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DAZZLING THE MULTITUDE
 Imagining the Electric Light
 as a Communications Medium

Carolyn Marvin

Marshall McLuhan, a popular media prophet of the 1960s, believed that the history of Western culture should be rewritten so as to cast successive new technologies of communication in the role of the great levers that moved it. Not the message of communication, McLuhan argued, but the medium—the structural characteristics of the techniques and machines of information storage, retrieval, and transmission—had a semiotic eloquence that overshadowed the particular details of the content. The medium, McLuhan declared, “shapes and controls the scale and form of human association and action.”¹ McLuhan’s account of cultural evolution in the West has found little favor among historians, but his appreciation of the relationship between technology and culture and his colorful efforts to spotlight that relationship helped focus the problem for others.² That relationship is now a staple concern of scholarship in the history of technology.

McLuhan’s definition of an information medium was very broad. He was fond of insisting that even the electric light is an information medium. That this example was intended to shock McLuhan’s readers is a measure of the historical distance we have traveled, for this claim would not have seemed nearly as strange in the popular or the scientific culture of late-nineteenth-century Europe and the United States (albeit in a somewhat different sense than McLuhan intended). This chapter is an attempt to reconstruct that forgotten dimension of the social history of electricity by tracing some early contributions of the electric light to the complex transformation of communication that began with the telegraph, proceeded through the electronic mass media, and continues at the present moment in computing technology.

In the late nineteenth century, some prophets of the future imagined great banks of electric lights spelling out letters and pictures to astonish passersby, or mammoth searchlights projecting stenciled messages

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and images on the clouds for the pleasure and information of all in the surrounding countryside. What was imagined was also occasionally attempted.

The communicative utility of the electric light did manifest itself in some areas; traffic lights, movie marquees, and neon signs still testify to this. However, the principal legacy of the electric light to modern mass communications was something different, something not foreseen: The electric light (particularly the incandescent light) helped transform public spectacles from traditional outdoor community gatherings lit by candles, bonfires, or oil lamps into the glittering indoor mass-media spectacles familiar to us.

Throughout the United States and Western Europe the public introduction of the electric light excited interest and curiosity. In 1886 the editors of the *Electrical Review* recalled the first appearance of electric lighting in New York shop windows as follows:

It was looked upon as a mere experiment, the continuation of which would soon prove more trouble than it was worth, and the neighboring stores took no stock in it. Soon, however, it was discovered that it was attracting the attention of customers and the general public to such an extent that its users were compelled to enlarge the stock. Owing to the brilliancy of the light pedestrians could walk by stores of the same character lighted by gas without even seeing them, so attractive was the brilliant illumination further along. They clustered and fluttered about it as moths do about an oil lamp. That settled it. The neighboring stores must have it, and the inquiry and demand for the light spread apace until now, when, as soon as the electric light appears in one part of a locality in an American city it spreads from store to store and from street to street.³

The scientists, engineers, and entrepreneurs upon whose comments and predictions this study is mainly based framed their expectations of electricity in terms of the only technological revolution familiar to them: that brought about by steam power. Many thought the impact of electricity would exceed even that great leap, completing its promise and salvaging its disappointments. Abundant, easily distributed, versatile electricity would reverse the centralization of production in factories, lead to the rise of clean cottage industries, unify the home and the workplace, and lower the divorce rate. By decentralizing the population, it would make the cities green with parks and gardens. Some nineteenth-century observers believed that the concentration of labor around steam-powered urban factories had made the visible differences between the working life of the city and the leisure life of the country starker than ever. They looked to electrical manufacturing and transportation to create a homogeneous landscape that would heal the

breach between classes which steam had exacerbated. They also expected electricity to democratize luxury and eliminate conflict based on competition for scarce resources by producing goods cheaply and abundantly. Not all predictions were so optimistic, but a great many were concerned with these possibilities.

As a purveyor of message content, the electric light was not much of a novelty; it simply extended the earlier uses of signal lights to transmit warnings and news. However, the illumination of public places by electric filament lamps seemed much more dramatic, more colorful, more elaborate, and more versatile than the village bonfire (which predated the Middle Ages), the floating-wick oil lamp of the eighteenth-century garden fête, or the carbon arc lamp. Like its traditional predecessors, electric lighting conveyed the message that the occasion of its use was exciting and vivid. Unlike their traditional predecessors, electrically lighted events were often commercially sponsored and organized.

