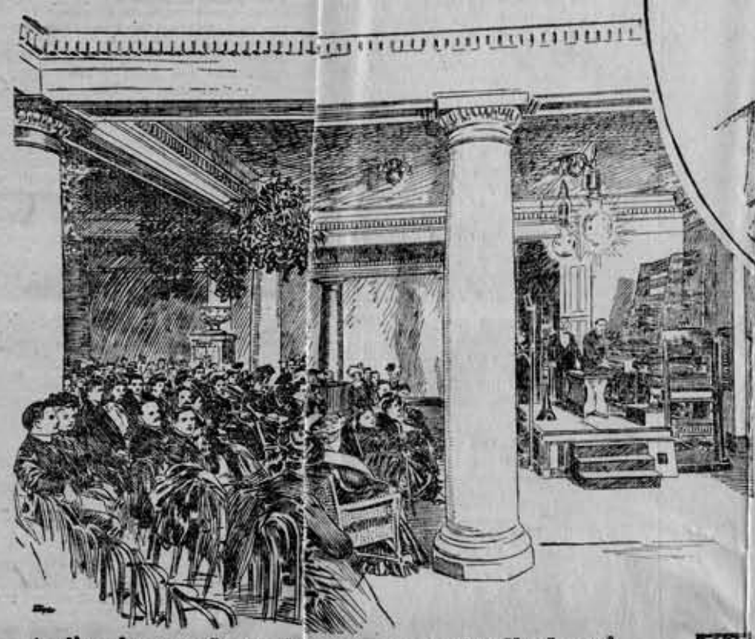
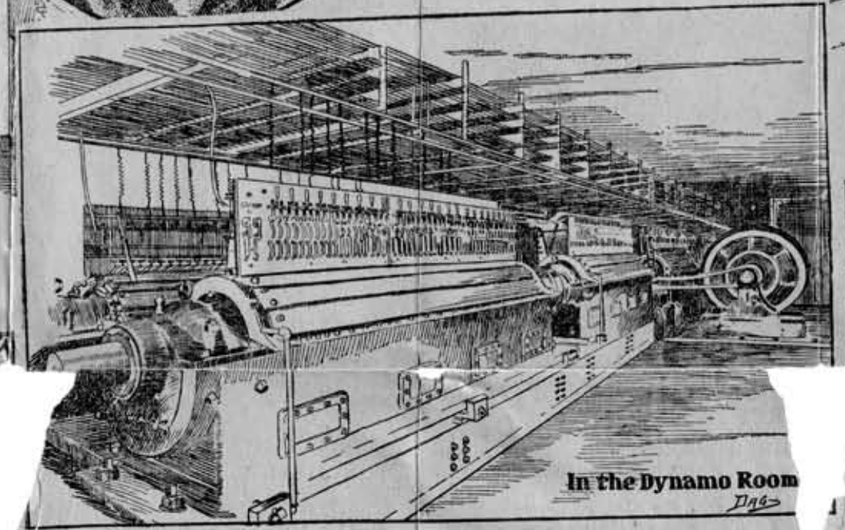
MUSIC FOR THE MILLION

THE SPEEDY FULFILLMENT OF A PREDICTION MADE BY A CLEVER AMERICAN ECONOMIST WHO BUILDED BETTER THAN HE KNEW

Dr. Thaddeus Cahill



Auditorium and Performers



Station, Showing Keyboard

The Performers at Work

In the Dynamo Room

IN his ingenious "Looking Backward" Edward Bellamy draws a picture of the home life in an American city in the year 2000. He tells of a central musical station from which wires extended to every home, so that merely by pressing a button any one who felt so inclined might have the works of the masters, interpreted by virtuosi, brought into his immediate presence. At the time this clever bit of prophetic fiction was published—now almost twenty years ago—no one took the prediction seriously, not even the electrician, who was looking forward as far as he could and was in no position to look backward.

It has come to pass that Bellamy's inverted prophecy has been fulfilled almost literally. About the only point of variance between the prediction and its realization is that the latter came too soon, about ninety-three years before it was due. If the outcome had been disastrous or even disagreeable, the world might have been disposed to hold the prophet responsible, but since the fulfillment has brought only satisfaction we cannot regret its premature coming. Now that it is here it has been given the name of the telharmonic system of electric music.

What is it? It is immeasurably easier to tell what it isn't. It is a result of creative genius at work that has no counterpart in anything with which we have grown familiar. It is a further harnessing of the always mysterious electric energies, this time into a tractable instrument for reproducing all the tones that are recognized by the educated, and also, most marvelous of all, sundry tones that lie without the well defined bounds of harmony as it is understood by mortals and are not less agreeable to the human ear than the others.

This smacks of the supernatural, but it is true. The so called telharmonic system of electric music seems to be destined to revolutionize the science of harmony, exact as it has ever appeared to be. The diatonic scale, too, that bulwark of the well equipped musical theorist, is revealed in all its shallow artificiality. It is made apparent that for all the centuries the world of music has been hemmed in on all sides by the traditions of the art. We have become so willing to accept the many physical limitations of our acknowledged instruments that it comes like a shock to be convicted of our narrowness, our lack of tonal conception.

The Age of Electric Music.

But we must accept the evidence of our senses, and the telharmonic system will go far to convince us that the age of electric music has dawned. It is demonstrated forcibly that this most awesome of nature's forces employed as musical energy has brought about fundamental revolutions in tone production which make necessary a readjustment of all our previous notions on the subject. This has been the almost universal conclusion of the host of musicians who have seen and heard the new wonder, and many of them have been frank enough to admit it. In the past all musical tones have been produced by human physical effort, either by expelling air or by vibrating some substance, and it followed that the purity of the tones obtained by any of these methods has depended entirely on the skill of the one who evoked them. In this new electric music the quality of the tone is always the same.

