

The Electrical Evangelism of J.J. Wright

by George Colpitts

In the late 1800s, a mania developed to apply electricity to every aspect of human life. "That subtle fluid, electricity," as the *Toronto Mail* described it, was mystifying and wondrous. Quack doctors on Toronto's Jarvis Street were using it to treat rheumatism and cancer; house owners began installing 200-300 watt bulbs and even buzzing arc lamps into fire places; inventors were rushing to refit housework with electrical appliances of every shape, and use imaginable.

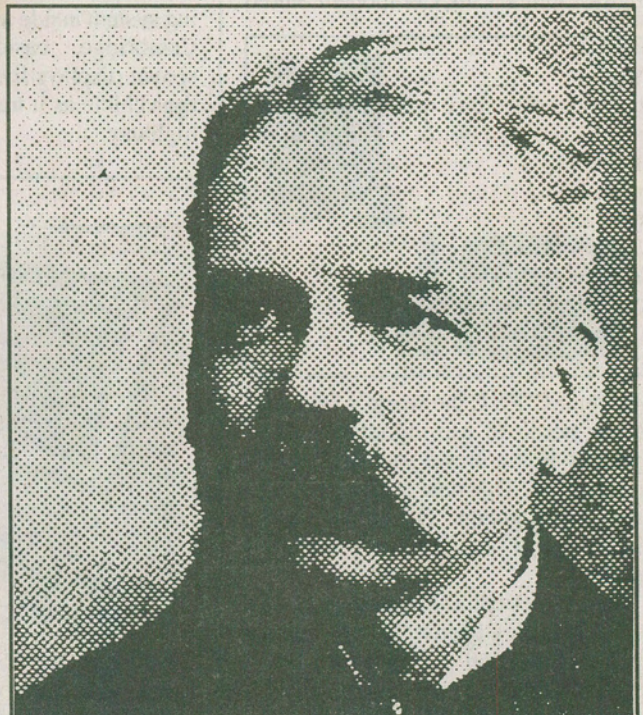
One of the most thorny conversions to electricity, however, took place on the city streets, and particularly on those in Toronto. There, in dark intersections of King and Yonge or up Sherbourne, an awesome rivalry developed between electrical companies and Consumers Gas, both groups raising new poles and new lamps in an effort to prove one fuel's superiority over the other.

A central figure in the issue was one of Canada's great electrical evangelists and a man who introduced electricity to Toronto: John Jacob Wright. Wright's record as an electrical innovator was impressive even by the 1890s. In 1881, Wright had borrowed a back room next to the Firstbrook Box Factory on King Street to build the first Canadian-made generator. It supplied 25 horsepower to the 25 arc lamps Wright had strung down Yonge Street — the first electri-