The most striking electric-light spectacles were the great industrial exhibitions of the late nineteenth century. The Chicago World's Fair and Columbian Exposition of 1893 was one of the most splendid and one of the most self-consciously electric. By the time of this fair the promise of electricity occupied a place near the center of popular enthusiasm, as expressed in the popular and trade press. The fair had an advanced telephone and telegraph system for internal and external communication; electrically powered boats, rail cars, and moving sidewalks; great electric motors that operated machinery; exhibits of the latest electrical inventions, and 90,000 electric lights mounted on buildings, walkways, and illuminated displays.⁴ One of the most popular attractions was the 82-foot-tall Edison Tower of Light, a pedestal covered with multicolored incandescent bulbs.⁵ Another was the evening show at the Court of Honor, where jets of water from electrically powered fountains and flashing electric lights combined in fanciful patterns. In the lights of the Court of Honor one observer saw "great flowers, sheaves of wheat, fences of gold, showers of rubies, pearls and amethysts." Another sensed a nearly evangelical power in the nighttime illumination of the fair:

Under the cornices of the great buildings, and around the water's edge, ran the spark that in an instant circled the Court with beads of fire. The gleaming lights outlined the porticoes and roofs in constellations, studded the lofty domes with fiery, falling drops, pinned the darkened sky to the fairy white city, and fastened the city's base to the black lagoon with nails of gold. And now, like great white suns in this firmament of yellow stars, the search lights pierced the gloom with polished lances, and made silver

paths as bright and straight as Jacob's ladder, sloping to the stars or shooting the beams in level lines across the darkness, effulgent milky ways were formed or again, turned upward to the zenith, the white stream flowed toward heaven until it seemed the holy light from the rapt gaze of a saint or Faith's white, pointing finger.⁶

The spectacular effect of electric light in public spaces was a subject of interested discussion long before such lighting became a staple of fairs and expositions. In 1884 *Electrical World* claimed that only the electric light was "considered worthy or suitable to illuminate conspicuous and beautiful public buildings," and that electric lighting was the only form of decoration being considered for the Statue of Liberty. *Electrical World* reported several plans to light the statue, including one to project vertical beams of light upward from the torch to stand as "a pillar of fire by night." A second plan was to place lights "like jewels around the diadem," and a third was to place them at the foot of the loggia to illuminate the entire statue, so that "the illumined face of Liberty [would] shine out upon the dark waste of waters and the incoming Atlantic voyagers." An imaginative journalist had proposed that the statue should hold aloft the world's largest electric light "to illumine the lower bay and even to make Coney Island, which with its myriads of lights glistens on a summer's night like a huge diamond, pale and insignificant, and like the evening star when the moon is in full form."

In a world where electric lights are prosaically utilitarian and unremarkably plentiful, such descriptions may be understood as a reaction to something novel in the experience of enthusiastic observers: the introduction on a new scale of the grand illusion, the effect that also most clearly defines success in modern mass media. Accustomed as we are to electric lights and to more elaborate illusions, it is difficult for us to imagine the original impact of the electric-light spectacle. By reilluminating nature, the electric light offered some observers a way of rediscovering it. It offered others a novel means to manufacture and sell what they described as the improved experience of nature.

New York Harbor was the setting for a number of electric-light shows in the 1880s. From the shore of Staten Island, Manhattan at night was said to look like a "fairylane" during one such show, with "a thousand electric lights dancing from out a sea of inky gloom, with here and there a cross, and there a crown, near which fireflies of huge dimensions start here and there with phosphor fires aglow, the streets ashimmer with silver, with calcined towers lumined against the unfathomable gloom beyond."⁸ On Staten Island in 1886 a colored fountain inspired applause from opening-night spectators as it was put

through its paces: "At one moment it was crystal, the next roseate, then successively green, blue, purple, gold, and from time to time the tints would blend, harmonize, and contrast with new charms at every change. . . . Far out in the bay it could be seen, looking like a gigantic opal, illuminated by its internal fires."⁹ After a visit to the United States, William Preece, soon to be Chief Engineer of the British Post Office, and an attentive observer of American ingenuity, described for lecture audiences the commercial potential in the splendid spectacle of Brooklyn Bridge lit by 82 arc lamps: "It is so beautiful, in a scenic sense, that one of the enterprising ferry companies contemplates having nightly excursions during the summer season, which it is intended to advertise as the 'Theater of New York Harbor by Electric Light; price of admission, 10 cents.'"¹⁰

