



Illuminating the West: The Wonder of Electric Lighting at Omaha's Trans-Mississippi and International Exposition of 1898

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Article Summary: Electric lighting was as important to the Omaha fair as the Ferris wheel was to Chicago's 1892 Colombian Exposition: a focal point that garnered publicity and gate receipts while demonstrating the West's technological and economic progress. The fair's extensive use of outdoor incandescent lighting was unprecedented and an object of wonder to fairgoers.

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Photographs / Images: the Grand Court (4 views), the Machinery and Electricity Building (exterior and interior views), the Power House (exterior and interior views)

Illuminating the West: *The Wonder of Electric Lighting at Omaha's Trans-Mississippi and International Exposition of 1898*

BY AMANDA N. JOHNSON



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The Grand Court by night, looking west
toward the Government Building. From the
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BIRDS EYE VIEW - GRAND COURT - (NIGHT)

Nº 50

A sudden hush came over thousands of people walking through a crowded fairground at dusk. Above the noise of the distant Midway, the nearby Marine Band struck up a patriotic tune, and the crowd emitted a collective gasp. The lights were turning on.

Twenty thousand incandescent bulbs lined eight major buildings surrounding the fair's central lagoon. They lit up the sky in a slow progression. The electric fountain in front of the Government Building turned on first, its spray illuminated by colored lights disguised as lily pads, and whose light changed from green to blue to red to white. Atop the Government Building, the torch held by the statue of "Liberty Enlightening the World" blazed to life next, a searchlight into the heavens.² As an observer described it, "The lagoon is gemmed with light. The music of the band playing on the Plaza

floats 'like sweet sounds in a dream'; the barbarous cymbals of the Midway are softened into a far-away hum. There are thousands of people sitting on the steps of the buildings and around the lagoon; yet there is no noise of voices."³ Then the "low spoken thrills of admiration for the inspiring loveliness of the picture" began.⁴

Held in Omaha, Nebraska, in 1898, the Trans-Mississippi and International Exposition was not the first public display of electric lighting. However, the fair's official secretary, John Wakefield, claimed that its use of electricity surpassed all previous world's expositions. "The buildings and exhibits will fade in memory," he wrote, "but who can ever forget the inspiration and impressions produced by the illuminations which at night illuminated every turret, spire, and dome."⁵

"For a few seconds, the vast court was silent as though it was peopled with wax figures."¹



The Grand Court by day. NSHS RG2752AM



Grand Court, looking southwest. NSHS RG2752AM

The Machinery and Electricity Building (right) exhibited the latest technology.
NSHS RG2752-01-10-1

Lighting was as important to the Omaha fair as the Ferris Wheel was to Chicago's 1893 Colombian Exposition: a focal point that garnered publicity and gate receipts while demonstrating the West's technological and economic progress.

The first World's Fair occurred in London in 1851, an outgrowth of the tradition of craft and merchant fairs. In America, the Civil War interrupted the popularity of fairs until Chicago's blockbuster 1893 Columbian Exposition, which was intended to celebrate the four hundredth anniversary of Columbus's discovery of the Americas. When Chicago, a relatively young, western city, was chosen over eastern cities to host the event, the fair also became a celebration of the West. Historian Frederick Jackson Turner delivered his famous Frontier Thesis at the exposition, claiming that the American frontier was the defining influence in developing the American consciousness, but that due to increasing population and scarcity of land in the West, the frontier had closed.⁶ Citizens of the trans-Mississippi states insisted that their region still offered new frontiers to conquer, and planned their own expositions to promote this idea.



