bondholders. Edison Electric Light Co. of Europe, Ltd., to TAE, 5 and 22 Nov., 31 Dec. 1884; Edison Electric Light Co., Ltd. minutes, 22 Jan. 1885 (pp. 6–8); all DF (TAED D8416BUO, D8416BUR, D8428ZAO, D8527H).

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[New York, September 1, 1884]¹

This agreement, made the first day of September, 1884, by and between the Edison Electric Light Company, herein called the Light Co. of the first part; and the Edison Company for Isolated Lighting, herein called the Isolated Co. of the second part, each being a corporation created under the laws of the State of New York, and having its principal office in the City of New York,

WITNESSETH: Whereas the Light Co. has heretofore made a certain agreement with the Isolated Company, dated the 26th of April, 1882;² whereby certain rights and privileges are granted to the Isolated Company, relating to the business of exploiting the Edison system of electric light, heat and power, as more fully appears from the said agreement itself, reference to which is hereby made; and
Whereas the Light Co. now proposes to grant to the Isolated Co. still further rights and privileges touching the said business, and, more especially, to assign and turn over to the Isolated Co. during the continuance of this agreement, the Light Co.’s present business of exploiting the said Edison system of electric light, heat and power in all the territory belonging to the Light Co. in both the United States and Canada, as more fully appears in this instrument.

Now, therefore, in consideration of the premises and of the mutual promises herein made, it is hereby agreed and declared by and between the parties hereto as follows, that is to say:

First.— The Light Co. agrees to appoint and hereby does appoint the Isolated Co. its agent, as herein set forth, to exploit its business of electric light, heat and power, both central station and isolated, in all the Light Co.’s territory in the United States and Canada, for the period covered by, and subject to the terms and provisions of this agreement; and the Isolated Co. will and hereby does accept the said agency.

Second.— The Light Co. will and hereby does license the Isolated Co. during the continuance of this agreement and no longer, and for all the territory in the United States and Canada not heretofore, or hereafter, transferred by the Light Co. to other licensees, to sell and install Edison plants for isolated lighting, and for central station lighting, together with all the appurtenances thereto belonging; also to promote the organization of local companies in cities, villages and towns, to introduce into practical use the said Edison system of electric light, heat and power, subject, however, to the provisions of this agreement, and to the approval of the Light Co. as herein provided for.

It is agreed that the license herein given to the Isolated Co., as well as that covered by the said license agreement of April 26th, 1882, is unassignable, and is granted to it as a privilege personal to itself, and is not to be assigned or transferred by it in any way, and that both this license agreement and that of April 26th, 1882, severally, may be forthwith and peremptorily terminated by the Light Co. in the following cases, viz: (1.) Upon the Isolated Co. ever making or attempting to make any assignment of either of said agreements, or of any of the rights or privileges thereby conceded to it, save and except as expressly provided for in the said two agreements, severally; or (2) upon any such assignment resulting by operation of law.
Third.— The prices for all isolated plants shall be fixed by the Isolated Co., in its discretion. But the Light Co. reserves the right, touching the territory covered by this agreement, to determine from time to time, and in its discretion, the prices and terms for supplying central station plants, and the terms, conditions and restrictions for organizing local companies, as aforesaid, including capitalization, territorial area of license, size and type of installation, and all other details therewith connected; and all licenses for such local companies shall always emanate from the Light Co., and be granted by it directly to each local company, without passing through the Isolated Co. While it is the intention of this contract that, in said territory no local company shall be formed, and no central station plant be contracted for or installed, unless with prior written approval of the Light Co., still it is assumed that the Light Co. will exercise its authority in good faith, and will not refuse to grant its approval except for good and substantial reasons. It is further agreed that the Isolated Co. is not compelled to organize local companies and supply central station plants, as aforesaid, if the conditions thus imposed by the Light Co., in its discretion, are not satisfactory to the Isolated Co.

Fourth.— During the continuance of this agreement, the Isolated Co. will, at its own expense, maintain a competent and adequate electrical and engineering staff, will, in good faith, make arrangements for securing sufficient material, and will otherwise in every way make adequate provision for promptly and successfully carrying on the business herein provided for. The Isolated Co. will also at its own expense employ competent executive officers, agents, and salesmen, and enough electrical assistance to keep full and complete records and books of account, and, under the general direction of the Light Co., will attend to all correspondence and otherwise promptly and well dispose of all business that may arise under the provisions and requirements of this contract.

A list of certain existing agency contracts between the Light Co. and its agents, is hereto annexed, marked Exhibit “A,” and the Isolated Co. hereby assumes, during the continuance of this agreement, the various obligations imposed upon the Light Co. by the said contracts, including all compensation to agents therein provided for, and as further consideration therefor, it is agreed that the provisions of the twelfth section herein, giving the Isolated Co. one-quarter of certain percentages accruing to the Light Co., shall apply to all local companies formed by said agents and licensed by the Light Co.
during the continuance of this agreement. The Light Co. will not alter any of the said agency contracts while this agreement lasts, without the Isolated Co.’s consent.

Such canvasses, surveys, determinations and estimates for the central station plants, as the Isolated Co. may voluntarily make from time to time, shall be at its own expense, but the Isolated Co. shall also make them for the Light Co., whenever requested in writing by the Light Co. to do so, and in all such cases a reasonable percentage of profit shall be added to the actual cost of making them, to be paid by the Light Co., as compensation to the Isolated Co.

Fifth.— The Isolated Co. will keep full records and other data of every kind growing out of the transactions provided for in this agreement, and will accord to the Light Co., at all reasonable times, full opportunity to examine the same and to otherwise familiarize itself therewith, including free access to all books of account, records and correspondence, with full and free right to examine the same and make extracts therefrom, relating to the subject—matter of this agreement; and the Isolated Co. will at all times, both during the continuance of this agreement and thereafter, supply to the Light Co. any part or all of such specifications, data, drawings, estimates and electrical determinations, as it may demand, but at the expense of the Light Co.

Seventh.— The Isolated Company shall make written monthly reports to the Light Co., while this agreement continues, setting forth, in such detail, form and manner as the Light Co. may from time to time direct, all transactions and contracts, under this agreement.

The territorial area intended to be covered by this agreement is the whole of the United States of America and the Dominion of Canada, save and except such parts of the United States as are already covered by certain agreements heretofore made by the Light Co., a full list of which is hereto annexed marked Exhibit “B,” copies of which the Light Co. hereby agrees to furnish to the Isolated Co. on demand.

