

New York Has a Pipe Organ Built Entirely of Cement

ANOTHER use has been discovered for cement, this time from a most unexpected quarter. An organ builder of Elmira, N. Y., has set the musical age in a flutter of excitement over the wonderful musical effect produced by his orchestral unit organ—largely constructed of reinforced concrete.

A specimen of his work at the great Auditorium, Ocean Grove, N. J., has been attracting much attention. Madam Schumann-Heink describes it as the most wonderful organ in the world, while Nordica and other great singers are equally loud in their praise. Composers, such as Hadley and Homer-Barfield, declare that it marks the dawn of a new era in orchestral music. At the convention of the National Association of Organists at Ocean Grove, a resolution was unanimously passed acknowledging the epoch-making advance achieved and saying that if the inventor's genius has free scope a marked uplift to the musical life of the world will result. The new form of organ has, therefore, evidently come to stay.

Cement Age presents a few of the details of construction. The instrument at Ocean Grove is not a perfect and complete example of the builder's invention, yet it has attracted such general attention that over 100,000 people have paid for the privilege of hearing it during the summer and more than half of the cost of the instrument has thus been recovered in less than three months.

The organ is like the church and concert organ in but one particular, namely, that in each, the tone is produced by wind blown through pipes. Even here the resemblance is not great, for in the church organ a great quantity of air at a low pressure is used to blow many thousands of pipes, whereas in the orchestral unit organ there are but few pipes and the wind used is of high pressure.

Apart from the metal pipes, the church or concert organ is a delicate machine constructed mostly of wood, leather and glue—affected by every change of temperature and readily damaged by moisture. On the other hand, the orchestral unit organ is constructed largely of reinforced concrete, has practically neither leather nor glue, and is absolutely impervious to weather

changes. It is smaller and less complex than its old rival. It is also less costly, though it produces much louder and more expressive musical tones.

Hitherto it has been considered for reasons having to do with acoustics, that wood should be employed in the construction or lining of organ chambers. But the inventor of the new type of organ judges wood to be about the worst possible material for employment in this capacity, and considers concrete or stone to be best. In all organs the tone originates in the air and contact with anything calculated to absorb this tone is to be avoided. That is why he prefers concrete to wood. It is stated that the effects he obtains border on the marvelous. The Ocean Grove organ has but 14 ranks of pipes—as compared with 100 or even 140 in other organs—yet the organ at Ocean Grove is easily the most powerful one in the world. All its tones are reinforced and reflected by cement.

In the organ, monolithic construction is, where possible, employed. There are chambers and passages for compressed air, including four or five chambers for the pipes. The larger of these pipes are themselves of concrete, being formed in the walls of said chambers. Other features are, parabolic tone reflectors, resonance chambers, supporting corbels, and cylinders for shutter motors, etc.

There are no bellows, regulators or moving wind reservoirs. Electric motors compress the air at definite pressure into the concrete chambers and the wind chests and pipes are in direct and ample communication with these

chambers. By this means a perfectly steady supply of wind is at all times available. This plan of relying upon the compressibility of air itself instead of upon the varying capacity of a collapsible reservoir is absolutely revolutionary in organ work, though it was tentatively tried in an organ built for Worcester cathedral, England, in 1895.

Each of the four or five chambers containing pipes will measure perhaps 8 or 10 feet in each dimension (dependent, of course, on the size of the instrument). The top of each chamber is closed by a set of Venetian shutters with patent sound trap joints. These shutters can be opened or closed at the will of the organist—thus enabling him to govern the amount of tone emitting from each chamber. One chamber contains the foundation tones of the organ (diapasons, tibias and diapasons)—one, the "wood wind,"—another the orchestral "string" tones—another the "brass" and a fifth the "percussion." By this means each department of the orchestra is properly represented and each is under separate control. The performer can control any of the pipes at any pitch and power, from any keyboard he may be playing upon.

The reeds used in the organ have no tuning wires. They stand in tune of themselves and do not require the constant tuning and attention demanded in the case of church, concert and house organs as hitherto constructed.

The organ, being independent of climatic conditions is suited for outdoor use, in public parks, recreation grounds, etc. At present one is being arranged to go below high water level,

under a seashore pavilion, the tone being reflected in parallel lines over the entire floor of the pavilion and from thence to the end of the pier. The parabolic concrete reflectors direct the tone wherever desired and prevent its dissipation into the surrounding air—just as is done with light waves in the case of a search light.

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