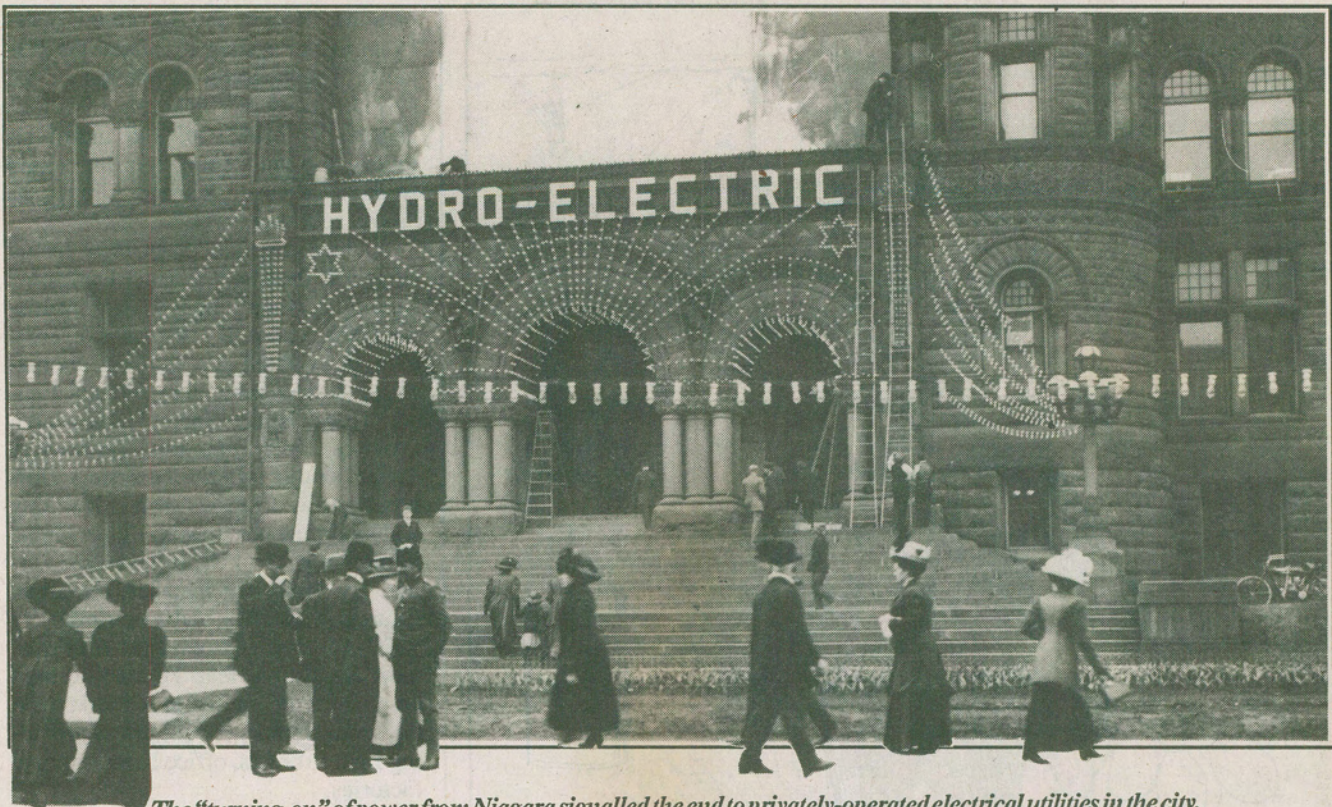
cal lighting system in Canada. In 1884 he had perfected Van Depoele's electrical railway and ran a tram of three coaches from Strachan Avenue to the exhibition grounds, only three years after Siemens in Germany had experimented with the first public electrical railway. In the U.S., Wright had helped Elihu Thomson and Edmund Houston develop the Thomson-Houston generator and in 1879, Wright installed North America's first electric arc street lamp in Philadelphia.

Wright (who preferred to be called "J.J.") cannot be called a loud proponent of electrical street lighting, however. He was a heavy-set, square-faced man with a full moustache but what seemed to be a quiet manner, perhaps one of the reasons he was president only briefly of the Canadian Electrical Association he had helped create in 1891.

Newspaper reporters complained that he often sat without voicing his opinion at city hall meetings. But Wright wasn't a timid man. When he did speak, he tended to roar, and usually in defence of the growing need and development of



*J.J. Wright, Canadian Electrical Pioneer
—courtesy Ontario Hydro Archives*



The "turning-on" of power from Niagara signalled the end to privately-operated electrical utilities in the city.

electrical applications both in Toronto and the rest of Canada.

Wright's most comfortable medium was when he was experimenting or designing the massive electrical system he helped pioneer in Toronto. His son Walter F. Wright, shed some light on that tinkering spirit when he described his father and uncle pulling an old steam engine down to the waterfront, and bolting it onto a boat to create the first steam yacht on Toronto Bay. *The Electra* was the same yacht on which Wright entertained Electrical Association members. He loved "open air and country," and "speeding across the bounding waves" of the lake.

Born and classically educated in England, Wright seemed to have difficulty finding his life's direction when he arrived in Canada. He picked up jobs as a millwright and later as a proofreader at the *Globe*, finally drifting back and forth between the U.S. and Toronto until he began his work in electricity. After that, and when he wasn't boating, Wright devoted almost his entire life and aspirations to the job of lighting Toronto — and Canada — with electricity.