Eighth.— It is agreed that nothing herein contained shall alter, disturb or in any way affect, except as herein expressly provided for, the said certain agreement heretofore made between the Light Co. and the Isolated Co., dated April 26th, 1882, but that, except as specifically provided for in this instrument, the said agreement shall remain in full force and effect, notwithstanding the existence of this contract, just as if this agreement had never been made.
Ninth. — Whereas circumstances not now foreseen may arise, which may make it desirable not only for the Isolated Co. to sell and install Edison plants for central station lighting, but also for the licensee companies of the Light Co., or either of them, to make such installations: it is, accordingly, agreed that the license herein given to the Isolated Co., to sell and install Edison plants for central station lighting, together with all the appurtenances thereto belonging, is not an exclusive one, but that the Light Co. reserves to itself the right to authorize its licensee companies to make them; and it is further agreed that in all such cases, the Isolated Co. will, at the written request of the Light Co., and upon being paid the cost thereof together with a reasonable profit thereon, supply any and all drawings, determinations, plans, materials and other things, that may be required.

Tenth. — No license or agreement to license by the Light Co., herein contained, shall be construed, to refer to, or to embrace by implication or otherwise any license or agreement to license under any letters patent except such as the Light Co. may own during the continuance of this agreement and license. No grants, or licenses, or privileges shall be implied from the licenses and privileges expressly granted in and by this agreement to the Isolated Co., but the rights and privileges of the Isolated Co., hereunder, shall be restricted to those expressly mentioned in this agreement.

Eleventh. — Whereas the Light Co. now owns fifty-one hundredths of the capital stock of the Isolated Co., and, under its said contract with the Isolated Co., dated April 26th, 1882, is entitled to receive, without additional compensation, a like proportion of all future increases of said capital, which provision of the said agreement, it is agreed this contract does not in any way alter or disturb; and, whereas, the Light Co. consents, during the continuance of this agreement, and as further and special compensation to the Isolated Co., to make certain concessions touching dividends on its said stock, in favor of the other stockholders, to wit, the holders of the remaining forty-nine one-hundredths (which stock, for convenience of designation, is herein called cash stock, as distinguished from the Light Co.'s holdings, herein called Light Co.'s stock): it is agreed as follows, that is to say:

1. All net earnings of the Isolated Co., applicable to dividends, shall, during the continuance of this agreement, be applied, first, to paying a dividend of, or dividends aggregating not more than eight per centum per annum on the said cash
stock; second, to paying a like dividend, or like dividends, on the Light Co.’s stock, aggregating not more than eight per centum per annum; and, third, after the said dividends aggregating eight per centum per annum on both classes of stock shall have been paid, any surplus shall be distributed among all the stockholders according to holdings, including both the cash stock and the Light Co.’s stock.

2. As to the said dividends, each year shall stand by itself, and no deficiency in any one year, whether as to dividends on the cash stock or on the Light Co.’s stock, shall be carried over to another year (except as provided for in the twelfth section herein.)

3. Touching the existing profits and losses of the business of the Isolated Co., as they stand at the execution of this agreement, it is agreed that no separate estimate and allowance of them shall be made, but that, whatever they may be, they shall, as regards all questions of dividends herein provided for, be considered as forming a part of the general current business covered by this agreement, just as if they were the outcome of transactions made during the continuance of this agreement. But upon the termination of this agreement, the question what net profits, if any, there then are applicable to the said dividends provided for herein, that is to say the question whether there are any profits, and if so, how much, to be apportioned between the Light Co.’s stock and the cash stock in the manner provided for in paragraph number one of this section, shall be determined by arbitration, as follows, to wit: an arbitrator shall be appointed by the holders of the cash stock, at a meeting of such shareholders, to be specially called for that purpose by the Isolated Co., on not less than six days’ written or printed notice stating the object of the meeting, and mailed to every stockholder except the Light Co., whose name and address may then appear on the books of the Isolated Co.; a second arbitrator shall be appointed by the Light Co., and if these two cannot agree, they shall select a third, and the decision of said two arbitrators, or if a third be called in, the decision of a majority, touching the whole subject matter, covered by said question, including not only the amount of dividend to be declared from said net profits, if any, but also when to be declared and paid, shall be final and binding upon both the Light Co. and all the holders of the said cash stock. If the said arbitrators are not able at once and without delay to properly determine the value of assets or other data entering into the subject-matter covered by the said question, referred to
above, and may, for that or other good reason, desire to delay the making of their report, it is agreed that they may take such length of time, within which to make and render their decision as to them, or a majority of them, may seem best. At the said meeting of the cash stockholders to select their arbitrator, as aforesaid, they may vote either in person or by proxy, and a majority of the shares of stock thus voted on shall decide.

4. During the continuance of this agreement, the Light Co. shall not sell, or otherwise transfer its said holding of fifty-one one-hundredth of the stock of the Isolated Co. or any part thereof without the written consent of the Isolated Co.

Twelfth.— In order to stimulate the Isolated Co. to seek and push the business of exploiting central station companies, and more especially to encourage it to do so in localities where ultimate success may seem doubtful, the Light Co. hereby agrees that whenever, during the continuance of this contract, any licensee company shall be formed pursuant to this contract, and a percentage of its original capital, whether in stock or cash, or both, be paid to the Light Co. for a license, one quarter of the percentage of such original capitalization thus paid to the Light Co., shall be immediately paid by the Light Co. to the Isolated Co.; and if in any case the said original capitalization of any such company be increased during the continuance of this contract, the same proportion of the percentage of such increase accruing to the Light Co. shall also be paid to the Isolated Co.; but the Light Co. shall not make any such payment of said one-quarter, where the capital is increased and the Light Co.'s percentage is paid to it after the termination of this contract. The said one-quarter share of stock in any licensee company thus received by the Isolated Co. for its own benefit, shall remain in its treasury till sold, and when sold the proceeds shall be applied as follows, to wit: first, to equalizing all back dividends between the cash stock and the Light Co.'s stock, which are provided for in the eleventh section herein; and second, any balance remaining after all such back dividends shall have been equalized between the said two companies, shall be carried to the general profit and loss account of the Isolated Co.