Outdoors the electric lamp was safer, cheaper, and more versatile than carbon arc lighting. Indoors it eliminated the disagreeable fumes of low-candlepower gas lighting and the intense glare and uncertain safety of arc lighting. Gradually, some outdoor events began to move indoors to the smaller settings for which incandescent lights were ideally suited. Fancy lights were laid on for sumptuous balls, receptions, and banquets, and entertainers appropriated the electric light as a performance prop.

In 1884 the Electric Girl Lighting Company offered to supply "illuminated girls" for indoor occasions. Young women hired to perform the duties of hostesses and serving girls while decked out in filament lamps were advertised to prospective customers as "girls of fifty-candle power each in quantities to suit householders."¹¹ The women were fed and clothed by the company, and customers were "permitted to select at the company's warehouse whatever style of girl may please their fancy." In Kansas City, employees of the Missouri and Kansas Telephone Company organized a public entertainment in 1885 in Merchants' Exchange Hall which was graced by "an electric girl, placed on exhibition" along with a model switchboard and telephone exchange.¹² "Electric girls" embodied both the personal servant of a passing age, a potent symbol of social status, and the electric light as ornamental object, a dazzling and opulent display of social status in a new age. In time, impersonal electricity would help banish most personal servants, and would make electric lighting essential and functional for all classes instead of a badge of conspicuous consumption for one. Indeed, electric girls were already transitional, since they were not traditional family servants but were hired for the occasion.

Entertainers also began to use electric lights to adorn their bodies in public performance. Before an astonished audience in Sheldon,

Iowa, in 1891, Miss Ethyl J. Davis of the Ladies Band Concert and Broom Brigade rendered a tableau of the Statue of Liberty, which the local newspaper reported in detail:

Miss Davis stood on an elevated pedestal, her upraised right hand grasping a torch, capped with a cluster of lamps, which alone would have been sufficient to illuminate the entire room. A crown with a cluster of lamps, and covered with jewels, and her robes completely covered with incandescent lamps of various sizes and colors completed the costume. The lights in the hall were turned down and almost total darkness prevailed. As the contact was made bringing the electric lamps into circuit, the entire hall was illuminated with a flood of light which almost blinded the spectators, and Miss Davis, standing revealed in the glaring light, certainly presented a picture of unparalleled brilliance and beauty.¹³

“The Greatest Event in the history of Brookings, South Dakota” was the description given by a local newspaper to a Merchants’ Carnival held in 1890 at the Brookings opera house at which various industrial enterprises were represented by appropriately costumed ladies. One of them was Mrs. E. E. Gaylord, wife of the manager and electrician of the Brookings Electric Light Company. To represent that flourishing branch of commerce, Mrs. Gaylord wore

a crown of incandescent lamps and her dress was decorated with the same ornaments. The lamps were all properly connected, the wires terminating in the heels of the shoes. On the floor of the stage were two small copper plates connected to a small dynamo. When Mrs. Gaylord touched the plates the 21 lamps of her crown, banner and costume instantly flashed up and she stood clad in “nature’s resplendent robes without whose vesting beauty all were wrapt in unessential gloom.”¹⁴

In 1893 George W. Patterson of Chicago created a special novelty act of “electrical spectacular effects” with lighted Indian clubs. By swinging these clubs in a darkened room, he created the illusion of circles and other designs of solid light. Describing his act in 1899, the *Western Electrician* detailed a “striking feature” of the entertainment, the “electrical storm”:

. . . beginning with distant heat lightning, gradually increasing to the fiercest of chain or “zigzag” lightning, with corresponding graduation of thunder, the latter being produced in the usual manner by a “thundersheet” of iron. . . . The effect is very startling, especially as it is accompanied by the fiercest thunder, the sound of dashing rain and by Mr. Patterson’s voice laughing and singing “The Lightning King” through a megaphone. The “Lightning King” is followed by the latter part of “Anchored,” in which a



