ELECTRICAL METHOD OF PURIFYING WATER

TORONTO'S ATTENTION HEREWI TH DIRECTED TO INTERESTING EXPERIMENTS AT PITTSBURG.

The attention of the Toronto World was recently attracted by the interesting experiments being made for the purification of water by the electric ozone method. As the outcome of inquiries made by The World an invitation has been received for the City of Toronto to send representatives to see the new method in operation.

President John F. Wallace, of the American Society of Civil Engineers, conducted an investigation in reference to the electrical production of atmospheric products from the lines followed by Dr. Leon Girard, the Belgian scientist.

As an instance of President Wallace's report on the adaptation of the latest electrical discoveries to the problem of the purification of water, a special plant has been installed at the Homeopathic Hospital in Pittsburg. This plant has a capacity of about 250,000 gallons per 24 hours, and is now treating 100,000 gallons during each ten hour day, at an approximate cost for electricity of 25 cents. No attendance is required beyond an occasional visit from the engineer in charge of the hospital power plant.

In answer to a letter of inquiry, Dr. F. W. Koons, superintendent of the Pittsburg Homoeopathic Hospital, writes The World:

"Our ozonizing plant, erected for us by Westinghouse, Church, Kerr & Co., after the patent of Dr. Girard, is the first one built in America.

"Our pathologists have taken a number of bacteriological tests. The report to-day of 80 tests made yesterday is very gratifying."

The engineer who installed the plant writes The World:

"The plant has been in operation six or eight weeks, is doing its work thoroughly and is practically automatic.

"We are very glad to extend to the representative of your paper an invitation to visit this plant, and if this is not the best way to get this matter before your city authorities, we would be very glad indeed to have you extend an invitation to the proper authorities of your city, for them to visit this plant. We are in a position to instal this aparatus in units that will take care of anything from 50,000 gallons of water per day up to many millions, say fifty to a hundred millions.

"The first cost of installation is not prohibitive, being somewhata less than slow sand filtration. The operating cost is also somewhat less than slow sand filtration. You will be interested to know that we have analysis made by eminent bacteriologists of official standing in which they conclude their report by saying, 'the ozonized waters are virtually sterile.'"

Dr. Sheard, Medical Health Officer, was interviewed by The World at the City Hall. He stated that he had noticed the efforts which were being made to purify water by the ozone electric process.

"It is in operation to some extent in Holland," said Dr. Sheard, 'but it is very much in the experimental stage.'"

However, The Electrical World gives the following interesting account of the successful tests at Pittsburg, and it might pay the city well to accept the invitation tendered and send an expert to look into the operation.

G. M. Dyott, writing in The Electrical World, on "Ozone Water Purification System," says:

"At the present time considerable interest is being manifested in the purification of the water supply of some of the larger cities throughout the United States, and for this purpose a number of expensive filtration plants have been installed of quite elaborate design. Under the best conditions such plants only remove the silt and coarser material held in suspension, and allow a large percentage of the small and harmful bacteria to pass. Any process, therefore, which will effectually and economically sterilize water will be of timely interest and of great commercial value.

"Ozone has long been recognized as a most powerful sterilizing agent, and processes involving its use for the purification of water have been in continuous operation on the continent for the past nine or ten years with very satisfactory results. However, the cost of generating the ozone has been large, and the efficiency of the plants so low that its use has been confined to a few isolated instances where complete sterilization was desirable, and, in fact, absolutely necessary, regardless of cost.

In an investigation recently conducted through Westinghouse, Church, Kerr & Co., by John F. Wallace, past-president of the American Society of Civil Engineers, in reference to the electrical manufacture of atmospheric products, his attention was directed toward the manufacture of ozone. A thorough examination of the plants and processes in Europe and America led to the formation of the Gerard Ozone Process Company, to develop and exploit the results achieved by Dr. Leon Gerard, the Belgian scientist. The Gerard Ozone Company, 165 Broadway, New York, through its engineers and general agents, Westinghouse, Church, Kerr & Co., has recently made an installation of the Gerard system at the Homoepathic Hospital in Pittsburg. This plant has a capacity of about 250,000 gallons per 24 hours, and is now treating 100,000 gallons during each 10-hour day at an approximate cost for electrical power of 25 cents. No attendance is required beyond an occasional visit from the engineer in charge of the hospital power plant, so that it is practically self-operative when once put in operation. The two most significant features of this plant are its low maintenance cost and simplicity of operation. The process in brief is as follows:

Atmospheric air, after being passed through a drier, is ozoned by its passage through the Gerard apparatus; it is then mixed with the water to be purified in an injector and a further degree of mixing secured by allowing the water to flow up through a tower in which a number of perforated trays are arranged one over another. As the water overflows at the top of the tower in a small cascade any remaining ozone is removed, and the pure, sterilized water is conveyed to the general distributing tank for use as desired. At first it has a slightly milky appearance, due to the entrained air, but this soon passes away, leaving the water clear and sparkling.