Thirteenth.— Regarding the Isolated Co.'s privilege to manufacture any and all patented devices of the Light Co., except lamps, required for its business, provided for in said contract between the Light Co. and the Isolated Co., dated April 26th, 1882, and more especially in the fourth section of the said contract, it is agreed, in consideration of the ad-
vantages accruing to the Isolated Co. under and pursuant to the provisions of certain contracts heretofore made between the Light Co. and certain manufacturing establishments and the stockholders herein, a complete list of which is hereto annexed marked Exhibit “C” (copies thereof having heretofore been furnished the Isolated Co.) that said contracts, each and all of them, are hereby approved and accepted by the Isolated Co. as binding upon it while the said several contracts continue to exist, touching all questions relating to the Isolated Co.’s privilege of manufacture mentioned above, and that the Isolated Co. will not manufacture any of the devices covered by said contracts, severally, while the several contracts covering such several devices last, but whenever any of said contracts terminate, the Isolated Co. shall then be free to manufacture, pursuant to the provisions of its said contract dated April 26th, 1882, and not otherwise, the particular devices covered by said contract. But the Light Co. hereby agrees to use its best endeavors always to enforce the provisions of the said contracts, and more especially to do so at any and all times, whether this agreement shall then be in force or not, upon the written request of the Isolated Co., and if any controversy ever arises between the Light Co. and the Isolated Co. as to whether said provisions are enforced, or ought to be, or can be, it shall be left to arbitration in the same manner as provided for in the eleventh section hereof.

It is further agreed that during the continuance of this agreement the Light Co. will not terminate or alter the said agreements mentioned in Exhibit C, or any of them, without the written consent of the Isolated Co.

Fourteenth.— Whereas radical and important changes in conducting the business of the Light Co. and Isolated Co. are imposed by this contract, wherein all possible contingencies may not now be foreseen, but which, although contrary to the present expectation, it may be of interest to either or both of said companies to terminate at an early day, thereby making it proper that this agreement, at least in the first instance, should be made for only a very limited period, terminable at the option of either party at the expiration of that time; therefore, it is agreed, either party may terminate this agreement after one year from the date thereof, but not before, upon giving at least six months’ prior written notice to the other party.

In Witness Whereof the parties hereto have severally caused these presents to be executed by their officers thereto expressly authorized, and their respective corporate seals to
be affixed and attested, at the City of New York, the day and year first above written.


1. This agreement had been proposed as part of the reorganization plan for the Edison lighting companies, which was presented in the June report of the Committee of Three to the Directors of the Edison Electric Light Company (Doc. 2690). One of a complex set of contracts executed the same day, it formally transferred to the Isolated Co. many of the functional duties and responsibilities that Edison had exercised through the Thomas A. Edison Construction Department under his informal understanding with the Edison Electric Light Co. (see Doc. 2437 [headnote]). It also contained important provisions related to the manufacturing shops; the related agreements between the shops and the Edison Electric Light Co. are attached as Exhibit C to this agreement (see article 13 and note 6). Grosvenor Lowrey seems to have played a major role in negotiating these agreements, and he later expressed deep reservations about Edison’s understanding of the conditions under which they were approved (Lowrey to TAE, 19 Aug. 1884, DF [TAED D8427ZBO]; see Doc. 2748). All of the parties to these agreements, including the shareholders of the shops (see note 6), convened at 10 a.m. in Sherburne Eaton’s office to execute them (Eaton to Samuel Insull, 29 Aug. 1884, DF [TAED D8427ZBQ]).

2. Under this contract, the Edison Co. for Isolated Lighting had rights to install plants in the United States, except within “the municipal limits of any town, city, village, or other territorial municipality wherein illuminating gas was or had, prior to” 1 January 1882, “been supplied for purposes of lighting to more than ten customers.” It also entitled the Isolated Co. to install isolated plants within gas limits until notified that the Edison Electric Light Co. had granted a license to another party. Edison Electric Light Co. agreement with Edison Co. for Isolated Lighting, 26 Apr. 1882, Defendant’s Depositions and Exhibits, 4:2363–70, Edison Electric Light Co. v. U.S. Electric Lighting Co., Lit. (TAED QD012E2363).

3. Exhibit A identified agreements with the following individuals or companies, giving the party’s name, date of contract, and territory allocated. The list is summarized here, in the order given, by the contracts’ effective date: Western Edison Light Co. (Illinois, Wisconsin, and Iowa); George S. Ladd (California and Nevada); E. A. Mexia (Mexico); Phillips Shaw (Pennsylvania except Philadelphia, Harrisburg, Reading, Erie, and Pittsburgh); Spencer Borden (New England east of the Connecticut River); Charles T. Hughes (nine southeastern New York counties outside Long Island and the New York City environs); Henry A. Clark (Maryland, District of Columbia, Philadelphia, Erie, and Harrisburg, Pa.); Ohio Edison Electric Installation Co. (Ohio); T. P. Wilson (Minnesota); Charles Benton (specified counties encompassing much of eastern New York except the New York City vicinity, Long Island, and Albany); John Hoskin (Philadelphia); John R. Markle (Michigan); William Hix (“general contract”); Thomas Edison (“Republic of Chili’’);
Abraham Kissell ("general contract" for Indiana, Missouri, Texas, and Tennessee); William Tyler (Oregon and Washington Territory); A. Pizzini (Richmond, Va.); Zachry & Thornton (Atlanta, Ga.); Charles Hughes and Wilson Howell (New Brunswick, N.J.). See Doc. 2437 (headnote) regarding the role of agents in connection with the central station business in 1883–1884.

4. Exhibit B listed the licensee contracts held by the Edison Electric Light Co. and transferred to the Isolated Co. This list included all of the Edison illuminating companies established by July 1884 (see App. 2), including the Edison Electric Illuminating Co. of New York. A parenthetical note indicates that the Edison Illuminating Co. of Mount Carmel had been licensed by the Isolated Co. rather than Edison Electric because it was a non-gas town. Also included in the list were the Appleton Edison Light Co., Ltd., Western Edison Light Co. of Chicago, Ohio Edison Electric Installation Co., George S. Ladd of San Francisco, the Des Moines Edison Light Co., and the Roselle, N.J., plant (which belonged jointly to the Edison Electric Light Co. and the Isolated Co.). The list included the contract dates (except for Roselle) and the capital of each licensee (except Ladd and the Roselle and Mount Carmel contracts). The date of license also appeared for some companies, but in each case this date was identical with the contract date. The list also was attached as Exhibit C to the 1 September 1884 agreements between the manufacturing firms and the Edison Electric Light Co. (see note 6).

5. This clause limited the privileges specified in article four of the 26 April 1882 agreement, which had allowed the Isolated Co. to license patents not owned by the Edison Electric Light Co. The restriction presumably was a concession to the shareholders of the Edison Machine Works, Electric Tube Co., and Bergmann & Co. in connection with the 1 September agreements between the shops and the Edison Electric Light Co. (see note 6) and the manufacturing arrangements detailed in article thirteen below.

