

THE FIELD OF ELECTRICITY

Peace Proclaimed and a Trust Formed by Warring Electrical Firms.

POWER FOR A LONG-DISTANCE TROLLEY

How the Line Between Chicago and Milwaukee Will Be Supplied—The Electric Fan—Telephone Education.

A protocol and peace treaty have been signed and sealed between the Westinghouse company and the Walkers of Cleveland, O., whereby the war on prices of electrical supplies comes to an end.

The combination ends long litigation between the companies. The most important question at issue between them was the priority of invention of the "bromstick" trolley connection and the courts recently decided in favor of the Walker company.

The officers of the two companies confirmed the consolidation, which, they claimed, was "merger," rather than a purchase of the Walker corporation by the Westinghouse.

This merger reduces the competition in the electrical business to the General Electric, Westinghouse, and Sprague systems. An understanding has existed for some time between the first two companies under which they had equal use of all the patents controlled by both companies.

Chicago to Milwaukee by Trolley. Skimming over the ravines and through the tree trunks of the pretty wooded country around Fort Sheridan an electric car seems strange at first, far away from the city, frightening the birds and the rabbits with its noisy song and whirling trolley wheel.

With a straightaway length of line of between fifty and eighty miles, the Chicago & Milwaukee line presented a hard problem for a trolley equipment. It was just an engineering difficulty as has stopped the building of long distance trolley lines throughout the country, or has rendered their operation unprofitable.

The essential points of the new scheme are a power station located at the middle of the line and distributing stations at intervals over the entire route. The power station supplies direct current at the high pressure of 5,600 volts to the substations. Owing to the high potential used, this transmission can be effected economically.

The Street Railway Review of Chicago gives the following expert editorial opinion on the outcome of the new idea: "Although there are a number of electric railways receiving power from high voltage alternating current transmission this is the promise of the future."

The Electric Fan. The electric fan has sprung into great repute in medical circles. One well known practitioner in New York says that during the hot months of the year the first thing he insists on his patients providing themselves with is an electric fan, which has an admirable influence on the nerves, no less than the temperature of the patient.

count, be admitted. It is not always necessary to keep the fan at its most rapid revolutions; its speed should be varied according to atmospheric conditions.

A banker in the heart of the Illinois city of a woman and her little one, instead of sending boxes of dainties, had a wire run from the railway circuit near the house to the invalid's room and an electric fan placed at the foot of the bed. The temperature of the room, whose case had been pronounced hopeless, began forthwith to improve and she was soon out of danger.

The physician said the recovery was due far less to medicine than to the soothing influence of the electric fan. Another source of health, which doctors are freely recommending to patients who have no vehicles of their own, is the trolley ride.

The trolley goes right into the suburban and country districts and takes the passenger not only into the freshest and best air, but into bits of country that surprise and delight him. The benefits thus brought to children are incalculable. A physician recently made the assertion that the number of children who actually owe their lives to the electric cars may be estimated by thousands.

Telephone Education. The modern telephone exchange is a marvel of organization and of engineering skill of the highest type, and very few people appreciate the complicated and beautifully worked out operation of its system.

It is pointed out that these visits have many elements of value. In the first place, they teach the subscriber the possibilities of the telephone and open his eyes to the fact that his individual operation is but one of the great value to the telephone company.

The varieties of electric street railway equipment which are so generally perplexing to the superintendent. The cause of mechanical depreciation are strains, frictions and vibrations, and the remedies for them can be easily applied.

Marketing in Santiago. A friend of mine who has been house-keeping in Santiago, says: "The first time I visited the market a woman pursued me from stall to stall, chatting Spanish like a bird."

THE WORKINGS OF A NEW ENGLAND CONSCIENCE.

By HARRIET CARYL COX.

Miss Hannah Davis sat in her accustomed rocker and began to wince and to groan. Her face was pale, and her hands were clenched.

"It was a question of conscience, and a new England conscience at that, moreover it began with a capital C. 'I've got it in the house and I might as well make it up,' she mused.

"It was a dress, a silk dress, a relic of days gone by. 'It's been lying there all these years,' she went on, 'and it seems real kind of a soul pacted away there and not doing a soul's mite of good. It ain't right to have things put away where moth and rust can corrupt.'