Figure 1
Mrs. E. E. Gaylord representing electrical enterprise at the Merchants' Carnival,
Brookings, South Dakota, 1890.

perfect double rainbow gradually appears and is dissolved by a water rheostat, by sending the rays of a single-loop-filament incandescent lamp through a prism. The colors come out beautifully.¹⁵

The familiar dimensions of bodily experience have always provided a reference point for exploring the significance and utility of new and unfamiliar technologies. The social uncertainties created by the introduction of novel, various, and intellectually mysterious technologies are reduced and appropriated for a variety of purposes by recasting them in this familiar idiom. Electric lights even appeared in jewelry. A New York exhibition in 1885 of "flash" jewelry from Paris included hatpins and brooches studded with tiny glittering electric lights.¹⁶ The use of electric lights and effects in the realm of fashion was described in detail by *Western Electrician* in 1891:

Electric jewelry usually takes the form of pins, which are made in various designs. One such trifle copies a daisy, and has an electric spark flashing from the center. Another is a model of a lantern in emerald glass, while a death's head in gold, with a ray gleaming from each eye, is a third. The wearing of electric jewelry necessitates the carrying about of an accumulator which resembles a spirit flash, and is generally stowed in a waistcoat pocket. Brooches are made occasionally for ladies' wear, but as women have no available pockets, a difficulty arises with regard to the battery.¹⁷

The impulse to dazzle an audience with electrical effects found expression not only in entertainments in which the spectacle itself was the message but also in the construction from electric lights of illuminated letters and simple figural representations. Antecedents for texts of light go back at least to the illuminated sign in St. James's Park, London, in 1814, in which a star and the words, "the Peace of Europe," were created from more than 1,300 spout-wick oil lamps attached to iron frames to celebrate (prematurely, as it turned out) the end of the Napoleonic Wars.¹⁸ The electric filament lamp made such achievements simpler and inspired still more ambitious ones.

A wedding in Atlanta in 1899 featured illuminated textual decorations. The groom, an electrical contractor, had draped 200 incandescent lights from one side of the church to the other. Directly above the altar hung a wedding bell fashioned of foliage and 100 colored lights. Further details were reported:

An arc light suspended from the interior of the bell represented the clapper. To the right of the bell a letter N, the initial letter of the name of the bride, formed of white incandescents, set in pink flowers, was supported, on invisible wires. A letter L for the groom was on the left. . . . As the bride with her brother entered the church by one aisle and the groom with his best man entered by the other the letters N and L flashed into view and sparkled with great splendor. A murmur of admiration arose from the auditorium at the superb effect.¹⁹

As the minister pronounced the pair man and wife, "a single letter L in pink incandescents appeared on the bell and burned with a soft brilliance."

Texts and figures constructed from electric lights became popular for advertising. A common device was the "sky sign," which spelled out the name of a firm or promotional slogan or outlined an image against the blank wall of a building. An especially ambitious sign was erected in 1892 on the side of the 22-story Flatiron Building at the confluence of Broadway and Fifth Avenue with 23rd Street in New York. This sign consisted of 1,500 incandescent lights, white, red, blue,



Figure 2
Electrically illuminated sky signs, 1892.

and green, arranged in seven sentences of letters 3–6 feet high. Each of the seven sentences lit up in succession in a different color from dusk until 11 o'clock each night and brought "to the attention of a sweltering public the fact that Coney Island . . . is swept by ocean breezes," reported *Western Electrician*.²⁰ "So long as the changes are being run," the account continued, "the public is attracted and stands watching the sign, but as soon as the whole seven sentences are lighted and allowed to remain so, the people move on their way and the crowd disperses. This illuminated sign is not only a commercial success, but when all the lamps are lighted is really a magnificent sight. Its splendor is visible from away up town."