6. Exhibit C listed two related sets of agreements between Edison Electric and three of the manufacturing companies: the Edison Machine Works, Electric Tube Co., and Bergmann & Co. (the Edison Lamp Co. was covered by an 1881 agreement [see Doc. 2039 n. 1]). Edison Electric Light Co. agreements with Edison Machine Works, both 1 Sept. 1884; Edison Electric Light Co. agreements with Bergmann & Co., both 1 Sept. 1884; Edison Electric Light Co. agreements with Electric Tube Co., both 1 Sept. 1884 (one revised 19 Feb. 1885 as noted below); all Miller (TAED HM840229, HM840229B, HM840230, HM840230B, HM850242, HM850242A1).

The first set of agreements was with the shareholders of each manufacturing firm. The shareholders bound themselves, when disposing of stock, to offer it first to the Edison Electric Light Co. on the same terms given to other parties. (A shareholder list was attached as Exhibit A to each contract.) Shareholders who made inventions related to the Edison lighting system also had to give the Edison Electric Light Co. the first option on the rights. The shareholders and their shares were Edison Machine Works: Edison (1,599), Charles Batchelor (400), John Kruesi (1); Bergmann & Co.: Edison (898), Edward Johnson (998), Sigmund Bergmann (998), Batchelor (100), Philip H. Klein, Jr. (6); Electric Tube Co.: Edison (89), Batchelor (10), Samuel Insull (1), Kruesi (50), J. Pier-

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pont Morgan (50), James Hood Wright (49), Anthony J. Thomas (1). The agreement with shareholders of the Electric Tube Co. was modified on 19 February 1885 by adding a provision (Exhibit E) governing manufacturing royalties on patents assigned by the Electric Tube Co. to the Edison Electric Light Co. Miller (TAED HM850242).

The second set of agreements, made with each manufacturing firm for a period of two years, was intended “to secure increased advantages and protection in connection with the manufacture of certain articles applicable to the Edison system of electric light, heat and power.” (A copy was nested as Exhibit B in the corresponding shareholder contract.) The Edison Electric Light Co. gave exclusive and nontransferable manufacturing licenses to the three firms, with the relevant product line of each enumerated in Exhibit D and attached to the corporate contracts. The manufacturers agreed not to sell goods related to the Edison system to any parties in North or South America that were not licensed by Edison Electric, and to mark “For Export” all goods destined abroad. The firms also had to assign to the Edison Electric Light Co. any invention or manufacturing process related to the Edison system, but the parent company was prohibited from using such patents for “telegraphy, telephony, or other purposes not connected” with the Edison system. The manufacturers were limited to “an average semi-annual profit of twenty per centum on the cost of the manufactured” articles. An invention made by any of them, whether patented or not, that reduced production costs would entitle the firm to an additional royalty equal to one-fifth of the cost savings. In addition, any “distinctly new class or type of manufactured article” would entitle a shop to an additional ten percent. All experimental costs would be borne by the manufacturers, with some provisions for treating them as a special charge upon profits; the same terms applied to acquiring outside patents and licenses. The shops reserved the right to manufacture for other customers items not related to the Edison light and power system. The corporate agreements included two exhibits of their own: a list of monthly salaries (Exhibit A) and the licensee list described in note 4 above (Exhibit C).

Dear Sir:

Referring to your favor of the 2nd. August, I have tried the electric Aurophone, which you so kindly sent me, but it does not seem to answer my particular case. I could not hear any better with it than without it.

Is there any explanation that you can offer, or if you can suggest any experiments for me to try in connection with it, I shall be happy to do so.

Very truly yours,

Thos. A Edison

[New York,] Sept. 4th. 1884.

To Leo Ehrlich
1. Leo Ehrlich (b. 1847?), a native of Hungary, was a former life insurance agent in St. Louis, where he also had been associated with the Humane Society. He later identified himself in the federal census as an inventor, and he received several U.S. patents during his life, among them grants for paper cutters and a safety razor. “Aetna Life Insurance Co. vs. Ehrlich,” *Insurance Law Journal* 13 (May 1884): 383–97; U.S. Pats. 338,047; 405,402; and 409,028; U.S. Census Bureau 1970 (1880) roll T9_734, p. 372.200, image 0274 (St. Louis, Mo.); ibid. 1882 (1900), roll T623_900, p. 4A (St. Louis Ward 25, Mo.).

2. Ehrlich, who claimed to have met Edison several years earlier in New York, explained that his own hearing loss had prompted him to experiment with hearing aid devices. He sent for Edison’s trial his “Electric Aurophone,” which he claimed had largely restored his own hearing. The instrument consisted of a $\frac{3}{4}$-inch tube with a “cone shaped vibrating spiral inside.” The spiral was connected with a small battery so as to provide an electric current to the outer ear. On 28 August, Edison replied to an inquiry (not found) from Dr. Theodore Parker, of Hart’s Island Hospital in New York. Edison promised that he would investigate Ehrlich’s device and report to the doctor, but the editors have found no further correspondence with Parker. Ehrlich to TAE, 2 Aug. 1884, DF (TAED D8401A); TAE to Parker, 28 Aug. 1884, Lbk. 18:282 (TAED LB018282).

3. Ehrlich’s instrument also occasioned an Edison interview in a New York newspaper (reprinted in Chicago). Headlined “Edison Prefers Being Deaf,” the report quoted Edison saying that he did not wish to be “cured” of impaired hearing: “I am not very deaf. There are lots of things I don’t want to hear. Now I don’t have to hear ’em.” Among a litany of sounds he preferred to avoid, Edison named those made by carts and vendors: “My poor wife used to be kept awake all night when we moved to New York. The contrast with the quiet of Menlo Park was very great. She never got accustomed to the rumble of wheels. But, as for me, I could sleep soundly through it all.” Edison reportedly also expressed gratitude for an excuse not to use the telephone, but he conceded that his deafness was a liability at the theater, where “All plays are spectacles to me. But the advantages are so great that I can stand the disadvantages” (“Edison Prefers Being Deaf,” *Chicago Daily Tribune*, 30 Aug. 1884, 10). During 1878, Edison had worked on an acoustic hearing device he named the auriphone; in the rush of publicity around his invention of the phonograph, he received numerous inquiries about the device and announced plans to market it commercially (see Docs. 1228, 1298 esp. nn. 1–2, 1326 esp. nn. 2–3, 1361, and 1464).

To Samuel Insull

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Electrical Ex Philada Pa Sept. 5\[1\] 188[4]\[4\] 12:34
Want photographs machine works lamp factory bergmann Kruzi also all the stations\[2\] hurry them forward tell Batch hurry compound machine & arc lights\[3\]

Edison.
D (telegram), NjWOE, DF ([TAED D8.4.o4R]). Message form of Western Union Telegraph Co. “188” preprinted.