Ozone is not only employed for purifying water, but is also used in the operating rooms for sterilizing instruments, bandages, etc. Experiments are also being tried by introducing it in small quantities in some of the wards, where it seems to have a beneficial effect upon the patients, making them more bright and cheerful, stimulating their appetites and inducing sound sleep.

Power for operating the ozonizers is supplied by a 110-volt single-phase, 60-cycle generator direct-connected to a 3-h.p. direct-current motor. The alternating current is led from the switchboard over two 1-k.w. transformers, with 10,000-secondaries connected in parallel on high-tension busbars. Disconnecting switches are provided so that the load can be divided between each transformer, or all carried by a single one if desired.

The ozoning apparatus is grouped in five units, three for the purification of water and two for general purposes throughout the hospital. Any unit can be cut in or out as desired by manipulating the disconnecting switches. Each unit is also mounted on wheels running on rails, so that if it is necessary to make any repairs, it can be entirely disconnected and run out into the centre of the plant.

In starting up the plant the motor-generator set is first thrown in and the switch on the low-tension side of the transformers closed; the water valve is then opened at the injectors, which starts the suction of air through the ozonizers. The water is allowed to run into the sewer until the action of the ozone is properly adjusted, when it is turned off into the mixing tower. Should, by any chance, the power supply become interrupted, an automatic switch at once operates the main water valve, closing it and preventing the unozonized water from flowing into the system. The plant is controlled from a two-panel switchboard, upon which are mounted the various indicating instruments and starting end regulating rheostats.

Experience with the Pittsburg water, as taken from the city mains at the hospital, has shown that it requires about 1 gramme of ozonized air for every 200 gallons of water; this amount leaves a very fair margin of safety and ensures the absolute destruction of all pathogenic germs.

The action of the ozone upon the bacteria and carbonaceous matter is unique. Unlike that of boiling water, it is stated not only to kill the germs, but actually to remove them, passing them off in the form of carbonic acid gas. Again, ozonized water differs from stilled water in that it has not the charactertistic flat taste of the latter, but is decidedly pleasant and is not robbed of any of the beneficial salts, etc., so frequently found.

The lower forms of animal organism, which are the disease-bearing germs, are the first affected and most readily destroyed. If it is also necessary to remove the non-pathogenic germs, it is simply a question of supplying a larger volume of ozone. It has been found that this is usually not only unnecessary, but undesirable. By passing ozone through the most stagnant kind of water it can in a few seconds be transformed into the brightest, sparkling water, free from any discoloration or odor that might have been originally present.

The plant is unique in showing the highest record yet attained in the number of grammes of ozone produced per kw-hour and in the intensity thereof; it would seem to be the initial installation of this character and to mark a new epoch in water purification through the thorough commercialization of the manufacture of ozone, as the remarkably low cost of operation puts it within reach of any community suffering from impure water supply.

It is not intended that ozone shall be looked upon as an entire substitute for filtration beds in every case, but rather as an adjunct to them, the function of the filter beds being to remove sand, silt and other material held in suspension. The ozone treatment, however, is estimated to treble at least the capacity of filter beds and correspondingly reduces their cost of operation, besides removing absolutely all disease germs instead of simply a large percentage thereof.

DAN PATCH THE FAIR KING

FAMOUS PACER BREAKS ALL RECORDS ON A MICHIGAN TRACK —MAKES A MILE IN 1.58¾.

(Detroit Free Press.)

Dan Patch Day at the state fair was an entire success. It drew the biggest crowd that ever assembled at one time in Michigan — more than 100,000, made a lot of money for the agricultural society, a modest fortune for the owner of the horse, and everybody was satisfied excepting those who could not see a thing but the sky on account of the jam in front of them.

The champion harness horse did not come up to the expectations. At that, he did better than horsemen believed he would, and his mile in 1.58 3-4 is the fastest ever made on a Michigan track. It was a splendid performance with the conditions figured as the handicap they proved to be, and shows that the horse has not forgotten the art of pacing fast.

Dan Patch was engaged a sun attraction for the state fair. He proved to be a greater one than was William Jennings Bryan, two years ago Labor Day, and that is going some, for Dan did not hand the multitude any of that silver-tongued oratory. He drew people from all over the state of Michigan, and, in addition to his service in swelling the receipts of the society, he packed every hotel and downtown rooming and eating house.

And they talk of the automobile supplanting the horse in the public fancy!

What Dan Patch Did.

"That's him," was the word, when Harry Hersey came out with Dan Patch earlier than 2 o'clock. The brown stallion looked fine and jogged around the track. Several times he was brought back after cooling and given a fast brush through the stretch, or a comfortable mile, while the runners that were to set the pace were galloping along to cart to get ready for their part of the bargain.

When all was ready, and the crowd had been shoved, pushed and coaxed back, the Dan Patch trio appeared for the trial. A score or two, with Hersey shaking his head in the negative, and they came down, Hersey nodding and the starter yelling "go!"