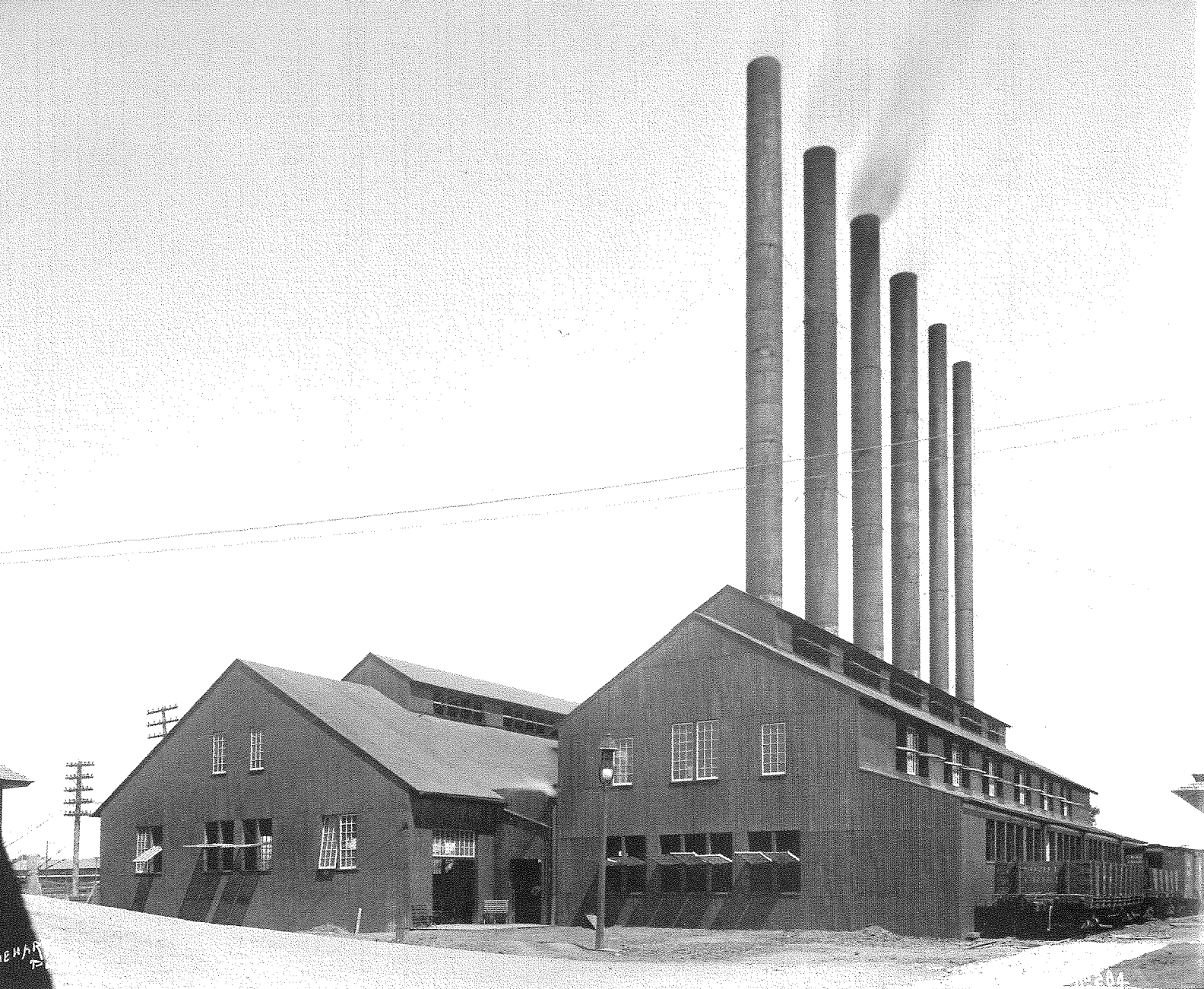


"To say that world's fairs have exerted a formative influence on the way Americans have thought about themselves and the world in which they live probably understates the importance of those expositions," says Robert Rydell in *Fair America*.⁷ Indeed, world's fairs were essential in forming American culture, especially in their introduction of new technologies and the insertion of these technologies into everyday life. Electricity was an important part of these displays. Historian David Nye argues that the fairs used electricity to create an ideal world, controlled by man, the synthetic preferred over the natural.⁸ "World's Fairs are always designed as special spaces . . . A world apart. A world that represents the future. A world that's more perfect, better designed, clean, organized."⁹ Electric lighting visually intensified the contrast between the beautiful White Cities of late

nineteenth century fairs and the frequently dirty reality of the host cities with their own poor or irregular lighting.¹⁰