1. The numeral is unclear but other evidence places Edison and his daughter Marion in Philadelphia on September 4–5. Continental Hotel bill for “Board 2 days,” 6 September. Voucher no. 495 (1884); “At the Electrical Exhibition,” Philadelphia Inquirer, 5 Sept. 1884, 2.

2. Edison paid the studio of photographer D. N. Carvalho $13.00 for 14” × 17” photos of the Edison Machine Works and Edison Lamp Co. and 11” × 14” prints of Bergmann & Co.’s building, plus the negatives, all of which were made in fulfillment of a 23 September order from John Randolph (voucher no. 546 [1884]). The photographs of these factories, plus the Electric Tube Co.’s new Brooklyn shop, may have been the basis for drawings used to illustrate an 1885 catalog of the Edison Co. for Isolated Lighting (1 Oct. 1885, PPC [TAED C:A0o2E]). Some of the photos may have been displayed at the 1904 World’s Fair in St. Louis (Edisonia 1904, 20–22). Photos of the Edison Machine Works, Bergmann & Co., and the Edison Lamp Works, and a drawing of the Electric Tube Co. were variously reproduced in Edisonia 1904 (162) and Jehl 1937–41 (766, 807, 843, 957); see also Doc. 2343 (headnote). Photographs of the village plant central stations from this period are in the Historical Photograph Collection at NjWOE. Images of the Roselle, N.J., Sunbury, Pa., and Brockton, Mass., plants were reproduced in Jehl 1937–41 (1093, 1097, 1117), and of Sunbury in Edisonia 1904 (140).

3. The exhibition’s official catalog did not identify a compound-wound dynamo among the models in the various Edison displays, nor did it list an Edison arc light. Edison had applied for a patent on a regulator mechanism for arc lights in June 1884. Franklin Institute 1884, 25–26, 61; U.S. Pat. 438,303.

Dear Sir:—

Your favor of August 8th.¹ has remained unanswered owing to the fact that certain negotiations were pending between the Edison Electric Light Co. and myself, with relation to the stations built by me, and which resulted in Mr. Johnson being appointed a Committee to visit same and report on them.

As, however, it seems probable that there may be some considerable delay in any conclusions being reached with relation to Mr. Johnson’s report, and as I am very anxious to adjust the differences with your Company as early as possible, I shall be glad to know what you would consider a fair allowance for the error in connection with the erection of your stack.²

You requested a proposition of me, and I made it, which does not appear to have been satisfactory to your Directors. Cannot you make some counter proposition in return? What I wish to arrive at is an early settlement of the matter and to

[New York,] Sept. 8th. 1884.

To William Dwelly, Jr.
obtain from you a check for the balance of account still due me. Very truly yours,

Thos. A Edison  I[nsull]


1. Not found.
2. According to the enclosure to Doc. 2708, the Fall River illuminating company owed Edison about $9,200 at the end of July. The dispute about the smokestack arose from Dwelly’s contention that the one Edison had installed at Fall River was inadequate for the station’s present needs, as well as from Edison’s admitted failure to have provided a stack that would accommodate the plant’s future expansion to 400 h.p. Edison sent a blower to increase the stack’s effectiveness and offered a rebate of $600 in July to remedy his original error. In November, the local Fall River illuminating company counter-offered with a request for a $1,200 allowance, to which Edison agreed. Insull subsequently presented an adjusted outstanding balance of $1,087, but the company claimed additional charges against Edison and seems to have paid only about $288 by the end of the year. Babcock & Wilcox to Edison Electric Illuminating Co. of Fall River, 7 May 1884; Insull to Dwelly, 3 June 1884; both DF (TAED D8423Q, D8416BSK); Insull to Dwelly, 18 July 1884, LM 20:35 (TAED LBCD7035); Insull to Dwelly, 19 and 28 Nov. 1884; TAE to Dwelly, 26 Dec. 1884; Lbk. 19:394, 420, 464 (TAED LBo19394, LBo19420, LBo19464).

[New York,] Sept. 9th. 1884.

Dear Mr. Bailey:—

I have your favor of September 1st., and shall be glad to hear from you at length with relation to the new system of covering wire.²

Please send on a sample of the work, and I shall then be prepared to talk “Turkey” with you.

Batchelor has just returned from a stay of several years in Paris.

Griffen³ has not been with me for the last three or four years, and I have no idea where he is just now. Very truly yours,

Thos A Edison  I[nsull]


1. Charles E. Bailey (b. 1845) served as treasurer of the Edison Speaking Phonograph Co., in New York, from June 1878 until the end of that year. A native of Rhode Island, Bailey moved to Providence about the beginning of 1879 and entered the cotton trade there. He became one of the original incorporators and the founding president of the American Solid Leather Button Co. of Providence in 1881. U. S. Census Bureau
2. In a 1 September letter, Bailey apprised Edison of “a new system for covering unlimited lengths of insulated wire with lead or other metal; each wire of cable being kept apart from the others, all absolutely without seams or soldering.” He offered that, if Edison were interested in the new process, he would send a cable sample “and be prepared to ‘talk turkey.’” Edison wrote a marginal note on that letter instructing Charles Batchelor to reply that “we are ready to talk turkey.” After receiving Edison’s reply, Bailey subsequently offered to arrange a meeting with the inventor. Such a meeting, if it occurred, was delayed as a consequence of Bailey having addressed his letters to Menlo Park and of both Edison and the inventor traveling to the Philadelphia Exposition. The matter was still pending at the end of September; the editors have not determined its outcome. Bailey to TAE, 1, 10, 16, and 30 Sept. 1884, all DF (TAED D8403ZGH, D8403ZGJ, D8403ZGO, D8403ZHB).

3. In his 1 September letter (see note 2), Bailey sent his regards to Stockton L. Griffin and Charles Batchelor. A telegraph operator, Griffin (b. 1841) had served the Union Army in that capacity and had worked with Edison in Louisville. He was in charge of Western Union’s eastern wires at the firm’s New York offices when Edison hired him as a personal secretary in June 1878. He left Edison’s employ in February 1881, after which the editors have little information about his activities. In 1900, Griffin was working as a clerk in a Los Angeles telegraph office. U.S. Census Bureau 1982? (1900) roll T623-89, p. 13B (Los Angeles Ward 3, Los Angeles, Calif.); Plum 1882, 253; Docs. 169 n. 1, 1322 n. 1; TAEB 6 chap. 9 introduction.