Toronto was typical of most Canadian cities of that time period. Charles Dickens in the 1842 had described the city as "... full of life, motion, business and improvements. The streets are well-paved and lighted with gas."

But those gas-lit streets were shadowy, dark and dangerous to walk along at night. After dusk, Toronto's streets were given over to fighting, gambling, prostitution — generally doused in sin. The *Toronto News* in 1885 published "thrilling sketches" of Toronto's seedy nightlife, a reporter adding "the long row of gas-lamps on the side streets 'pale their ineffectual fires'...." In Montreal, William H. Atherton said "Darkness is the friend of vice," in his campaign for better lighting. Back in Toron-

to, the *Mail* complained about gas lighting shedding its "yellow jaundiced-looking light." It is quite possible that Wright, a methodist who played organ on Sunday mornings, was wanting to

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Advertisement from Toronto, 1870s, showing competition among fuel and light companies — Metropolitan Toronto Reference Library (Baldwin Room)



J.J. Wright, as depicted in a popular book on Toronto Public figures

reform the dark city streets with his arc lighting.

Electricity might have been a novel approach to lighting dark streets, but it wasn't clearly a superior alternative at the time Wright was hooking up lights to Eaton's department store, Robert Simpson's store, and McConkey's restaurant in his original 1881 experiment.

One arc, for instance, couldn't replace five gas lights strung down a street (remember that illumination decreases in proportion to the square of the distance from the source). Often fewer of the more expensive arc lamps were erected creating dramatically well-lit areas immediately around them, but leaving dark and shadowy areas between each light.

Described by the *Mail* as "a light rivalling almost that of the sun in bril-

liancy," the arc lamp's brilliance also had unhealthy side effects. The light was dangerous to look at directly and quite frankly, an Edison pamphlet complained its brilliance hurt the eyes.

Furthermore, the arc light gained a significant degree of unreliability from its very design. Two carbon rods were placed at a specific distance from each other. Light was created when electricity formed an arc from one rod to the other, causing carbon particles detached from the rods to glow intensely. The deteriorating carbons, however, had to be moved together as they burned. In early models, an elaborate clockwork mechanism moved them back together in time periods. Later, Brush arc lamps featured a closed-loop, or self-regulating design which sensed when an arc was lengthening between

carbons. Hence, the increased resistance in the system regulated the distance. The constant regulation in the system caused flickering, various degrees of brilliance, and didn't alleviate the maddening buzzing sound from what were termed simply as "those sputtering arcs."

There was one other problem facing Wright's dreams for electrical street lighting. Competition was quickly arising from dozens of companies offering everything from arc lighting alternatives, to new generators. Wright himself found Elmer Sperry [See March Issue of *Electronics and Technology Today*] setting up a similar system a few blocks away from his own. Electricity and its appliances were spilling over the border from the U.S. in awesome surges. By 1880, for instance, 72 urban centres in Canada had electricity. By 1890, 167 did, and one business directory listed more than 70 electric light companies operating in Canada with hundreds of independent plants providing light to hotels, office buildings, and factories.

Wright reacted by gathering financial backing and creating the Toronto Electric Light Company which eventually took precedence over all others before public utilities were created. The principal figures in the new company, Frederic Nicholls, Sir Henry M. Pellatt (Casa Loma's somewhat eccentric creator) and William MacKenzie soon became known as the "syndicate," wielding enormous amounts of power as their company soon controlled large portions of the city's interior and exterior lighting and transportation monopolies.

As manager, however, Wright was able to continue his tinkering, experimenting and design of the electrical system. When the Toronto Electric Light Company was created, City Council allowed it to erect 25 lights in the downtown core on Yonge Street and Queen. Wright was using the Hochhausen patents, known as the Excelsior system which had its headquarters in New York city. Another company was allowed the same privilege, using the Van Depoele system, so that city council could choose between alternatives.

Wright wasn't enthusiastic about using American electrical goods. In Oc-

Continued...



J.J. Wright perfected the use of this electric railway system — one of the first in the world.

tober, 1893, he said "If we are to adopt nothing but American ideas or Chinese ideas or antediluvian ideas, we might as well cease to exist and let other people do our thinking for us." Later, he urged the Canadian Electrical Association to adopt a Canadian standard of illuminating power for arc lamps instead of an imported one. The trend in Canada, however, remained to import American goods or buy their patents.