The Omaha exposition's use of electric lighting was so memorable partly because so few of the spectators had seen it before. Living in rural areas, many western settlers did not have access to electricity. Yet the exposition claimed to be a representation of the West. How could fair organizers claim to represent western accomplishments by displaying something that western people hadn't seen before? One answer is that they didn't intend to represent the current West, but the West of the future, a West of technological progress. The exhibit's message was that the West was becoming advanced, progressive, and ready to challenge eastern dominance. Eastern reporters got the message, as noted in *Harper's*

**Grand Court,
looking northwest.**
NSHS RG2752-01-00



The Power House, source of the exposition's electricity.
From the collections of the Omaha Public Library

Weekly: "It is perhaps this fine panorama of the material West which is here afforded, that most will interest. Cast in a different figure, this Trans-Mississippi Exposition is an epitome of the wealth—and not only of the wealth, but of the progress—of the great central region of the nation."¹¹

"Someone has said that the Exposition was 'built to be lighted.'"¹²

More than 6,000 visitors gathered expectantly at the Great Court on June 1, 1898, waiting for the official opening of the fair that would come from 1,500 miles away in Washington, D.C.¹³ In the White House at 1:30 p.m., President McKinley pressed a button that transmitted electricity to the fairgrounds in Omaha.¹⁴ As the machinery in Omaha began to work, the waiting Marine Band began

playing "The Star-Spangled Banner," and the crowd dispersed to explore the exhibits. The fair began with a moment of electricity, and thus it defined itself as a fair in which electricity was a main feature.

Electricity had been a prominent component of World's Fairs as early as 1857.¹⁵ The buildings focused on electricity were frequently the largest and most visited exhibits.¹⁶ The 1883 Vienna Exposition was the first to demonstrate outdoor as well as indoor electric lighting. In 1889, the Paris exposition undertook extensive illumination of all the building interiors, but it only featured a few incandescent lights on the grounds. The 1893 Chicago World's Fair used ten times more electricity than Paris, but its outdoor lighting consisted of harsh arc lights.¹⁷ The Omaha fair was the first to exhibit lights everywhere along its Grand Court. John Wakefield,

secretary of the fair board, admitted to the trepidation felt by the fair planners: "No area of similar extent had ever before been thus treated and even with the buoyancy of feeling and surety of successful results demonstrated by these experiments, it was natural that so radical a departure in lighting should be accomplished by certain misgivings."¹⁸

The risk came in part from the lateness of planning. The decision to light the fair at night—an accomplishment that *Harper's Weekly* would later claim formed "the crowning feature of the exposition" and one that would "exceed any former achievement, without a single exception"—evolved after the architectural plans for the design of the Grand Court.¹⁹ Thomas Kimball, an Omaha native who served as the main architect of the fair, decided that the basic design requirements for the buildings and grounds of the fair would include a focus on horizontal lines, a uniform height to buildings, and a structure that prevented people walking along the Grand Court to see beyond its perimeters. Originally, those designing the building grounds only picked the ornamental arc lamps that line the lagoon. Arc lamps cast a harsh, bright glow that would lengthen the hours of the fairgrounds so paying visitors could stay longer. However, drawing inspiration from Kimball's plans, Henry Rustin, an Omaha electrical engineer training under Luther Stieringer—who was an assistant to Thomas Edison and the chief engineer of the Colombian Exposition's lighting and electric fountains—decided to incorporate lighting into the buildings themselves. In both scale and style, Rustin's new plan was unlike anything seen before.²⁰