—2730—

From William Curtis Taylor

[Philadelphia, c. September 9, 1884]

My Dear Mr. Edison:

Hearing that darkie at the gate every night repeat his set speech to the people entering,2 about the direction to take where to leave their watches,3 etc., makes me think of your phonograph. I was going to suggest to Mr. Hammer last night, if I had seen him, to have the same fellow impress his speech in a phonograph and then grind it out, for the remainder of the exhibition. It would make a great deal of fun, and the instrument would afterwards make a valuable relic for the Franklin Institute.4 Very truly Ys

W Curtis Taylor5

I think Mr. Gilliland’s6 negative will be a success. None are finished yet W.C.T.

ALS, NjWOE, DF (TAED D8464V1).
1. The International Electrical Exhibition opened in Philadelphia on 2 September. Taylor likely sent this letter between 5 September, when he reintroduced himself in a letter to Edison, and 11 September, when Edison arrived in Philadelphia.

2. In an illustrated article on the Edison exhibits at the International Exposition, *Scientific American* described the scene to which Taylor referred in a single long paragraph that read, in its entirety:

One of the electrical comicalities of the Exhibition was the illuminated colored gentlemen who politely distributed cards to astonished visitors. The Edison Company conceived the idea of so locating one of their lamps that it could be seen by all, and to do this most effectually they placed it upon a helmet surmounting the head of the colored party. Two wires led from the lamp under his jacket, down each leg, and terminated in copper disks fastened to his boot heels. Squares of copper of a suitable size for him to stand naturally upon were placed at intervals in the floor, and were electrically connected with the dynamo. So with each heel in contact with a plate he was enabled to make and break the circuit leading to his lamp, the movement required being so slight as not to attract attention, and his hands being free to handle the cards. Many nervous per-
sons were startled by the sudden flashing of the light, and so great were the crowds that continually surrounded this individual that he was frequently obliged to change his quarters in order to keep the passages open. As a further improvement it was the intention to place copper strips under a carpet and provide the heels with sharp points, so that each step would be illuminated. This simple exhibition led many folks from the rural districts to inquire as to the cost of such an appliance, as it was just the thing they wanted “to carry around the house.” [“The Edison Exhibit at the Philadelphia Electrical Exhibition, Sci. Am. 51 (18 Oct. 1884): 246]

3. Another published report observed that because of the large number of operating dynamos on display, “At many places placards are hung, reading: ‘The dynamos will magnetize your watches. Keep away!’” The management has provided a safe at the office where watches can be kept, though a piece of silk (not half cotton) well wrapped around the watch answers the same purpose. There are about two hundred dynamos exhibited, the largest in Edison’s department.” “News and Miscellany,” Medical and Surgical Reporter 51 (4 Oct. 1884): 388.

4. The phonograph had continued to generate a trickle of written inquiries and suggestions, including several about the time of exhibition. One such letter that Edison received in October asked about connecting a phonograph with a typewriter to transcribe speech. Edison commented on it: “I’m getting old & the problem is too tough for me.” A formal reply, prepared by Alfred Tate, left out the part about being too old. TAE marginalia on H. C. Faulkner to TAE, 23 Oct. 1884, DF (TAED D8469D); TAE to Faulkner, 30 Oct. 1884, Lbk. 19:327 (TAED LB019327).

5. William Curtis Taylor (1825–1905), a prominent portrait and art photographer in Philadelphia, had corresponded with Edison in 1878 about astronomical photography and the tasimeter. Having secured from the Franklin Institute a commission for “making Photographs by Electric Light” at the International Exposition, Taylor set up an electrically lighted atelier visited by thousands of visitors, and he invited Edison to sit for a portrait. After Edison left the city, Taylor obtained William Hammer’s approval to hang the resulting print in one of the Edison exhibits. Obituary, Philadelphia Inquirer, 18 Feb. 1905, 7; U.S. Census Bureau 1970 (1880), roll T9_1125, p. 143.1000, image 0387 (Ridley, Delaware, Pa.); ibid. 1882? (1900), roll T623_1406, p. 1A (Ridley Park, Delaware, Pa.); Franklin Institute 1884, 60; Report of Examiners 1886, Section 26, p. 5; Taylor to TAE, 2, 5, and 7 Sept. 1878; 5 Sept. 1884; undated [Sept. 1884?]; all DF (TAED D7835M, D7835N, D7835O, D8464S, D8403ZKE).

6. Electrical manufacturer and inventor Ezra Torrance Gilliland (1848–1903) was a former telegraph associate and business partner with Edison, most recently in promoting the phonograph in 1878. Gilliland had recently been a telephone office manager in Indianapolis, but at this time he superintended the mechanical department of the American Bell Telephone Co. in Boston. See Docs. 543 n. 8, 622, 1334, and 2751; Obituary, New York Athletic Club Journal 12 (June 1903): 27; U.S. Census Bureau 1970 (1880), roll T9_295, p. 296.2000, image 0294 (Indianapolis, Marion, Ind.).
Dear Sir

Mr. Bentley called on Me the other day and said the small Dynamo running the call bells on Telephone was out of order, also their gess engine was broke down, so they employed a boy to turn the crank and run two small Magnetos.

I immediately went to their work shop, and took one of their men, and had him make the necessary repairs.

Would you please hurry up the Phonograph as that seems to be the most attracting feature to the public.

Also hurry along the rest of the exhibit that we may place them and get the place straightened.

Yours truly

J. F. Ott

(OK— E H Johnson will be there tonight & phono go Saturday I think — E)

ALS, NjWOE, DF (TAED D8464W).

1. Henry Bentley of the Philadelphia Local Telegraph Co.
2. That is, a gas engine.
3. The official exhibition catalog listed among Edison’s exhibits both a “Speaking Phonograph” and a “Phonograph in combination with Telephone.” Some time shortly before the Exposition, Edison reportedly told the New York World that he was close to completing a “double-grooved” phonograph that would record and reproduce two voices simultaneously. The instrument was powered by electricity so that, Edison claimed, it would turn at a uniform speed. The editors have no other information about this device. Franklin Institute 1884, 26; “Edison’s New Phonograph,” Grand Forks (N. Dak.) Daily Herald, 13 Dec. 1884, 2.

Dear Madam:—

I must apologize for not replying earlier to yours of Sunday evening, but inasmuch as I spend most of my time down here now, the letter was delayed, owing to its having been sent to 65 Fifth Avenue.

Dottie is going back to Madam Meares' school as soon as Mr. Edison and his family settle in the City.

He has taken a flat at 39 East 18th. Street, and I expect they will be all settled there some time next week. Dottie is in Philadelphia just now with her father, attending the Electrical Exhibition there.