On May 16, 1884, the *World, Globe and News* carried the reports of Toronto's first experience with arc lighting as both companies switched on their rival systems. Both the manufacturers had come to Toronto to help install their systems.

"The gas street lamp must go," the *World* began its story. "The new illuminant, electricity, has come to take its place." The reporter wrote he "was able to read fine print 60 yards from one of the lamps."

Wright remained in control of the company and later described power management as a job requiring hard work at night, filled with tension and having a degree of danger. It was also "hot and dirty" he said to young men seeking employment in his company.

One of Wright's first achievements was building a power station on Scott St. and the Esplanade. There, in a location close to the water and coal supply, Wright designed the station to rival even Jules Verne's descriptions of Nimo's submarine. Containing an engine and dynamo rooms, the power station had a board room and library; a spiral staircase led to a tower laboratory and instruments room. The interior was finished in polished oak — hardly what one would expect in a power station. Later he seemed to temper his imagination when he designed another arc-lighting station, stressing its functionality. "There will not be a piece of wood as large as a lead pencil used in the construction of the building," he said, describing its fireproof features.

As manager, Wright oversaw the design of a system to synchronize clocks in all stations, an important function because power was literally cut off at dawn and turned on at dusk. As the company took over incandescent and interior lighting functions, electrical use wasn't metered. Rather, it charged per light, and supplied parts that would break down faster if overused, a subtle but effective way of limiting its consumers' use of energy. Later,

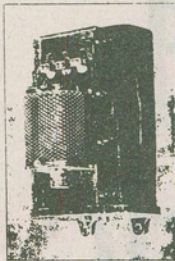
Wright was active through the Canadian Electrical Association, directing metering standards which the government was imposing on private companies.

The growing efficiency of the Toronto Electric Company's system was one of its greatest features. It could be maintained, for instance, with only a few unskilled labourers, enough for one writer to *Canadian Electrical News* to say "I am entirely disgusted with the electrical business...." He said a station manager could be hired for \$35 - 40 a month: "The ability to shovel coal, climb a pole, put a pair of carbons in an arc lamp and sling oil around the power house are the essential requirements."

But there was a period of experimentation as the system found its place among the already crowded telegraph and telephone poles stretching across streets and intersection. The *News* reported in 1896 that one of the TELC's linemen, who was able to climb poles with only one arm, dropped a cross arm he was installing onto the head of passerby on Yonge and King. The man's hat was driven "down upon his shoulder and entirely [obscured] his face." Miraculously, the man was not hurt and after the lineman helped pull off the hat,

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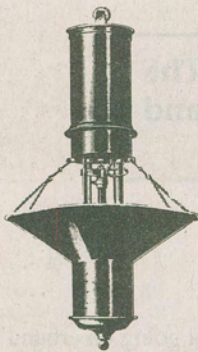


When ordering, the periodicity of the Circuit should be given. In certain instances a Choking Coil must also be used to ensure accurate adjustment of voltage. Add Codeword "Accuracy," and extra price, according to list, page 370.

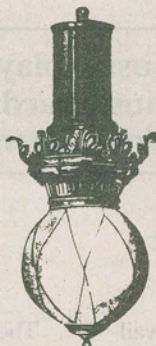
Reduction in Volts	10 to 15 AMPERES.			20 to 25 AMPERES.		
	Catalogue No.	Codeword.	Price	Catalogue No.	Codeword.	Price.
100 to 35	L.1240	<i>Accurate</i>	£ 4 10 0	L.1244	<i>Achieve</i>	£ 5 0 0
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Projection, 8 1/2". Width, 8 1/2".

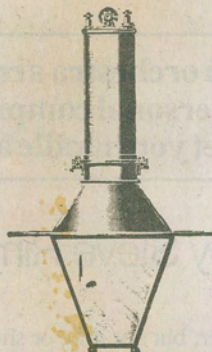
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For Prices and Codewords of these Covers fitted to "Aston" Open Type Lamps, types K or L, see pages 364 and 365. The illustrations are substantially correct, but the details are liable to alteration as improvements are made.