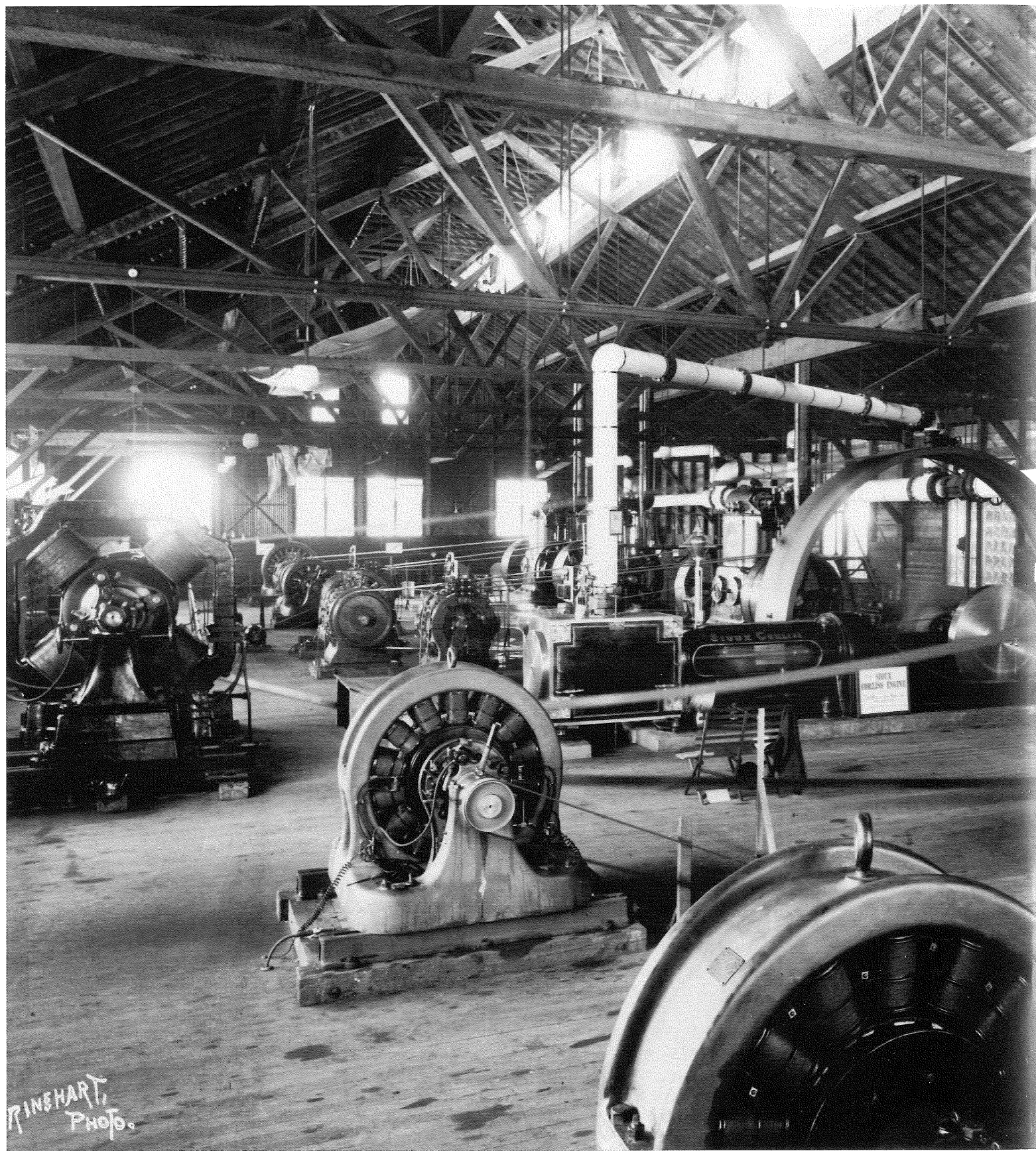
Rustin suggested that it would cost little extra money to illuminate the buildings as well as the fairgrounds. Most of the funds reserved for lighting paid for the expensive arc lamp supports. Instead, the electricity planners could group incandescent light bulbs on top of white posts to line the lagoon. The rest of the lighting would come from the buildings themselves, which would only require a few cheap columns to ensure an "evenly distributed illumination."²¹ The level luminosity of incandescent light contributed to its wonder. Instead of the harsh brightness of arc lights that were prone to overheat, incandescent bulbs created a moonlike glow that reflected beautifully on the lagoon.²² Rustin carefully camouflaged his lights lining the Grand Court, hiding the wiring to the best of his ability. The 309 lampposts around the lagoon each held twelve to twenty bulbs, a sizeable amount of technology to conceal.²³

