

# NEW THINGS IN ELECTRICITY.

AS THE CHIEF OF THE ELECTRICAL DEPARTMENT OF THE WORLD'S FAIR DESCRIBES THEM.

(Special Correspondence of the Deseret News by Frank G. Carpenter.)

**ST. LOUIS.**—If you want to see what the world is really doing, come to the St. Louis exposition. The latest inventions along every line are shown here. This is a twentieth century fair, and it has all sorts of new twentieth century machinery. I have spent today in the great palace of electricity, talking with Prof. Goldborough, who has charge of

In my talk with Prof. Goldborough, I asked him about these automatic telephones. Said he: "We have three different systems exhibited here. The Strowger system has been in process of development for a number of years, but it has only recently become thoroughly commercial, and it is now extensively used in the factory towns about Boston and Chicago. We have it here in the electricity building, and use it in our business. The exchange is so arranged as to show the working of about 10,000



PROFESSOR GOLDBOROUGH,  
Chief of the Great Palace of Electricity at St. Louis.

the electrical department. I have watched girls cooking with lightning, and smoothing boiled shirts with electric irons. I have seen men healing diseases with electric sparks, telegraphing a thousand words a minute, telephoning without wires and even without the aid of the "hello girl."

**THE PASSING OF THE "HELLO GIRL."**  
Yes! Actually telephoning without the intervention of her nasal twang, and without the danger of her pink ears being the source of their transmission. They make their own connections and talk as long as they please, unbothered by her majesty.

telephones. We have telephones at each of the various entrances of this building, in our offices, in the laboratory of the national bureau of standards and elsewhere. The system gives us a means of secret communication with one another, the central operator being eliminated. We can telephone what we please, and it is practically impossible for anyone else to know what goes on. "In addition to this," continued Prof. Goldborough, "we have the Faller automatic telephone system, which has been so developed that it is now ready for commercial application on a large scale, and also the automatic telephone of the Bell company. The Bell Telephone company has been quietly perfecting such machines for several years, and it has its apparatus

**The Passing of the Hello Girl or the Automatic Telephone—Talking Without Wires and the Wireless Telegraph—Electric Transportation—Electric Locomotives For Steam Railroads—Cooking and Heating By Lightning—Healing Diseases—Telegraphing a Thousand Words a Minute—The Telephone-Phonograph, Etc., Etc.**

now on view in section 17 of this building. This is practically the first announcement that has been made of it, and it is one of our most important novelties.

## THE SPHERE OF THE AUTOMATIC TELEPHONE.

"Will such telephones come into general use?" "I believe that they will be used at first in small installations," said Prof. Goldborough. "It may take some time to adapt them to the cities or to make it possible that they should take care of the enormous traffic of a large city without the use of operators. That is a matter of gradual development, and it involves serious engineering problems."

"Then we shall have operators for some time yet?"

"I think so," was the reply. "We still use tallow candles, gas lamps and coal oil, although we have the electric light, which exceeds them as an illuminant. It is not possible to say as yet that the automatic telephone will do away completely with the central station telephones."

## TALKING WITHOUT WIRES.

"How about the wireless telephone?" "That is a new invention which is shown in a comprehensive way and on a sound engineering basis for the first time at this exposition. You can see it in the Palace of Electricity and listen to the transmission of articulate speech without wires. Prior to this demonstration have been effected where the ground or currents of water have been used as a means of perfecting the circuit between the instruments. Here at the exposition we have an absolute divorce of the transmitting and receiving instruments, one from the other, without any physical connection whatever. A person, equipped with one of these telephone transmitters and the coil attached thereto, can pass freely through the court and central aisles of this great building and distinctly hear the words spoken at the transmitting station, which is entirely out of view and far beyond our range."

The intent of this demonstration is to conclusively prove that the connection is absolutely wireless. We can easily show the general public that wireless telephone stations are installed and in operation, but it is difficult to make many believe that there is not some means of transmission between the stations. You can easily see that this could not be the case with the wireless telephone system exhibited here, as the person having the receiving apparatus in his hand knows that it is entirely free from any outside connection. "Then the only use of this invention is to listen to some central speaker or to talk between man and man?"

"So far the system is used here only as a means of enabling one speaker to talk to a large number of listeners. Whether it will ever have a commercial value remains to be shown."

"How large an audience could one man address through one of these machines and be distinctly heard, Professor Goldborough?" I asked. "As an engineering possibility it would be perfectly feasible to install such an apparatus, so that one speaker could address at least one hundred thousand people, and each could hear him with equal distinctness. Such an experiment, however, would require the installation of a set of instruments which would be valuable in connection with any other kind of a demonstration."

## THE WIRELESS TELEGRAPH.

"How about the wireless telegraph?"

"That is a different proposition," said the chief of the electricity palace. "Half a dozen systems of wireless telegraphs are now being used. There are several operated in the United States, and Great Britain is spending a large sum of money every year to equip its battle ships with them. Our government is also experimenting with the different systems, and wireless telegraphy is now used by the public on a very extensive scale. It is used far more than the people realize in communications between stations on land and upon sea. There are at the present time two well-organized and strong companies carrying on the wireless telegraph business in the United States. The De Forest Wireless Telegraph Company has here at the exposition, in addition to two finely equipped stations inside the electricity building, two towers, each of which is over two hundred and fifty feet high. From these towers messages can be simultaneously sent out to two different points and before the closing of the fair they will transmit messages as far as Kansas City and Chicago."

