

# Canadian Achievements

By Lyman B. Jackson

## No. 5.—THE ELECTRIC STOVE

Any alleged connection between the pioneer electric railway and the dainty electric stove of the modern Canadian kitchen will doubtless appear to be overdrawn. But the two conveniences are definitely connected in their origin. The electric stove is the product of Canada as the electric railway is.

Thomas Ahearn, who was born in Ottawa in 1855, was the genius who gave to the world the comforts of electric cooking. This triumph was not of a sporadic nature, but came from years of experience attacking big jobs and bringing them to a successful conclusion.

Thomas Ahearn was born in Ottawa in 1855, and like so many other Canadians who have won

turn much of that which did pass into heat.

The Ottawa Electric Railway commenced to operate cars in the autumn of 1891, and the critics and wisacres shook their heads and smiled while waiting for the thermometer to dip into the sub-zero section of the scale and bring the venture to a standstill. Real cold weather did not come to Ottawa until February of 1892, and when the patrons hurried to the cars they found them pleasantly heated, but the heat was not radiating from visible stoves. Upon investigation mysterious little boxes were noted under the seats. These were the electric heaters. They were the first that were ever built, and they were made in Canada by a Canadian.

**The "Electrical" Banquet.**

These heaters attracted considerable attention and Thomas Ahearn was approached with offers for larger heating units. In March, 1892, the foreman's office of the Ottawa Water Works was equipped with a large electric heater which was both economical and efficient. Experts came from many cities not only in Canada but the United States to see the wonder, and the inventor decided to surprise his guests. He invited them to an "Electrical Banquet." The visitors who had come to see electric heating were hidden to appear at the Windsor Hotel, Ottawa, one evening in the month of April, 1892. When they arrived they were treated to a dinner, every course of which had been cooked by electricity in an oven built for the purpose. This was the first time in the history of the world that electric cooking had been demonstrated. The oven used resembled a baker's oven and had been provided with heating grids that could be regulated from the outside. The meal was voted a complete success and from that beginning has grown the numerous conveniences that make life easier wherever an electric lighting circuit is provided.



THOMAS AHEARN, of Ottawa, who gave to the world its first ideas of electric heating and cooking.

fame and fortune, he turned to telegraphy as a means of livelihood after graduating from Ottawa University. He did not sit long before the key, however, for in 1880 he was given the management of the first telephone company that was formed in Ottawa. Two years later, in 1882, he formed a partnership with W. Y. Soper, as electrical engineers and contractors.

The firm built the long distance telephone lines from Pembroke to Quebec, and wired the Maritime Provinces for the long distance land lines of the Atlantic cables. They next connected Halifax and Vancouver with telegraph lines, and followed that work by the construction and operation of some of the first hydraulic, electric generating stations on this continent.

**His Great Secret.**

With this marvelous result for a few years' work behind him, it is little wonder that Thomas Ahearn took the presidency of the Ottawa Electric Railway Company when it was formed in 1891. He was warned from all sides that this venture would be a failure owing to the impossibility of heating the cars and operating them in the winter. But the secret of electric heating was known only to himself. He had learned that it was possible to draw certain metals into wires which would offer a high resistance to the passage of the electric current, and

## The Future of Wireless

PHONING ACROSS THE ATLANTIC—TALKS WITH FRIENDS OVERSEAS.

(By Raymond D. Bangay, Author of "Elementary Principles of Wireless Telegraphy," and one of the Senior Engineers of the Marconi Company.)

The commercial practicability of Wireless Telegraphy is due almost entirely to the invention and development of the Thermionic Valve. This simple, though wonderful piece of apparatus, which owes its inception to Dr. J. A. Fleming, is an infinitely sensitive electrical relay. Being devoid of any moving parts, it is absolutely free from inertia and is capable of magnifying, in perfectly true proportion, electrical variations occurring even at a frequency of several millions of reversals a second. The early forms of the valve were designed only to deal with the very feeble currents of a receiver but, in recent years, it has been developed also for the purposes of wireless transmission. Some of these transmitting valves are capable of dealing with 10 kilowatts (about 14 horse power) or more of electrical power, and any number of these may be combined in parallel for the large power transmitters of several hundreds of kilowatts.

For reasons which we explained in the last article, the greater the distance to be spanned by wireless, the more powerful must be the transmitter. (Wireless telegraphy over long distances therefore entails an ability firstly to generate sufficiently powerful high frequency currents of perfectly uniform intensity to produce a carrier wave capable of affecting the distant receiver and, secondly, to control this power by the feeble energy of sound vibrations.