The grand scale of these new plans was intimidating; even the lighting genius Stieringer had not created a landscape like this before. Rustin pushed for its implementation and arranged for the Machinery and Electricity Building to be set up as an example. The incandescent lights carefully outlined and highlighted the building's architectural structure, following the horizontal lines emphasized by the building plans. "When the lamps were actually lighted and experiment made, all doubts were removed as to its practicability. The results of this experiment were kept, so far as possible, from the public in order that the novelty of the arrangement could be saved as a surprise when the Exposition should be illuminated in its entirety for the public's criticism."²⁴

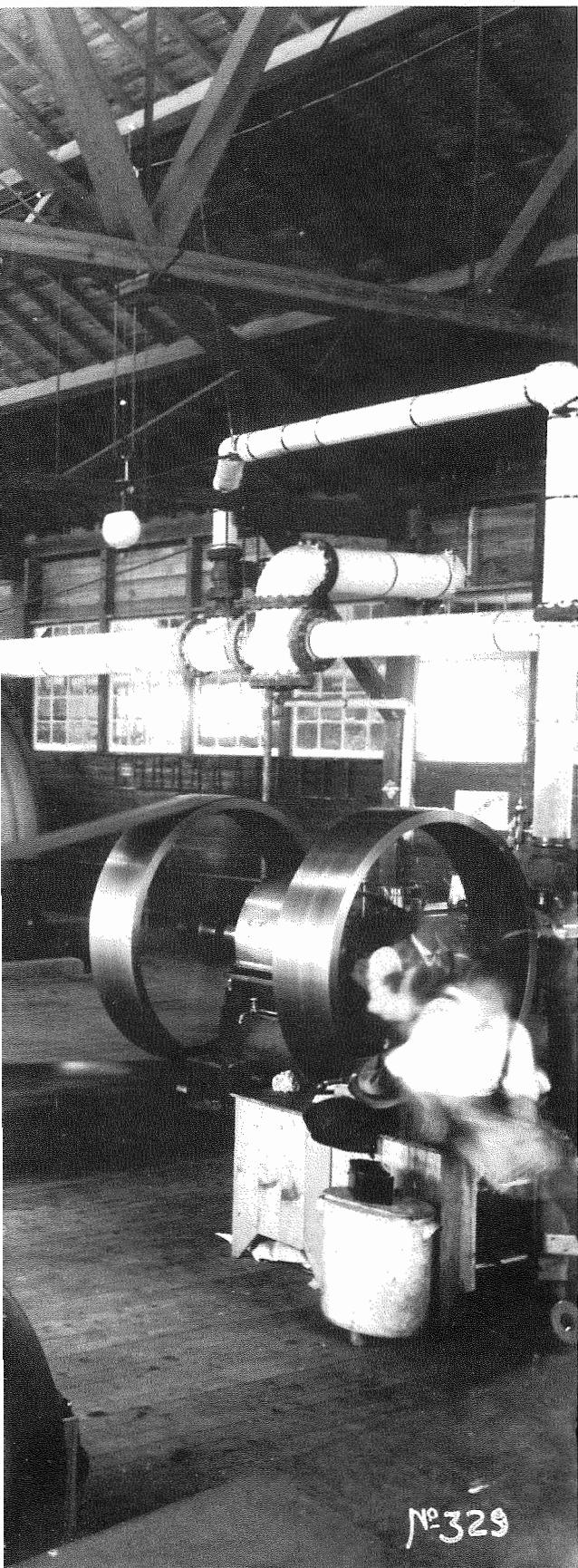
Even with belated planning, the lighting exhibit was ready before the fair opened. The wonder of this speed was not lost on the casual observer. "Because of [the lights] these palaces of art and industry, so brave and beautiful in the sunshine, become very wonderland at night," said a writer for the *Youth's Companion*. "It seems almost marvelous that all this perfection should have been established so speedily as it was."²⁵ The Trans-Mississippi and International Exposition was the first American fair to open its doors on the date that was originally announced in the planning process, a testament to the difficulty of producing an exposition quickly.²⁶ In a closing announcement, Manager Z. T. Lindsey said, "To transfer an irregular cornfield into a fairyland, with magnificent buildings, stately domes, graceful colonnades, beautiful flower gardens, tracery of brilliant light—to do all this in less than two years does indeed seem a feat worthy of Aladdin and his lamp."²⁷