To illustrate this perfect uniformity of tone the telharmonic reproduction of the music of the French horn may be used. The tone from this instrument is exquisite when produced by an artist, but the mechanical difficulties of keeping the tone equal in quality are well known to those who are familiar with it. This is entirely obviated by the new electric system. The tone is always the same and may be prolonged indefinitely. This is equally true of the tone of the violin or cello or any other musical sound that may be required. It is a storehouse of perfect tones which are responsive to the slightest touch. What is wrought with them depends on the skill of the musician who essays to combine them.

The Man Responsible.

The genius who has developed this scheme of supplying the world with music produced by electrical energy is Dr. Thaddeus Cahill of Iowa. In 1893 he began his search for the perfect musical instrument of his dreams by a series of exhaustive inquiries into the principles which regulate sound. He became convinced that perfection would never arrive until he could make himself master of two requisites—first, perfect tones in which the vibrations should be under control, and, second, these tones to be controlled with mathematical certainty by mechanical means.

The established principles of physics taught the patient investigator that sound is merely a vibratory movement in the air and that it must be set in motion by some vibrating substance. The telephone suggested to Dr. Cahill a ready instance of the action of the electric current on the diaphragm of the receiver, and he finally came to the conclusion that it was only necessary for him to provide a current that would vibrate at the mathematically exact rates that would produce the various musical notes. That, of course, brought him to the alternating dynamo or electric generator. He proceeded to construct a series of dynamos, each generating a different rapidity of alternations. He found that in this way hundreds of tones would be available.

Dr. Cahill succeeded also in establishing another vital fact—if these currents could be transmitted by wire to receivers and diaphragms in the same building with the dynamos they could be transmitted wherever wires could be run. Thus it would be possible to send them to thousands of buildings in scores of cities—in fact, wherever there might be a demand. Having accomplished all this, Dr. Cahill began to see his way more clearly. He realized, however, that much remained to be done before any practical result was to be expected. He had no inclination to put his discovery before the public as a new and wonderful electric toy. He was convinced that he was on the right track and that time and perseverance would lead him to the perfection he sought. It was not enough to have discovered the way to produce merely a certain fixed quality of tone. All other musical instruments do likewise. The thing to be accomplished was to be able to produce on this single instrument any timbre desired, the liquid sweetness of the flute, the vibrant tremble of the violin or the resonant blare of the brasses.

A Problem Solved.

In time Dr. Cahill realized that his system had solved this problem. A single current from one dynamo produces only a fundamental tone and no involuntary vibrations of the diaphragm are possible. Thence the inventor proceeded to elaborate his system. After infinite labor and many disappointments he evolved a dynamo for each elementary tone in the register. About 200 dynamos were found necessary. And then came the final obstacle, something that it required the labor of five years to overcome. It was to provide a method of [illegible] a number of different currents into a single composite current so that the alternating impulses of one would not nullify those of another.

Finally, however, after fourteen years of patient research, Dr. Cahill perfected the system which is in some respects the most remarkable electrical achievement of the age. It is theoretically—and in time will become so practically—the only mathematically perfect musical instrument, unlimited as to power of expression and to its capacity for transmission. The system's value to musical art does not seem to depend chiefly on the imitation of existing instruments. That is a point insisted on with great emphasis by the inventor. Although its power of reproducing the tones of other instruments and of transmitting them and combining them gives it a great commercial value, its real supremacy exists in the fact that it is capable of originating new tones, those that have never been produced by any existing instrument. It is absolutely a new creation, music set free by electrical energy, an expansion of tone quality that has never before been revealed to human ears.

Its Possibilities.

It is not possible at this time to estimate the value of the new discovery to musical art. The extraordinary possibilities which it suggests are fairly dazzling to the educated musician. Many of the world's greatest artists have looked into its operation with awe and admiration. It has played to audiences miles distant, and its currents have been transmitted through the equivalent in resistance of 900 miles of open wire and nine miles of telephone cable, producing good musical effect at the end. Stepup transformers were used in the long distance transmission to augment the voltage along the line.

Perfectly successful wireless transmission of the telharmonic currents has been effected at a distance of ten miles. This experiment had for its receiving point a battleship in New York harbor, and it has also been made successfully at other times. Wireless experts who have investigated the system predict that in a year or so ocean liners may have telharmonic concerts during the first few evenings of a transatlantic voyage, the melody coming from the central station in New York. Several leading hotels and restaurants and at least two theaters have had the long distance music in their supper rooms and auditoriums.

It is the intention of those who are developing the scheme to make this new music as much of a commodity as are the illuminating current, the telephone or, for that matter, the daily paper. The system of wiring is being extended from the central station to all parts of New York. The time is at hand when large hotels will have the wiring in all rooms so that precisely as one now asks by telephone for ice water or stationery he may ask for music, which will be supplied by means of a switchboard in the office. The great department stores will soon be supplied with the telharmonic system, and it has been proposed to run the wires into hospital wards.

In view of the sedative influence of good music played softly some subscribers to the telharmonic service have had the wires installed in their sleeping rooms so that the current may be turned on at any time in the night when they are inclined to be wakeful. It is also possible by means of a very clever clockwork device to be wakened at any hour one elects by the performance of, say, Mendelssohn's "Spring Song" as a string quartet. This is luxury indeed.

GEORGE H. PICARD.