

From the
WILLIAM J. HAMMER
Scientific Collection



Telharmony

"Please look at to-day's music," she said, handing me a card, "and tell me what you would prefer."

The card bore the date of Sept. 12, 2000, and contained the longest programme of music I had ever seen.

It was as various as it was long, including a most extraordinary range of vocal and instrumental duets, quartets and various orchestral combinations.

I remained bewildered at that prodigious list until Ethel's pink finger tip indicated a particular section of it, where several selections were bracketed, with the words "5 p. m." against them; then I observed that this prodigious programme was an all-day one, divided into 24 sections answering to the hours.

I indicated an organ piece as my selection. She, crossing the room, merely touched one or two little screws, and at once the room was filled with the music of a grand organ anthem; filled, not flooded, for by some means the volume of melody had been graduated to the size of the apartment.

Such music, so perfectly rendered, I had never expected to hear.

As she spoke the sound of violins filled the room with the witchery of a summer night. When this had ceased, she said:

"There are a number of music rooms in the city, perfectly adapted acoustically to the different sorts of music. These halls are connected by telephone with all the homes of the city whose people care to pay the small fee, and there is none, you may be sure, that do not.

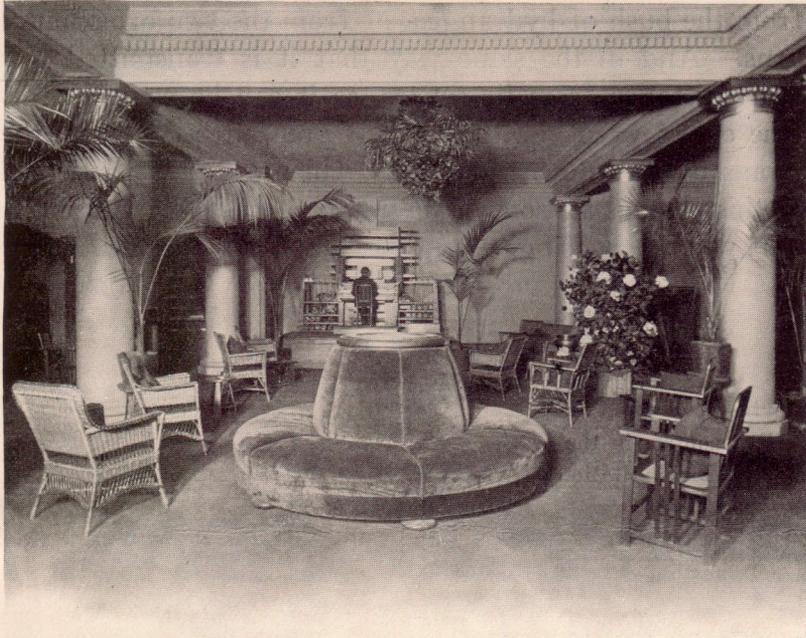
"The corps of musicians attached to each hall is so large that, although no individual performer, or group of performers, has more than a brief part, each day's programme lasts through the 24 hours.

"There are on that card for to-day distinct programmes of four of these concerts, each of a different order of music from the others, and any one of the four pieces now going on that you prefer you can hear by merely pressing the button which will connect your house wire with the hall where it is being rendered.

"All of our bedchambers have a telephone attachment at the head of the bed by which a person who may be sleepless can command music at pleasure, of the sort suited to the mood.

"Father will show you about the adjustment before you go to bed to-night and with the receiver at your ear I am quite sure that you will be able to snap your fingers at all sorts of uncanny feelings if they trouble you again."

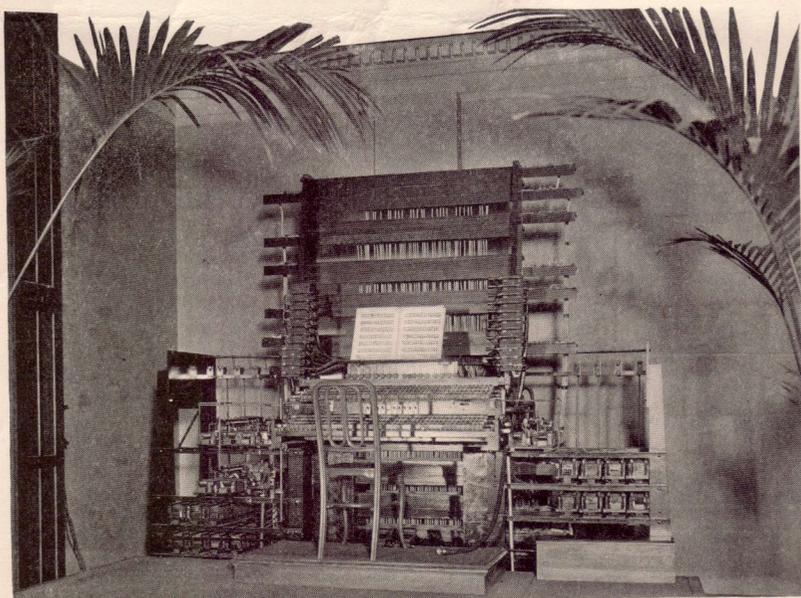
Looking Backward.