## WIRELESS TELEGRAPHY IN CHINA.

"Do you think it will ever be possible to telegraph across the Pacific, Prof. Goldborough?" "It is within the range of possibility, although it may be long before it is attained. The De Forest company has already equipped a large station at Seattle. We have a model of that station in the electricity building. From Seattle messages will be sent to Alaska, to cities on the Pacific coast, and possibly to the Hawaiian islands and the Orient. It would be a wonderful thing if we could telegraph from San Francisco to China, would it not?" The conversation here turned to electrical transportation, and I asked as to the progress made in that direction. Prof. Goldborough replied:

"In electrical transportation there is nothing new which the public can appreciate. There are new things, in the engineering world, and likely to entirely revolutionize the system of electrical transportation, especially over long distances, but the character of the inventions is so extremely technical that the general public would not be able to appreciate all that they carry with them. A car equipped with an apparatus designed to work under a high-pressure alternating current, does not appear different in any degree from the present trolley car to the layman, and, indeed, only a trained and skilled electrician can appreciate to any great extent what this new development involves."

## ELECTRIC LOCOMOTIVES FOR STEAM RAILROADS.

"Does that mean that electricity will take the place of steam on our big railroads?"

"I think it safe to say," replied the electrician, "that as much as electric cars are now being operated between cities several hundred miles apart, more cheaply and with the same safety and speed as the steam railroads, and that without the aid of freight traffic, that the capitalists will eventually see that they can make a saving by doing away with the steam locomotive, and taking the electric locomotive in its place. This is especially so because recent developments include electric railway apparatus which are much more economical for long distance work than those now common in America."

"The fact that the New York Central railroad has equipped 35 miles of its main track near the city of New York with electric apparatus and has placed an order for 30 electric locomotives capable of making a speed of 75 miles per hour with heavy Pullman trains, is one indication that a great change is about to take place in the method of handling traffic on our big roads. This change will first come where the volume of business is heavy, and where there are many trains every day."

## COOKING BY LIGHTNING.

"I see that you have girls here cooking by means of lightning. You have electric irons and electric stoves, and all sorts of electrical cooking appliances as well as electrical heaters. Are these things practical?"

"I think they are," said the head of the electrical department of the world's fair. "Electric heating is now used very extensively. A great number of factories now employ electric soldering irons and heating irons. They find it economical inasmuch as the person pressing out hats or cloth does not have to stop every few minutes to get a hot iron from a stove or heater. The electric iron is always hot and always ready for use, and the operator's efficiency is greatly increased by her having

ing an electrically heated device rather than one heated by other means."

"As to the use of electrical heating apparatus in the household, it is safe to say that it is constantly encroaching upon the more primitive methods. Electrical heating and electrical cooking are far superior to any other in the matter of convenience. Wherever water must be heated it can be heated so economically by the electrical apparatus as by gas or coal, and such cooking and heating can be more easily done than by any other means."

"A very important thing about cooking and heating by electricity," continued Prof. Goldborough, "is that it is much more healthy than cooking or heating by coal or gas. Electricity makes less dirt and the apparatus can be quickly and readily cleaned. Again, you can heat any desired vessel without heating up the rest of your surroundings. You can make coffee without bringing the cook and the room to a high temperature, as you must do if you would heat a small quantity of water by coal, wood or gas. By the electrical apparatus all the heat is kept inside the coffee pot and the cook and the room are at a comfortable temperature. You may see this cooking going on in the building. We have here utensils for the entire range of cooking, and they are thoroughly successful commercially."

## TRYING TO EDUCATE THE PEOPLE.

"I would like to say," remarked Prof. Goldborough, "that the exhibits of the palace of electricity have been designed especially for the general public rather than for the electrical engineer. This exposition is educational and we are trying to show the people as much as possible about the new things in the electricity of today. We have here complete are lighting systems, so displayed that the layman can see just how his city plant is operated and handled. He can, if he will, have all the details explained by calling upon the attendants in charge of the exhibit."

"We have also a splendid laboratory here for the testing of large electrical machinery. The facilities of this workshop are beyond those of any of our university laboratories. Indeed, a group of eight students could be continuously occupied there for more than two years, studying the behavior and characteristics of electrical machines, and not exhaust its resources. It is so with many other features. They are made for the public and the attendants are ready to answer why and wherefore everything is, so that the visitor may carry away the knowledge of much that he cannot see in the exhibit that is not apparent on the surface."

## HEALING DISEASES BY ELECTRICITY.

The use of the electricity in curing disease is well shown in the electricity building. Mr. Goldborough tells me that startling progress has been made in this field. He has exhibits of the electric light bath, and it is, I believe, possible for a person who feels under the weather to take one here in the full view of the public. In the same way various electric brushes are shown and X-ray instruments of different kinds."

One of the most interesting features of the Palace of Electricity is an electrical apparatus by which the deaf are made to hear. Classes of deaf mutes come here and are thus taught to speak, and through this apparatus their education can be carried on. Indeed, it is believed that it will soon be in general use throughout the United States, and that it will do much to better the condition of our so-called deaf and dumb.

## OTHER NEW THINGS.

But I cannot even mention the number of new things in electricity which are shown here. There is much new in electric lighting, including a factory where incandescent lamps are made. The complete process of manufacture is shown, the factory having an output of more than one thousand lamps per day.

And then there are electric locomotives which claim a regular speed of more than one hundred miles an hour, and telegraph instruments upon which can be sent from one to two thousand words a minute. There are other instruments for sending pictures and handwriting by telegraph, and there are also telephones and phonographs combined by which one can have recorded on a wax cylinder the messages sent him when he is away. There are electric motors and generators, some of the motors so small they are just fit to run a sewing machine, and some generators so large that they do the work of ten thousand horses. There are all kinds of storage batteries, some for use in country houses and others adapted to automobiles. There are automobiles from different parts of the United States and from the several countries of Europe. You can ride about the grounds in automobiles, and there is an automobile service to and from the hotels. In short, there are all sorts of things here moved by electricity, and in every branch there are many new inventions. FRANK G. CARPENTER.

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