"There is no field of inventive genius in the capability of mankind that has shown greater advancement . . . as that of electricity."²⁸

While the outdoors illumination ruled the night, it was equally important that fairgoers understand man's control behind the scenes. One of the fair's most exciting exhibits was the Machinery and Electricity Building.²⁹ The electrical exhibit's 13,620 feet of floor space displayed the entire history of electricity—from the old glass disk first used to generate frictional electricity to the modern "X" ray. Elsewhere on the fairgrounds, the power for the electric displays became an exhibit in itself. The Power House, strategically placed in a hidden section near the Grand Court, featured boilers and



RINEHART,
PHOTO.



feed pumps for the entire exposition. "Modestly hiding behind a viaduct is a huddle of thin black chimneys above a plain red building where hangs a sign: 'Power Plant. Visitors are Invited to Enter'; and here is the 'very pulse of the machine.'"³⁰ Visitors toured a building that created 2,000-engine horsepower. "The generation of both power and light in the building . . . was the objective point of nearly everyone who passed through the gates."³¹ The machinery never stopped from the beginning of May until the middle of November, constantly fueling the workings of a fair that occupied 108 city blocks.³²

"It was like a glimpse into fairyland."³³

The fair drew 2.6 million people over its five-month run, making the 180 acres of grounds appear to be a city of its own, teeming with people. Despite the poor economic times, visitors came from outside Nebraska. Citizens of western states and territories constituted the largest portion of attendees, but the fair drew attention from eastern and international audiences as well.

For Rustin, the crowd's reactions to the electric lighting surpassed the work itself. "It is almost amusing to pick up ones [*sic*] scrap book and read the accounts then written of the illumination and find extravagant adjective after adjective arranged in almost bewildering sequence and trying to do their duty towards describing an effect which would not be described . . . The cheer which the first night crowd gave as the lights gradually came to full brilliancy, meant more to me than any other occasion in my life. It seemed as though all efforts, hopes, fears and realization were all crowded into one exultant moment."³⁴

The lighting subtly educated people as to the potential of the West, turning the physical lights into symbols for a greater, almost mythic West—a West of technological progress and wonder. Because of its symbolic representation of the future, the electric lighting needed to occur at the Grand Court with its displays of the progress of mining and agriculture. The lights were "symbolic rather of modern investigation than of ancient introspection."³⁵ It was a moment of celebration of the West's progression from the Great American Desert to a fruitful, advanced region.

The illumination was often described with imaginative and even religious imagery. Writing for *McClure's Magazine*, William Allen White noted astutely that the brilliance of the exhibit echoed the goal of the entire fair—to bring notice to

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The Machinery and Electricity Building exhibited the latest technology.
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science and industry of the West. Yet his description appealed to romantic imagery: "At night, twenty thousand electric lights paint a scene from fairyland upon the waters of the lagoon. The temples that stand there are erected to appease the gods of the latter days, the gods of machinery, electricity, the liberal arts and all their kith and kin."³⁶