This did not look much like a "go" to the race-wise folks. Dan was not going faster than a 2.15 clip when the watches snapped. The front runner was hooked to a cart under which is the dirt and wind shield. Dan goes close behind him. The other runner stays at the side of the pacer, and it is up to the man in front to make the pace right.

Last Half a Corker.

The runners stretched out and Dan kept up with them. The pace for an eighth of a mile was not fast enough. It could not have been much better than 16 seconds, if any, and the announcer said 30 seconds when the golden pole at the quarter was passed. Some caught this a little slower, and the next a little faster, for the half time was given a sone minute. By that time Dan Patch was going at a great rate of speed ,and he circled the bend to the three quarters at a 1.58 rate, reaching there in 1.29 1-2.

The pace quickened in the stretch, Drivers were urging the runners and Hersey was shaking the lines. Dan responded nobly and did the last quarter even faster, reaching the end in 1.58 3-4.

The horse was pacing like a machine at the end. He did not seem all in, so if Hersey had taken him away faster he might have cut a second or more from the mark he made. However, 1.58 3-4 is very fast. Few in the vast crowd had seen anything to equal it, and nobody complained because the last goal was not reached. It was asking too much of the horse to put the hands of the clock at 1.55. Later in the season Dan Patch may do it, but this was the first attempt.

Lindsay Will Have Good Rugby Team

ENTHUSIASTIC MEETING HELD LAST TUESDAY—OVER FIFTEEN HAVE ALREADY SIGNED.

A meeting of the local rugby enthusiasts was held Tuesday in the rooms over the Canadian Bank of Commerce and about twenty were present. From the spirit prevalent last night, it appears that Lindsay will have a good team to represent them in the O.R.F.U., and will no doubt make a good showing. The game calls for big and small men, and from present appearances it is believed that the officers will have plenty of material to choose from.

The names of those who were likely to play in the game were taken last night, and at the present time fifteen are on the list.

The election of officers was left over until the next meeting, but a committee composed of McHugh, Conway, Burke, Parkin and Nesbitt were appointed to solicit new membership.

Several other matters were discussed and the meeting adjourned. The next meeting, at which the officers of the club will be elected, will be held in the Simpson house parlors on Monday night next.

THOSE WHO COME IN THE WINTER MUST HAVE $50

MORE STRINGENT IMMIGRATION REGULATION.

An Order-in-Council has been passed raising the minimum money qualification of $25 now required of all immigrants coming to Canada to $50 for the period from January 1st to February 15th. The doubling of the money qualification during the mid-winter is with a view to restricting, as far as possible, the arrival of any immigrants without an independent means during the period when employment is not easy to obtain.

The restrictive immigration regulations adopted by the Government early this year have had the desired effect of cutting down immigration by considerably over one-half, and the total immigration for the year will, it is expected, be only a little over one hundred thousand.

LINDSAY BELLES VISIT WINDSOR

POPULAR YOUNG LADIES OF EASTERN TOWN ENJOY WATER TRIP.

Windsor Record, Sept. 9th: A party of Lindsay belles, chaperoned by Mr. and Mrs. R. J. Moore, reached Windsor on Tuesday night on a sight-seeing expedition. The young ladies are the guests of the Lindsay Free Press which conducted a voting contest similar to the one The Record held. After leaving Lindsay they went to Toronto, thence to Montreal, and reached here early Tuesday on the City of Ottawa. Those in the party are: Miss Lucy McGeough, Omemee; Miss Sarah Campbell, Woodville; Miss S. L. Moore, Kinmount; Miss Ada Gillis, Fenelon Falls; Miss M. Cain, Miss M. Burke and Mr. and Mrs. Moore, Lindsay.

Must Believe in It..

"Do you believe in love at first sight?"

"Sure. I know a lot of fellows who would never have married if they'd taken a second look."

Bobcaygeon Lady Hurt in Toronto

STRUCK BY AN ELECTRICAL COACH — INJURIES NOT DANGEROUS.

Globe: While crossing College-st., opposite the Technical school, Thursday Mrs. John Bell, of Bobcaygeon, an Exhibition visitor, was struck by an electrical coach. She was thrown to the pavement and painfully injured about the head. After being given medical attendance, she was driven in a carriage to her rooming place at 264 Simcoe-st.

LUMBER CO. HAVE ASSIGNED.

Messrs. Sadler & Fee, who have been conducting the Lindsay Lumber Co. for some time, have made an assignment to Mr. J. H. Sootheran for the benefit of the creditors. The two heads of the firm have always been looked upon as men of extraordinary ability, and the news of the assignment will no doubt be a surprise to many. The tightness of the money market is the cause of their difficulty, it being impossible to make collections from farmers.

ISSUE WRIT.

On Friday last, Mr. and Mrs. Dennis LeHane, of Toronto, parents of the late Norma LeHane, who was killed by a blow from a steamboat fender while visiting in Muskoka, issued a writ against the Muskoka Lakes Navigation Co.

—Mr. J. McCullough, of Toronto, a former citizen, has purchased the Frank Forbert stock and will open up business here.