### A Great Feat Accomplished.

By means of the large transmitting valves, the electrical power generated by an ordinary dynamo can be converted into the high frequency current required for producing the carrier wave, and by means of other valves, acting as a kind of electrical throttle, these

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## but it must be Colman's

powerful current can be controlled by the feeble currents generated by the voice acting on the microphone. The delicacy of this control, which must respond not only to the characteristics of pitch and loudness but also to the myriads of subtle variations which go to make what is known as the "quality" of the sound, is almost beyond comprehension. Nevertheless, by making use of the perfect relaying properties of the valve, and by bringing to bear the scientific knowledge and skill required in the design of the circuits with which it is associated, this feat has been accomplished, and is now a commonplace of engineering practice. Again, by means of the small receiving valves, the feeble currents generated in the distant receiving aerial can be magnified to the extent necessary for the reproduction of the original sound.

One of the outstanding features of Wireless Telegraphy is that sound can be conveyed by this means over practically unlimited distances. This is due to the perfectly elastic character of the ether and its entire freedom from any form of inertia. As a result, the sound modulations impressed on the carrier wave are not appreciably distorted between the communication-points. Although the waves radiated from the transmitter gradually fade away in accordance with the laws of inverse squares as they travel further and further from their point of origin, the modulations which they carry always retain their original relative values and consequently, with suitable receiving apparatus, they can be reproduced as sounds without any loss of intelligibility.

All Apparatus Available

If this were otherwise and if these modulations were disproportionately affected in their journey from transmitter to receiver, truthful reproduction of the original sound would be impossible, and articulate speech would be converted into little more than a noise. This, in fact, is what occurs in long distance telephony over land lines or submarine cables. The electrical properties of the latter, especially in the case of submarine cables, where loading coils and other artificial methods of restoring the balance are impracticable, tend to suppress the higher frequencies of the microphonic currents flowing through them, resulting in a very serious distortion of the sound. It is this factor which strictly limits the distance of telephonic communication. (Continued on Page 16)

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Next Article—Calcium Carbide.

## POLICE SAY IT'S MURDER AND SUICIDE.

MARYSVILLE, May 20.—Miss Leah Ellenberger, 19, of Hollidaysburg, Pa., and Harry Ganster, president of the senior class of Marysville High School, were found dead in an automobile at Lamb's Camp, near here, early today.

Miss Ellenberger, here on a vacation, went out to pick flowers yesterday afternoon with young Ganster, whose school term ended yesterday.

When the pair failed to return last night, Joseph Ganster, the father, led a posse into the mountains. The father found his automobile mired along a mountain road soon after daybreak.

Cumberland County authorities who are investigating believe it to be a case of murder and suicide.

Miss Ellenberger was well known throughout this section for her unusual voice. On Thursday night she took the star role in an amateur production presented in the Marysville High School.

Ganster's schoolmates told authorities he had been in the habit of carrying a revolver around, and had gotten in trouble on several occasions. Some time ago he shot a ten year old boy from his shack in the mountains that surround the village. According to the story told authorities, someone threw stones against the building and he began shooting through the door. The boy, who was playing in the woods, was injured by a stray bullet.

Ganster said that he had been taking pictures of moonshiners and feared the moonshiners were after him.

## UPTON SCHOOL

The standing of Upton School for the month of April is as follows:

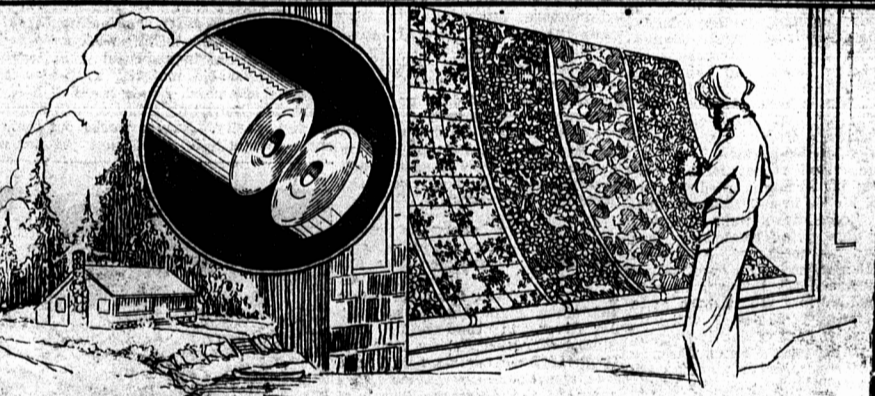
Grade VIII.—1, Henry Sherman, 2, George McLeod.

Grade V.—1, Marie McLeod, 2, Truelove Taylor.

Grade II.—1, Emma Taylor.

Grade I.—1, Harold Taylor.

Perfect attendance: Marie McLeod, Emma Taylor.



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