I have written Madam Meares to-day. Very truly yours,

Sam’l Insull

TLS (carbon copy), NjWOE, Lbk. 18:383 (TAED LBo18383).
1. Harriet Clarke gave half-hour music lessons to Marion Edison from at least late 1883. Edison’s voucher system recorded payments to her for music instruction and also specifically for piano lessons. Clarke was a singer herself, and her pupils’ vocal recitals were occasionally noticed in the New York Times. The editors have not identified her connection with the Madam C. Mears School. Voucher nos. 226 (1883); 52, 272, 640 (1884); 65 (1885); “Amusements: Mrs. Clarke’s Concert,” NYT, 29 Apr. 1884, 4; “Mrs. Clarke’s Concert,” ibid., 18 May 1887, 8; “Notes of the Stage,” ibid., 3 Feb. 1888, 5.

2. See note 4 below.

3. Insull probably meant an undated note from Clarke that referred to her unsuccessful attempt to see him on Saturday, which would have been 13 September. Clarke asked if Marion would be returning to the Mears school, where she stated Marion had been happy and which was Mary Edison’s choice for her daughter. Clarke to Insull, n.d. [14 Sept. 1884?], DF (TAED D8414ZBJ).

4. Insull may have been working at Menlo Park and returned to New York when Edison went to Philadelphia on the sixteenth; Edison telegraphed him at the Fifth Ave. office on this day. It is also possible that he had merely been conducting business at the Edison Machine Works on Goerck St., whose letterhead he used several times for general correspondence in late August. Insull to John Tomlinson, 20 Aug. 1884; Insull to TAE, both 22 Aug. 1884; TAE to Insull, 17 Sept. 1884; all DF (TAED D8465ZA16, D8431ZAL, D8431ZAM, D8465ZA12).

5. In December 1884, Edison paid $130.18 for Marion’s tuition at the Mears school from October 1884 to February 1885. The fees covered “instruction in English, French and German,” as well as meals, paper, and piano use. Marion remained at the school through at least June 1885. Vouchers nos. 554 (1884) and 49 (1885).

6. See Doc. 2721 n. 2.

7. Edison left early on 16 September. He probably returned on 19 September, later paying the Continental Hotel in downtown Philadelphia $31.00 for “Board & Bath 3 days’ Lunch.” Samuel Insull to H. Alabaster, 16 Sept. 1884; Lbk. 18:379 (TAED LB018379); Voucher no. 533 (1884) for Continental Hotel.

8. Insull wrote less definitively to Mme. Mears, explaining that he had the “impression that it is his [Edison’s] intention to send Miss Edison to your school” after they settled in New York, “some time towards the end of the month.” Insull to A. C. Mears, 17 Sept. 1884, Lbk. 18:381 (TAED LB018381).

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Francis Upton to Samuel Insull

Dear Sir:

I take pleasure in calling to your attention the present financial standing of this Co.

There has been paid in cash into the treasury of this Co. by the various individual stockholders.

East Newark, N.J., Sept. 22, 1884

July–September 1884 660
Dear Sir:

I have your favor of the 15th inst., which I should have acknowledged earlier but for my absence from New York.\(^1\)

I shall be glad to see you when you are in New York, with relation to the Brockton Co’s. account. I may mention, however,


1. Upton probably meant the total “paid back” in the sense of the company’s capital indebtedness (as opposed to capital “paid in”), rather than obligations already paid off. His loans to the business were still outstanding in October, but with only about $12,600 due him at this time. The interest owed by the firm had increased since April from $24,919.19. Edison Lamp Co. to TAE, 1 June, 1 Aug., 1 Sept., 1 Oct. 1884; Philip Dyer to Upton, 10 Apr. 1884; all DF (TAED D8429ZAN1, D8429ZAS, D8429ZAW, D8429ZBB, D8429ZBY); cf. Doc. 2536.

2. In calendar year 1883, the factory had reduced its running loss since inception by almost $38,000 (see Doc. 2590 n. 2); retrospective statements from 1884 and 1885 appear to give conflicting information about gross sales in 1883. In 1884, the firm recorded a profit of $25,138.93 on gross sales of $161,863. Its assets were also increased by the purchase from the Edison Electric Light Co., probably during 1884, of the small Canadian lamp factory at Hamilton, Ont. Edison Lamp Co. statements, 2 Jan. 1884 and 2 Jan. 1885; Edison Lamp Co. agreement with Edison Electric Light Co., undated 1885; all DF (TAED D8429D, D8529A, D8528ZAB).

3. Evidently anticipating a 5 percent dividend for 1884 to be paid in March 1885, Charles Batchelor created an entry in an account book but did not enter an amount into his totals. The first dividend payment (1.5 percent) seems to have come in October 1885, followed by 2.0 percent payments in January and April 1886. Cat. 1318:30–31, Batchelor (MBA001 [image 13]); TAE cash book (1 Jan. 1881–30 Mar. 1886): 362, Accts., NjWOE.
that inasmuch as I have closed out the Construction business at a considerable loss, every cent that is owed me is so much of my working capital locked up, and inasmuch as I am not a big capitalist I cannot afford to have this go along for any considerable length of time, and I shall be glad if you will think over some means of effecting a settlement with me, if not all, certainly of the greater part of the account.

I have written to Mr. Johnson with relation to the H machines. Very truly yours,

Thos. A. Edison

TL. (carbon copy), NJWOE, Lbk. 18:396 (TAED LBo18396). Signed for Edison by Samuel Insull.

1. Garrison’s letter has not been found, but this is probably the letter that Insull summarized for Edward Johnson on 23 September. Insull ascribed to Garrison this paragraph: “In your letter of August 5th. you state that the new ‘H’ machines are now being built. When Mr. Johnson was at Brockton he seemed to question the need of changing the ‘S’ dynamos. I should like to know his recommendation regarding them.” Insull to Johnson, 23 Sept. 1884, Lbk. 18:395 (TAED LBo18395).

The question of an H dynamo for the Brockton station had come up as early as April. Garrison’s wish for that machine may have stemmed from problems of insufficient power in the Brockton system, about which he and Edison had corresponded in the spring and summer. Edison initially suggested augmenting the plant’s boiler capacity with a blower, then later promised that he was “perfectly prepared to stand by my contract with you, and will hold myself responsible if your engines and dynamos will not carry exactly the load which the contract provides for” (TAE to Garrison, 3 and 17 Apr., 7 June 1884, all DF [TAED D8416BCE, D8416BII, D8416BTF]). He conceded that the plant could not operate at its full capacity because of an error in the original determination for the feeder lines. He discussed various remedies and, in early August, confirmed that the Machine Works was building H dynamos for Brockton. The underlying causes of the problem seem to have remained obscure, and, in late August, Edison dispatched John Lieb to investigate (TAE to Garrison, 11 June 1884, DF [TAED D8416BUJ]; TAE to Garrison, 24 July, 5 and 23 Aug. 1884; Lbk. 18:157, 224B, 264 [TAED LBo18157, LBo18224B, LBo18264]).