"They don't know how much I give to church purposes, and they couldn't say nothing even if I bought the silk outright. But then, I ain't obliged to tell 'em anyway. 'It's really saving. And it's awful handsome, too,' she added in an undertone.

"The eyes of the entire assembly were on her as she emerged from the little room and sank down into the nearest empty chair without making the usual sound of handshaking.

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Telephone lines use 12,000,000 pounds of copper yearly. The telephone lines to furnish the United States with more than half of its supply of mahogany.

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many cases entirely deserted by their inhabitants. Labor becoming scarce and dear; American and English agricultural machinery forced on unwilling buyers, who fretted under the compulsory use of what they could not easily manipulate.

On the 15th of September, 1898, the warmest friendships were with American Bancroft and Motley. It was by his favor solely that the existing emigration and citizenship treaties between the German empire and the United States were negotiated.

Three members of this family were examined by Dr. Purnell on September 7, but at that time they were all convalescent, and it was impossible to make a correct diagnosis. The house has been thoroughly isolated and there is little danger of a spread.

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PHOTOGRAPHY IN COLORS

Chicago Man Claims to Have Solved the Problem of the Times.

HUES OF THE RAINBOW REPRODUCED

Remarkable Development of an Idea Generated by the Colors of Chicago's Fragrant River—Story of the Process.

Chicago newspapers proclaim, with slight qualification, that color photography has been perfected by a Chicago man.

The process of using an ordinary camera and in one-fifth of a second accurately photographing all of the brilliant hues of a flower garden, all the contrasts in green of a landscape, all the wonders of a summer sky, the jewel upon your finger, the ribbon at your throat, the stripes in your clothes, the decorations of your hat, the bouquet on your arm is now a reality.

Not a canvas of the old masters but what may be reproduced with every tint of the original; not a shade of color in the most brilliant flower garden but what may greet the eyes from a photograph; not a color struck its surface at an angle, as is true, but may be retained forever upon the plain panel of a photographic card—and this all done, not by retouching or tinting, not by laborious processes after the picture itself is taken, but done by the sunlight itself.

This discovery and its practical application is the work of the late James W. McDonough of Chicago. He has been dead a year, but what he discovered has been in the hands of friends and business associates ever since.

What he discovered is due primarily to the dirty and nasty condition of the Chicago river. Crossing the river on the Madison street bridge one day in 1870, Mr. McDonough thought to himself why that murky water, the colors of the spectrum caused by escaping oil from some near-by warehouse. The thought came to him that the river would present a beautiful spectacle if covered with these colors. His second thought was to why that river's surface could not be photographed. From this thought gradually developed and grew the process of color photography—the first ever given to the world—that will always be known as McDonough's.

Photographers and chemists of an inquiring turn of mind have attempted in various ways to make color photography a possibility since 1870. The experiments necessary were so costly, the possibility of failure so great, that all of them with the exception of McDonough surrendered at one time or another, and announced that they could never be able to reproduce the rose with all the gorgonesses in which it hung from the parent stem.

McDonough said that it could be done, and the day before his death photographed himself in one of the flower gardens of Jackson park. He never lived to see the picture completed, but it stands today in an office in Dearborn street, with every hue of the blossoms surrounding him faithfully reproduced—the work of the sun and the sun only.

He read in a newspaper one morning that Lippman, a foreign scientist, had advanced the claim that he could photograph in colors. His process was what is now known as the "interference" method. By "interference" is meant that the rays of light as they passed through a transparent medium of unequal thickness, and were reflected back to the eye by a mirror, interfered with each other and created different color effects.

Lippman's method was purely a scientific experiment, and it was impossible to see his colors or pictures, as he termed them, except in a certain angle of light.

Lippman worked until his own theory as to how the natural colors of the sky and earth could be photographed. A majority of his experiments for years were absolute failures.

One effort after another was rejected until he came to the correct principle, which was to cover a flat plate with very fine lines and then to endeavor to reduce these lines to greater and greater angles, to give off the colors from a picture photographed on their surface.

His perpetual assumption was that the sun would reproduce nature, after the receiving plate was of the proper kind. His work was to be the plate.

Developing the Process. The plate or block, which he finally determined to be the proper one, is what is known technically as a diffraction grating, and gives off colors when a beam of light strikes its surface at an angle. The first experiments with such a plate were more than discouraging, and when further efforts seemed useless McDonough was about to cast aside.