To attract crowds on the streets of large cities, advertisers often used incandescent lights and magic lanterns in combination. On "magic lantern avenues" in Paris, commercial messages were projected on shop windows high above the street. In London "diverting and artistic" displays of the same kind were set up in the Strand and in Leicester Square as early as 1890.²¹ Magic lanterns also projected "living photograph" advertisements on billboards, on pavements, and even on Nelson's Column (until the Office of Works prohibited this "desecration" in 1895).²² In Edinburgh, an electric signboard in front of the Empire Palace Theatre flashed out in 130 colored lights the words *Empire* and

Palace alternately, so that "one word [appeared] in the position previously occupied by the other."²³

Patriotic and political events were also occasions for electric-light messages. In 1891 the national convention of the Grand Army of the Republic at Detroit was illuminated by an outdoor electrical design, the principal feature of which was a badge of light 48 feet high and 16 feet wide, inscribed with an eagle, a flag, and a cannon. "The words 'Hail, Victorious Army' were shown in letters seven feet high, 600 16-candle power lamps being required for this alone. In addition the G. A. R. monogram was shown in 12-foot letters of red, white, and blue lights. This was visible, it was said, for ten miles down the Detroit river. There was also an anchor, representing the navy, and a horse's head, standing for the cavalry. These took about 100 lights each."²⁴ In addition, 2,000 lights mounted on and surrounding city hall created a glow that could be seen for 5 miles in every direction.

In 1897 the city of Berlin celebrated the ninetieth birthday of Emperor Wilhelm with a "grand illumination." Multicolored lights arranged in the initials of the emperor and the empress and the significant dates of their reign were strung across public buildings and private houses.²⁵

In the United States, the intense feeling kindled by Admiral Dewey's return from the Philippines in 1899 was expressed in dramatic displays of public support all over the country. In New York, the scene of the admiral's triumphant homecoming, an enormous "Welcome Dewey" sign in lighted letters 36 feet high was stretched 370 feet across the Brooklyn Bridge. The letter W alone consisted of 1,000 lights.²⁶ Chicagoans mounted an electric light picture of Dewey's flagship, the *Olympia*, on scaffolding at the corner of State Street and Madison. "The ship itself was outlined by 720 eight-candle power lamps, 200 red-bulb and 150 blue-bulb lamps being used. A 10,000 candle power, 35-ampere searchlight was placed in the pilothouse of the ship. Portraits of Dewey and McKinley were outlined by incandescent lamps."²⁷

With the development of a national telegraphic network in the United States during the second half of the nineteenth century, it became customary for crowds to gather in the streets of many towns and cities on presidential election nights, partly for entertainment and partly to keep track of late returns, which were posted outside local newspaper offices where the wires ran. In 1896, an estimated 250,000 New Yorkers celebrated McKinley's victory in the streets as incoming electoral tallies were projected by calcium light on buildings all across the city. Returns were projected on the outside of the *New York Times* building beneath the slogan "All the News That's Fit to Print," which

was spelled out in electric lights next to a magic-lantern portrait of the president-elect.

In that news and entertainment were presented dramatically and in rapid sequence, this scene in Times Square can be said to have prefigured the electronic broadcasting of the twentieth century. The crowds swirling in the street were a prototype mass audience. *Harper's Weekly* took this rather lightly, although it did note that the crowds were "entertained as well as instructed."²⁸

Upon such experiments and spectacles future schemes of communication by electric light were erected with great imaginative flourish. To a twentieth-century-accustomed vision, the most fanciful were the proposals to inscribe the night skies with powerful beams of light that could be seen by all inhabitants of the surrounding countryside. This proposal, which appeared in many variations, was a plausible and promising technological extrapolation from existing achievements. It extended both the familiar principle of magic-lantern projection and existing applications of electric-light technology, including some newly hatched attempts to improve the reliability and safety of shipping.

The fact that vessels sailing the coast could often see the locations of towns from the reflections of their night lights off overhanging clouds inspired a series of experiments in which brilliant Morse-code flashes were projected overhead from naval vessels. In one experiment the flashes were decipherable at a distance of 60 miles.²⁹ In another, an astonished crowd filled the streets in the vicinity of the Siemens-Halske factory in Berlin, where a light-projecting apparatus strong enough to illuminate handwriting at the distance of a mile was aimed at the sky. With the help of a large mirror, signals placed in front of the light were "repeated, of course on a gigantic scale, on the clouds."³⁰

The prospect of illuminated messages on the slate of the heavens fascinated experts and laymen alike. "Imagine the effect," said the *Electrical Review*, "if a million people saw in gigantic characters across the clouds such words as 'BEWARE OF PROTECTION' and 'FREE TRADE LEADS TO H—L!' The writing could be made to appear in letters of a fiery color."³¹ According to one electrical expert, "You could have dissolving figures on the clouds, giants fighting each other in the sky, for instance, or put up election figures that can be read twenty miles away."³²