Those writing about the fair understood that they were seeing the future. Olivia Thanet's flowery description in *The Cosmopolitan* of the nighttime illumination combines concrete examples of technological marvels with imaginative terminology: "Ten thousand incandescent lights make Court and Plaza and Park and Midway streets like softened day; and the lagoon mirrors palaces penciled in fire, and the lilies at the foot of the tall shaft of Nautilus bloom into flame, while the fountains rain a jeweled shower, opals or rubies or sapphires or emeralds or diamonds—a scene that no one who has seen can ever forget."³⁷ The reference to precious gems subconsciously linked technology with the West's potential for financial success. The ability to make night into day was a present possibility. The description of jewels raining from the sky—using language that surely belongs in a fairy tale—veils the technology with fantasy. By day the exhibit showed the power of new technologies; "outside, in the open air, every night, is its poetry."³⁸ Visitors experiencing the nighttime illumination were conscious of its technological implications for their lives in the West or elsewhere, but the magic of the exhibit seduced them. Forgetting the concrete exhibit, they lost themselves in the fairyland.

"Something more than a 'building boom' has made this West."³⁹

The fair's success surpassed expectations and the results of all prior American expositions. "This was the only Exposition in America promptly opening its gates to the public on a completed show on the day and hour originally appointed; the first to open free from mortgage or pledge of all or some of its gate receipts; the first to make money each and every month of the Exposition season, and the first to repay to its stockholders any considerable portion of the funds advanced by them."⁴⁰ Ninety percent of investments were returned, a figure that the fair's treasurer deemed very successful.⁴¹ People visiting the Trans-Mississippi Exposition took home stories of the wonders they saw in Omaha, and newspaper accounts from all over the country proclaimed the exposition's greatness.

The fair's official history includes six pages of personal testimonies from local businessmen whose trade increased during and after the fair. After the Panic of 1893 and droughts in 1894 and 1895, Omaha's bold attempt at a fair had paid off. Local businessman Luther Drake said that, "The success of the Exposition caused investors to single Omaha out as a good place in which to put their money, a result which its promoters sought from the beginning to attain."⁴²

Aided by its electric lighting, the Trans-Mississippi and International Exposition legitimized the American West's claims of technological advance to the world and anticipated future successes elsewhere. Paris, upon hearing of Omaha's illumination, sent a commission to investigate using similar lights for its own fair in 1900. Unfortunately Paris failed to mimic the uniform grace of Omaha's diffused lighting, instead opting to display nearly every possible type of lighting in a mismatched exhibition. In contrast, Buffalo's Pan-American Exposition of 1901, under the guidance of Rustin and Stieringer, copied the design of Omaha's fair on a larger scale.⁴³ Notably, in Buffalo, Rustin and Stieringer covered a tower entirely with lights. This much-talked-about achievement would not have been possible without Omaha's prior technological advancement. Omaha thus succeeded in showing the possibilities of the West—possibilities that the East and the world sought to emulate. ■



NOTES

¹ "Shown by Electric Light. Beauties of the Buildings and Surroundings Made More Lovely," *Omaha Bee*, June 2, 1898, <http://chroniclingamerica.loc.gov/lccn/sn99021999/1898-06-02/ed-1/seq-1/>.

² Elsie Reasoner, "A National Wonder," *Godey's Magazine* (June 1898).

³ Olivia Thanet, "The Trans-Mississippi Exposition," *The Cosmopolitan*, 25 no. 6 (1898), 610.

⁴ "A Western Creation: The Trans-Mississippi Exposition at Omaha, Nebraska," *Frank Leslie's Popular Monthly* (Oct. 1898).

⁵ John Wakefield, "Summary of Expo," *A History of the Trans-Mississippi & International Exposition* (May 1903), <http://digital.omahapubliclibrary.org/transmiss/secretary/table.html>.

⁶ Wilbur Jacobs, *On Turner's Trail: 100 Years of Writing Western History* (Lawrence, KS: University Press of Kansas, 1994), 7.

⁷ John Findling, Kimberly Pelle, and Robert Rydell, *Fair America: World's Fairs in the United States* (Washington, D.C.: Smithsonian Institution Press, 2000), 1.