The day that he determined to do so he accidentally noticed on the surface of the block what seemed to be spots of different colors. The thought came to him instantly, "Why not put on the primary colors, photograph through them and try and get some color results?"

branch of his work colors for papers had been made. He was making the finding these colors, as they had to be insoluble one with another, and also in the toning and fixing processes. They also must stand the sunlight and not fade or wash off during the operations necessary to produce a photographically printed paper.

In astronomy the color work of McDonough is already in experimental use in the Yerkes Observatory at Williams Bay, near Chicago. Of the McDonough sensitive plates George E. Hale, director of the observatory writes:

"With the aid I have been able to photograph for the first time the red portion of the spectra of very faint stars and it is easy to see that plates of this character will prove invaluable in both solar and stellar spectroscopic investigations. The possibility of photographing the red region of stellar spectra opens up an immense field of research hitherto unexplored."

In the detection and prevention of crime the color photograph promises to become an important adjunct of the Bertillon system.

One of the best experimental pictures recently taken by the process is that of Ferdinand W. Peck, commissioner general of the Paris exposition, where appears the lapel of his coat with the red rose he wore, rather than with all the colors it had blossomed in.

Mr. McDonough is dead, and cannot tell his own story, but there remains some testimony from his own lips as to what he passed through while discovering color photography that is extremely interesting.

More than 500 examples of the practical working of the McDonough plates give proof of the practicability of the process. Some of the scenes from Douglas park others from Jackson park, still others of prominent persons or of highly colored Japanese screen and fan work are a continual delight and feast for the eye.

It is believed that Mr. McDonough's process will revolutionize all color work in magazines; that the more or less laborious process of the lithographer's stone is to be done away with and that the color illustrated magazine of the future will be a thing of beauty, beside which the production of today cannot hold up its head.

The Best Remedy for Flux. Mr. John Hatching, stock dealer of Pulaski, Ky., says: "After suffering for over a week with flux, and my physician having failed to relieve me, I was advised to use Chamberlain's Colic, Cholera and Diarrhoea Remedy, and have the pleasure of stating that the half of one bottle cured me."

THE OLD-TIMERS. Otis Allen, the father of the assistant secretary of the navy, has just celebrated his nineteenth birthday in Lowell, Mass. Jacob J. Schwartz, who died this week in Boston, had been fifty-eight years a soldier, having enlisted in the German army in 1812, and left it and joined ours in 1841, serving in the Mexican and civil wars. Mrs. Amelia Vollar, who died in Chicago last week, had just passed her hundred birthday. For a score of years until over 90 she had been a peddler about the streets of the city, where she had come when it was only an extreme frontier trading post. In a suit at Waco, Tex., to settle a question of boundaries between land owners, one of the witnesses was Captain Isaac Brock, who died in the Texas war of independence, in 1812, in the Texas war of independence, in the war between the United States and Mexico and in the civil war. He is in good health, has a clear mind and is a strong territorial expansionist. Mrs. Elizabeth J. R. Messenger of St. Louis has just retired from active work as a school teacher after forty-seven years of unremitting service. In that time she has seen the school system grow from the old fashioned, one-room school, where all ages of scholars and all branches of learning were taught in one room, to the present graded system. She is in no doubt, too, as to whether the city system of the present produces the best results, when she sees the young ideas she first taught how to teach. The distinction of being the oldest singing master in the world is claimed for the veteran Manuel Garcia, who at the mature age of 94 is still giving lessons. He is the only surviving brother of the famous singer, Malibran, who was the chief star in the musical firmament in the earlier part of the century. Another young star, Mlle. Pauline Viardot, is a famous teacher, but no longer gives lessons. Garcia used to visit Malibran when he was a child and she delights in telling how the Duke of Sussex went to hear Malibran sing at Vespers. Mrs. Cynthia Conant of Springfield, Mass., who has just celebrated her hundred birthday, is in excellent health and in conversation is bright and interesting. She saw Malibran when he visited Boston and often tells how handsome he was and how distinguished he appeared. Still more vividly she recalls the war of 1812 and the part her father played therein. He was one of a party that captured a British vessel that had been brought to Hyannis harbor and had been set on fire. The fire was put out and the boat was towed to Boston, with her father in charge.