Since such projects were usually undertaken for commercial ends, the popular term for celestial projection was "advertising on the clouds." In 1889 an American inventor claimed to be negotiating with several firms that wished to "display their cards" on the sky.³³ A few years later in England, an experimenter was said to have succeeded in

producing the letters BUF upon the clouds, although his target was apparently too small to accommodate the rest of the message: FALO BILL'S WILD WEST.³⁴ Advertising on the clouds, explained E. H. Johnson, one of Edison's close associates, was "simply a stereopticon on a large scale" that required a light sufficiently powerful to project on the firmament and a method for focusing diffuse light on a "cloud canvas" constantly shifting its distance from the earth.³⁵ "Even portraits are said to have been 'placed' on the clouds," stated one account, "though the report does not say how great the resemblance was."³⁶

While conducting experiments with a large searchlight atop Mount Washington in New Hampshire over a period of months, a General Electric engineer, one L. Rogers, received letters from viewers as far away as 140 miles. He marveled to think that "hundreds of thousands of eyes were centered on that one single spot, waiting for the flash or wink of the 'great luminous eye.'" ³⁷ Reflecting on the Mount Washington experiment a year later, Amos Dolbear, one of the inventors of telephony, imagined the day when great stencil sheets of tin and iron would be prepared for projecting on the clouds an "advertising-sheet" with letters more than 100 feet long that could be read a mile or more away, and when weather forecasts would be "given by a series of flashes of long and short duration, constituting a code of signals."³⁸ The eventual outcome of Rogers's experiments in casting "legible lines" on the clouds was a huge, electrically powered magic lantern erected in 1892 atop Joseph Pulitzer's *World* building, then the tallest building in New York. It had an illumination of some 1,500,000 candles, and it weighed well over 3,000 pounds. An 8-inch lens projected stencil-plate slides of figures, words, and advertisements upon the clouds or, on clear nights, on the buildings nearby.

Objections to the vulgarity of advertising on the sky were common. In 1892, *Answers*, the penny-journal flagship of the British publishing empire headed by Lord Northcliffe, called the possibility of sky signs the "newest horror" in an article that went on to say:

You will be able to advertise your wares in letters one hundred feet long on the skies, so that they will be visible over a dozen countries. As if this truly awful prospect were not enough, we are told that these sky-signs can be made luminous, so that they will blaze away all night! A poet, in one of his rhapsodies, said that he would like to snatch a burning pine from its Norway mountains and write with it the name of "Agnes" in letters of fire on the skies.

But he would probably not have cared to adorn the firmament with a blazing description of somebody's patent trouser-stretcher, or a glowing picture, as large as Bedford Square, of a lady viewing the latest thing in corsets.³⁹

Another British journal decried "celestial advertising" as follows:

... the clouds are to be turned into hideous and gigantic hoardings. This awful invention deprives us of the last open space in the world on which the weary eye might rest in peace without being agonized by the glaring monstrosities wherewith the modern tradesman seeks to commend his wares.¹⁰

If the sky was one surface upon which to project messages for the millions, the moon was another. *Science Siftings* reported in 1895 that an American named Hawkins planned to send a flashlight message from London to New York by way of the moon. Using the only satellite available in 1895, Mr. Hawkins had conceived the intellectual principles of satellite relay. The value of his plan, he announced, lay in covering long distances, "but electricity would be required for local distribution from the receiving stations. If a flash of sufficient strength could be thrown upon the moon to be visible to the naked eye, every man, woman and child in all the world within its range could read its messages, as the code is simple and can be quickly committed to memory."¹¹