⁸ David Nye, *Electrifying America: Social Meanings of a New Technology, 1880-1940* (Cambridge, MA: MIT Press, 1990), 34.

⁹ David C. Rotterman, Gary A. Repair, Susan J. Baer, and Elizabeth M. Cajka, *Westward the Empire: Omaha's World's Fair of 1898* (Omaha, NE: UNO Television, 1998).

¹⁰ David Nye, "Electricity and Signs," *The Nineteenth-Century Visual Culture Reader*, ed. Vanessa Schwartz and Jeannene M. Przyblyski (New York: Routledge, 2004).

¹¹ W. S. Harwood, "The Trans-Mississippi Exposition," *Harper's Weekly* (Harper & Brothers, 1898), 9.

¹² "The Omaha Exposition," *Youth's Companion* (Sept. 8, 1898): 413.

¹³ "New White City is Peopled; A Vast Procession Moves into and Enjoys the Trans-Mississippi and International Exposition," *Omaha World-Herald*, June 2, 1898.

¹⁴ "Omaha Fair is Open," *Chicago Daily Tribune*, June 2, 1898.

¹⁵ Luther Stieringer, "The Evolution of Exposition Lighting," *Western Electrician*, 29, no. 12 (Sept. 12, 1901).

¹⁶ Nye, *Electrifying America*, 36-44.

¹⁷ Stieringer, "The Evolution of Exposition Lighting."

¹⁸ Wakefield, "Buildings & Grounds Department," *History*.

¹⁹ Harwood, "The Trans-Mississippi Exposition."

²⁰ James B. Haynes, *History of the Trans-Mississippi and International Exposition of 1898* (The Committee on History for the Trans-Mississippi and International Exposition of 1898, 1910), 109-40.

²¹ Wakefield, "Buildings & Grounds Department," *History*.

²² Stieringer, "The Evolution of Exposition Lighting"; Jess Peterson, *Images of America: Omaha's Trans-Mississippi Exposition* (Chicago: Arcadia Publishing, 2003), 16.

²³ Peterson, *Images of America: Omaha's Trans-Mississippi Exposition*, 64.

²⁴ Wakefield, "Buildings & Grounds Department," *History*.

²⁵ "The Omaha Exposition," *Youth's Companion*.

²⁶ Wakefield, "Opening Day," *History*.

²⁷ Haynes, *History of the Trans-Mississippi and International Exposition of 1898*, 478.

²⁸ Wakefield, "Machinery & Electricity," *History*.

²⁹ Thanet, "The Trans-Mississippi Exposition."

³⁰ *Ibid.*, 606.

³¹ Omaha Public Library, "Power House," *Trans-Mississippi & International Exposition: Buildings of the Trans-Mississippi* (Omaha: Omaha Public Library Online, 1998). <http://www.omaha.lib.ne.us/transmiss/buildings/powerhouse.html>

³² Haynes, *History of the Trans-Mississippi and International Exposition of 1898*.

³³ Thanet, "The Trans-Mississippi Exposition," 612.

³⁴ Wakefield, "Buildings & Grounds Department," *History*.

³⁵ Haynes, *History of the Trans-Mississippi and International Exposition of 1898*, 141.

³⁶ William Allen White, "An Appreciation of the West," *McClure's Magazine*, 11 no. 6 (1898).

³⁷ Thanet, "The Trans-Mississippi Exposition," 610.

³⁸ *Ibid.*, 610.

³⁹ White, "An Appreciation of the West."

⁴⁰ Haynes, *History of the Trans-Mississippi and International Exposition of 1898*, 304.

⁴¹ *Ibid.*, 281.

⁴² *Ibid.*, 318.

⁴³ Stieringer, "The Evolution of Exposition Lighting." David Nye, in *Electrifying America: Social Meanings of a New Technology, 1880-1940*, ignores the contributions of the Trans-Mississippi Exposition to the field of outdoor illumination, instead erroneously attributing its progress to Buffalo's World's Fair three years later.