2. The balance due on the Brockton station remained outstanding into October, when Edison again reminded Garrison about it. Before the end of that month, Edison acknowledged receipt of two notes from Garrison totaling about $3,032 to settle the debt, except for $319 withheld for unspecified repairs that Edison planned to recover from the Electric Tube Co. In February 1885, however, Garrison threatened to disavow the notes because Johnson, contrary to earlier promises Garrison believed he had made, held the Brockton company liable for the new H dynamos. Garrison protested that Edison should bear the expense, as “The contract for construction was made with you personally & legally I presume we must look to you for redress.” Frank Hastings, treasurer.
of the Edison Co. for Isolated Lighting, became involved in the matter and secured Edison’s promise to pay for the new machines and the labor of installing them. The issue was not fully resolved until May 1885, when Edison sent a check covering these costs, and Garrison acknowledged settlement of the Brockton company’s claims. TAE to Garrison, 20 Oct. 1884, Lbk. 19:300 (TAED LBo19300); Garrison to TAE, 3 Feb. and 18 May (with TAE marginalia) 1885; Hastings to TAE, 10 Feb. 1885; both DF (TAED D8523I, D8523ZAX, D8523L).

—2735–

Samuel Insull to
Francis Upton

[New York,] Sept. 23rd. 1884

Dear Sir:—

Mr. Edison requested me to write to the London Co. and ask them whether they would be inclined to buy Swan lamps from you with a guaranteed life greater than those they now manufacture themselves and with our style of sockets on, or else the same style as they now put on Swan lamps.

Mr. Edison told me to quote a price of forty cents in lots of 2000 or more.

Inasmuch at you are now in direct communication with the Edison & Swan United Electric Light Co. of London, I think it would be far better if this letter was written by you. I do not think that Mr. Edison anticipated that they would accept this proposition, but I think he wanted to fish for the present cost of the manufacture of the Swan lamp to the Edison & Swan Co.¹ Yours truly,

Saml Insull

TLS (carbon copy), NjWOE, Lbk. 18:411 (TAED LBo18411).

¹. The editors have found no further correspondence on this subject.

—2736–

To Frank Hastings

[New York,] 30th Sept [188]4

Dear Sir,

I must again draw your attention to the accounts of the Construction Department against your Company¹ for Canvassing & Engineering Expenses.²

I would remind you that these accounts are for cash out of pocket expended by me and do not include any profit whatever as you well know from my examination of my Books. The nonpayment by your Company of these accounts very seriously embarrasses me & I must urge you to make an immediate settlement of same³ Yours truly

Thos. A Edison

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Dear Sir,

With relation to the Central station Plant installed at Sunbury and the alterations now contemplated and your request that I should state what I am willing to contribute towards the expense of same I think it well to lay before you the exact facts relating to my transactions with the Sunbury Co.

In May 1883 Mr P B. Shaw brought me a Contract signed by the Edison Electric Illuminating Co of Sunbury which called for the installation by me of a 500 Light Plant (ten candle lamps). No definite price was stated in the contract nor was any estimate made by me. It was simply stipulated that I should not charge the Sunbury Co any more than any other customer. Mr. Shaw assured me that the Sunbury Co had ample funds to pay for the Plant. The total cost of the Plant without any profit whatever was $13,335.69. To this I was of course entitled to add a reasonable profit but instead of doing so I rendered a bill for $12,000.68 $11,968 being $1367.69 less than the actual cost of the labor and material. I did this because the Sunbury Plant was the first installed and because I was very anxious to give the business of your Company a fair start in Pennsylvania.

Instead of getting my account settled immediately the Contract called for payment I was unable to get from the Sunbury Company any payment beyond $5,500 notwithstanding that, at the time I took the Contract, Mr Shaw informed me that the Company was quite able to pay for the Plant. Finding that the Company had not got the funds to satisfy my claim I agreed to

[New York,] 30th Sept [188]4

To Edward Johnson
take the balance due me in the Capital Stock of the Company.\(^4\)

I was entitled to $6,500 of Stock besides a small amount of the Promoters Stock. The Company delivered me $4,100 of Stock and promised delivery of the balance as soon as the Capital Stock could be increased from $16,000 to $20,000. The Stock was increased and I applied for the balance but was put off with the excuse that the Directors were trying to sell the Stock so as to pay me (about $2,400) in cash. I have never been able to get this balance either in Cash or Stock.

I will not comment upon the treatment of myself by the Sunbury Company after the liberal manner in which I acted towards them when installing their Plant but will leave you to draw your own conclusions.

With reference to your inquiry as to what amount I will allow (in consideration of the bad state of the present Central Station) towards building another Station in a more central location I would state that providing the Sunbury Co are prepared to pay me in cash for the balance of my account I will make an allowance of an amount equal to what it would cost to put the present building in a thorough State of repair.\(^5\) Yours truly

Thos. A Edison  I[nsull]

L (letterpress copy), NjWOE, Lbk. 18:444 (TAED LBo18444). Written by Samuel Insull.

1. This letter was addressed to Johnson as vice president of Edison Electric Light Co.
2. Not found.
3. Agreement not found.
4. See Doc. 2498 n. 3.
5. See Doc. 2709. Edison reportedly agreed with Frank McCormick in October to allow $750 toward construction of a new station. As part of a settlement with the company, he was to receive an additional $400 of “promoters stock,” then held by the Edison Electric Light Co. Before these provisions could be carried out, however, most of the company’s Williamsport investors (including McCormick), not wishing to advance more money, agreed to sell out to Charles Story (of the Edison illuminating company in Harrisburg, Pa.), and a new group of Sunbury investors at fifty cents on the dollar. Edison reluctantly agreed to participate at this price. He reached a full settlement with the Sunbury company, on unknown terms, and signed a release to that effect in September 1885. Story to TAE, 6 Apr. 1885; McCormick to TAE, 13 Apr. and 20 June 1885; all DF (TAED D8523ZAD, D8523ZAK, D8523ZBF); TAE to Story, 9 Apr. 1885, Lbk. 20:232A (TAED LBo20232A); TAE agreement with Edison Illuminating Co. of Sunbury, 22 Sept. 1885, Miller (TAED HM850268).

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