Signaling schemes to strike up a wireless conversation with extraterrestrial beings received wide publicity. "With our powerful searchlights it would be possible to communicate with the planet Mars," Amos Dolbear wrote in his regular science column in *Cosmopolitan* in 1892, "if it should chance to be peopled with intelligences as well equipped with lights and telescopes as we are."¹² Others proposed semaphoric arrangements of giant lights flashing in Morse-code sequence. *Live Wire*, a dime monthly whose title bore witness to the popular association between excitement, novelty, and electricity, reported that Sir Francis Galton had proposed the construction of 75-by-45-foot heliographic mirrors to flash a regularly pulsing ray of sunlight to Mars. Charles Cross thought the beam of a powerful electric light might be gathered and concentrated at a single point by huge parabolic reflectors.¹³ There was a proposal that "incandescent lights be strung over the sides of the Great Pyramid, and thus it be made a great square of light." According to *Live Wire*, "When it was pointed out how inadequate this would be, the proposer replied by saying, 'Then illuminate all the pyramids.'" ¹⁴ The French science-fiction novelist Camille Flammarion suggested grouping immensely powerful lights in the pattern of the Big Dipper to catch the eyes of extraterrestrial observers. The lights could be placed at Bordeaux, Marseilles, Strasbourg, Paris, Amsterdam, Copenhagen, and Stockholm. "But no one has yet been found to build seven lights each of about three billion

candlepower," explained *Live Wire*. A suggestion to work out a geometrical problem in lights for the amusement of galactically remote viewers was impractical, *Live Wire* concluded, because the lines of every figure would have to be at least 50 miles wide and "made of solid light." E. W. Maunder, Great Britain's Assistant Astronomer Royal, speculated that "if ten million arc-lights, each of one hundred thousand candle-power were set up on Mars, we might see a dot."⁴⁵

A repeated assumption in imaginative portrayals of mass audiences of the future was that such audiences properly belonged outdoors, and that twentieth-century media would provide regular occasions for outdoor assemblies. In these speculations, familiar nineteenth-century images of spectators clustered about terrestrial illumination were expanded to the grander scale deemed suitable for illuminated celestial displays. As it has turned out, mass audiences do not collect outdoors to view electric-light messages in the night sky. However, other elements of these speculations and of the early illuminated gatherings prefigure the most familiar of modern public spectacles: television broadcast entertainment. The so-called television special and other broadcasting genres still use dramatic arrangements of brightly colored lights to create visual excitement.

Television's inheritance from the electric light is technological as well as social. Though poorly understood at the time, the original electronic effect, the Edison effect, was created in an electric lamp whose vacuum bulb was the forerunner of the tube that would soon become the principal vehicle of broadcasting. The development of electronics out of this puzzle in a light bulb eventually helped make many face-to-face public gatherings nearly superfluous as families retreated indoors to watch on their private television sets the descendants of the public spectacles that once would have entertained them in the town square. It is not uncommon for technological innovations intended to streamline, simplify, or enhance familiar social routines to so reorganize them that they become new events. Incandescent lights not only inspired new outdoor gatherings, such as night baseball games; they also transformed many large outdoor community gatherings into indoor private ones the size of a single family.

Because communication at a distance was actually implemented in other forms, our cultural memories no longer include predictions made in nineteenth-century voices that the media of the future might be messages of light splashed across the firmament by searchlights or great banks of flashing incandescent lamps. Our amnesia is testimony to the tendency to read history backward from the present—to see it as the process by which our ancestors looked for and gradually

discovered us rather than as a succession of self-contained accounts of a moral order, each with its own focused concerns and its own peculiar sense of inhabiting the crucial if not the final stages of human history. If every present attempts to colonize the past with its own spirit, it also appropriates the future with equal enthusiasm. The nineteenth-century conviction that important twentieth-century media would look like nothing so much as the nineteenth-century electric light writ large betrays the companion tendencies to read the past as a less glamorous version, and the future as a more glamorous version, of the present. In the last analysis, the utility of social prediction stands least of all on its accuracy as a pointer to the future. It stands much more on what it communicates about the perceptions, values, and imaginative reactions of societies to changes which they not only must devise ways of coping with and adjusting to but which they in large part also shape.

Notes

1. Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), p. 9.
2. Elizabeth Eisenstein, for example, has recently acknowledged her debt to McLuhan while repudiating many of his conclusions about the impact of printing. See *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe* (Cambridge University Press, 1979), volume 1, pp. x-xvii, 16-17, 40-41.
3. "Turning Off the Gas in Paris," *Electrical Review*, September 18, 1886, p. 4.
4. Trumbull White and William Igelheart, *The World's Columbian Exposition, Chicago, 1893* (Philadelphia: International, 1893), p. 302.
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