ERE to-day is this wonderful music, produced by the invention of Dr. Thaddeus Cahill. It is the realization of Mr. Bellamy's dream; and we in this day and generation are enjoying it instead of a hundred years hence. It is merely incidental that you hear the music in this reception or audience room. The first impression, as you enter the room, is that it comes from the keyboard. On close examination, however, you will find that it is coming not from the keyboard but from the hanging basket of ferns and vines; from the centre of the divan;

from the bush of hydrangea, or from the two ornamental urns. And in the same way that it is transmitted this short distance from its source, so it can be carried afar. The effect would be the same if you entered any of the rooms up and down Broadway which are now connected to this central station. The music there is identical with that you are hearing.

Keyboard of the Cahill
Telharmonium in the
Central Music Station

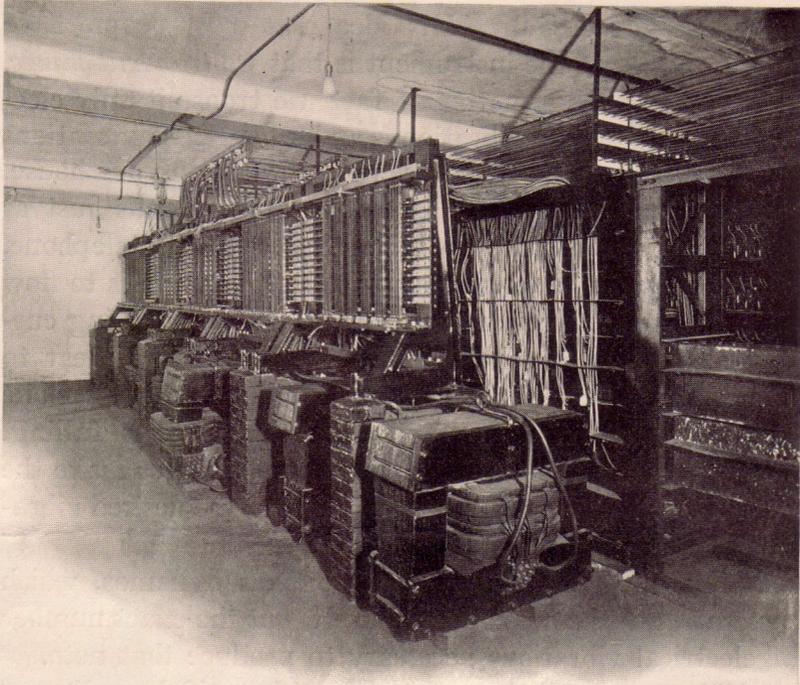




MISTAKEN idea that most people have of the instrument is that we *transmit music*. As a matter of fact, we transmit only electrical vibrations; and when these vibrations reach the receiver diaphragm in your house, irrespective of distance, the diaphragm responds just as it does in this room. So in talking over the telephone, when A speaks he causes varying electric currents to flow over the line between himself and B. These varying currents cause the diaphragm which B holds to his ear to vibrate in the same manner in which vibrates the telephone transmitter diaphragm upon which A's voice is falling. We cut out the first sound because our dynamos make the necessary electric currents for producing the desired vibration at B's end of the line.

Each key in the keyboard controls dynamos, which generate, not the musical note itself, but the exact number of electrical vibrations necessary to produce that note.

The secret of the mysteriously beautiful quality of the tone produced is that when the telharmonist takes his C or D, or any note or notes in the scale, individually or collectively, as he would on the piano or the pipe organ, or in fact on any instrument, he has absolute control not only of the note itself but of the quality of that note. On any ordinary musical instrument the range of tone is limited to the characteristic quality of the instrument; for instance, the piano, having but one fundamental quality, can give but that one. Thus a new music is being evolved, at times subtle and entrancing beyond any harmony yet heard.