Types of arc light designs, from 1890s catalogue: The CBC Broadcast Museum

and bought him a new one at a nearby store, no charges were laid. That wasn't the case, however, for a woman in 1894 who was suing the company after she had walked into a power line dangling in the street.

Certainly, Consumers Gas, the company holding the street lighting contract in the late 1800s was concerned over Wright and his electrical company. W.H. Pearson, the company's manager kept a careful newspaper clipping file on items related to gas or electric street lighting. That file is still held in the gas company's archives and was supplied for this article.

The company reacted to the threat of electricity by slashing gas rates, providing better burners and a more pure gas. By the time electricity supplanted gas, Inspector James Williams had cut down

his staff to 27 lamplighters who had to maintain, light and replace 2,644 gas street lights—almost one man for every 100 lights. (Their duties included making careful note of the exact locations of the electric lights that were out, to prove their unreliability.)

Wright was not impressed, however, and he wrote to the *World* in October 1890 to say that the fight for or against electrical lighting was between the city aldermen, representing a public wanting electricity, and the gas company which wanted to maintain its monopoly. He compared the advent of electricity as the beginning of a more democratic, fair system, where competing electrical systems would generally lower the already cheaper fuel. In fact, Wright was exaggerating about electricity being cheaper, and greatly

offended Pearson who retaliated in the next day's news to say Wright's letter was insulting and unwarranted. "I can only conclude that he has lost his temper, and with it his head and good breeding."

Electrical lighting was gradually chosen by city council. In 1883 it replaced 300 of the gas company's lights for 100 electrical lamps along Carleton, College and Sherbourne Street. By 1890, the city asked for 2,300 gas lights to be taken off the streets and by 1901, Consumers Gas lost the street lighting contract altogether.

But the dominance of private, monopoly fuel companies, however, was already being challenged, and the TELC had only a few years to enjoy its monopoly before the 1905 creation of public-owned utility. The impetus for Ontario Hydro and Toronto Hydro was the need to transport electricity from Niagara Falls, an undertaking no privately-owned company could really contemplate. Edison once said "...one of these days we will chain all that — the Falls of Niagara as well as the winds — and that will be the millennium of electricity." As early as 1896, the mayor of Buffalo threw a switch to energize the city with energy from the falls.

Wright himself, repeatedly testified to the provincial government that his company had looked into the same type of Niagara transmission and found there was too many problems. His company was simply too small to absorb the capital costs required. By 1911, electricity was finally poured from the falls to Toronto through the public utility, celebrated in a massive parade by night to the old city hall where a picture of the falls was lit up and water cascaded over the mural (and onto front-row spectators).

Although Wright and the TELC continued competing with Toronto Hydro, often providing better service than the new company, the days of private electrical companies were coming to a close.

Wright's son said that despite his expertise, J.J. opted not to consult for large sums of money. "My father was never interested in money," he said. When Fred Thomson, brother of Elihu Thomson wanted his father's opinion

see Wright, page 19

Wright, *Cont'd from page 15*

about how to transmit electricity 11 miles from a hydro-electric plant at Montmorency Falls to Quebec City, Wright suggested that Thomson pile up 11 miles of wire in a warehouse at the falls and hook it up. "Thomson made the test—and it worked!," his son did, "So did the long-distance lighting system for Quebec city."

J.J. Wright died in 1922, the same year the Toronto Electric Light Com-

pany, a company Wright had created and managed for most of his professional life, was absorbed into Toronto Hydro. But his system wasn't completely abandoned or forgotten. Wright's ideas and belief in electricity lit up the city in the dark years at the turn of the century. And in many ways, those lights haven't dimmed ever since.

For more Canadian electrical history see the exhibit: "Bright Lights, Big City: the History of Electricity in Toronto," at The Market Gallery of the City of Toronto Archives running until June 23, 1991.

The author would like to thank the many groups who helped in research for this story including Toronto Hydro, Ontario Hydro, Toronto City Archives, and the CBC Broadcast Museum. □