Part of the Switch-
board and Tone-mixers
of the Cahill
Telharmonium

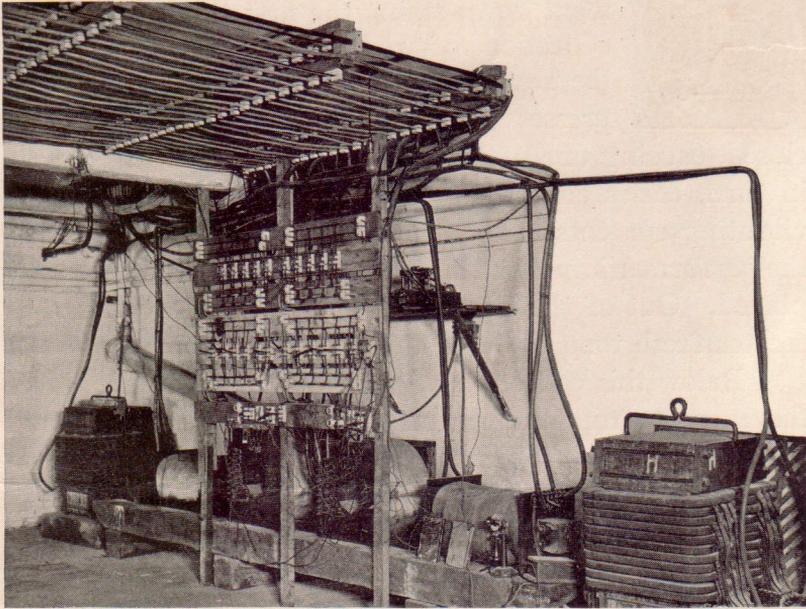


IN inspecting the elaborate electrical equipment down-stairs, the first thing seen is the collection of rods directly controlled by the keyboard. Each time the telharmonist presses down a key a magnet-circuit is closed, causing one of these rods to be lifted; this action, in turn, closes circuits for two or more dynamos whose vibrating currents are sent over the wire. It is here that the performer impresses his own individuality on the music played. Out of the electric currents under his control he creates fresh tone qualities at each instant.

Below this collection of rods are tone mixers. Here the current from the various dynamos is tempered and blended by the performer's intervention and interpretation of the score before passing on to the subscriber's line.

To show the facility with which any number of telephones can have the music transmitted to them, three or four hundred instruments are shown in large boxes where they are kept buried in sawdust. This interesting collection of receivers is known as "the Douma," as all its members, like those of a famous parliament, are purposely kept silenced, and in semi-imprisonment.





Another portion of
the Tone-mixers, in
the Coils of which
the final complex
Electrical Vibrations
are built up



It is true that we can never see electricity any more than we can actually hear it, but at the same time, ocular demonstration can be given in many ways of its flowing in a circuit. Here in the Telharmonium system a little lamp has been connected to the wires that lead to the subscribers, and the waves of the current that become music are also seen in this lamp to become light, thus showing the identity of electricity in its wonderful functions.

Before the vibrations are turned on to the subscriber's wire, they pass through the switchboard, here seen, in appearance very much like the telephone switchboard; but while telephonic conversation in your home can be secured only by communication through a central operator, the music may be obtained directly upon the pushing of a button on the wall of your home.





E now go into the dynamo room, the real source of the music waves. Here are 145 dynamos (others will follow), each producing current vibrating a specific number of times a second. These dynamos in a general way are similar to those commonly used in electric lighting stations. Thus you get your electrical music from central sources like your electric light and your electric power. It is current similar to that ordinarily delivered to your house; but while you use it as light or power, we use it to produce vibrations which we transmit to your receiver there to make sweet music.

The Electric Music Central Station operates similarly to one furnishing electric light. In the case of the electric light, electricity is generated in dynamos of a certain kind, and sent out over wires to which are connected the familiar lamps. In the Electric Music Station electric waves are generated in dynamos of a special design, and sent out over wires through telephones, which transform these electrical waves into sound waves. The currents are strong enough to make sound waves, that are, in turn, powerful enough to fill any room with music. The keyboards and switchboards are merely devices, which put under the delicate control of an artist the myriad varying electric waves required to produce the desired effects.





ALMOST without exception, the progress of an art is made by slow steps—by gradual evolution. One inventor conceives the idea in a form too crude to be practically useful. Years after another conceives improvements. And so it goes, sometimes for decades, sometimes for centuries, until by the labor of many men, in different countries, in different ages, the thing is made practicable. From Hero's proposal of a crude form of steam engine to Watt's successful machine was nineteen centuries. Two centuries elapsed between Huyghen's proposal of an explosive engine and the successful working out of that motor in shop and automobile. So with the telegraph, the electric light and the dynamo—many years elapsed and many inventors worked before the thing was practically useful. But the electrical music—the production of music from dynamos—complex and wonderful as it is, has been worked out by one man, Thaddeus Cahill.

It is a self-evident fact that because one set of musicians may now be simultaneously heard in many places throughout a great city, music can be sold at reasonable prices to all desiring this service, hitherto unattainable. It is rapidly being put into hotels, restaurants and homes throughout New York.

With the first plant producing such beautiful music as it does, what may we not expect when three hundred dynamos and a dozen keyboards shall be installed?

NEW YORK ELECTRIC MUSIC COMPANY

Executive Offices:

1414 BROADWAY, CORNER THIRTY-NINTH STREET

Telephone: 1456 BRYANT

TELHARMONIC HALL

The music Auditorium at the Central Generating Plant is now open to the general public; complete demonstrations of the music given with standard selections by talented musicians every afternoon and evening.

ELLIOTT SCHENCK, Musical Director

ADMISSION FIFTY CENTS

