

THE CARILLON INVADES AMERICA

BY F. R. WEBBER

HOLLAND and Belgium have long looked upon carillon playing as a great national institution, but it is only within the past few years that carillon recitals have drawn crowds in the United States. To read that 25,000 people flocked to a little village in Massachusetts, and that traffic was diverted from an important arterial thoroughfare in a New Jersey town, and all to hear the ringing of bells, sounds like a fairy tale. But such are the facts. Few ever heard of Cohasset until Mr. Cram built a small church with a rugged tower there, and a wide-awake rector hung fifty-one tuned bells in the tower. We used to motor through Morristown, N. J., with one eye on the traffic cop and the other on McKim, Mead and White's fine tower. But since thirty-five tuned bells have been hung in that tower, we stand in the graveyard in snow a foot deep and freeze our toes, simply to hear the unearthly music that Mr. Rocke or Mr. Parsons can send floating down.

Within the past nine years, some thirty carillons have been brought into the United States, and six or eight more into Canada. In spite of the Depression their number is constantly increasing. The representative of a noted firm of British carillon makers wrote to me not long ago that upon one recent trip to America he took orders for three more important carillons. Shortly after that, an organist in Cincinnati wrote that he had just completed an American-built carillon of twenty-five

tuned bells, which is among the first of its kind made in America. New carillons are arriving at the rate of several a year, and older ones are being enlarged to keep up with the competition. New York has one of seventy-two bells, the largest over ten feet in diameter, and weighing eighteen-and-a-quarter tons. The University of Chicago has lately installed one whose largest bell is almost ten feet across, weighs 36,926 pounds, and is so big that a whole church vestry could stand upright in it.

A carillon is a series of at least twenty-three bells, tuned so as to play a chromatic scale. From this small battery of two octaves it may range in size to that of the great Riverside Church carillon, in New York, with seventy-two bells, and the Mountain Lake, Florida, carillon, with seventy-one. On such a set of bells one may play almost anything that can be played on a modern organ, with its standard keyboard of five octaves.

The new carillon at Richmond, Va., lately dedicated by Anton Brees, the world-famous *carillonneur* of Antwerp, has sixty-six bells. The largest is in G, weighs 11,200 pounds, and is six feet nine inches in diameter. With the exception of the lowest semitone, the carillon rises chromatically to c^{'''}, whose bell is six inches in diameter and weighs twelve pounds. To obtain proper volume, the upper thirteen notes contain two bells each, as is the case with many large carillons. The Richmond carillon is a war memorial. It is hung in a

tower which rises 240 feet above the crest of a hill. Ralph Adams Cram designed and built this tower, with Carneal, Johnston & Wright, of Richmond, as his associates.

Not so many years ago you and I used to climb a rickety ladder to the ringing-room in some convenient church tower. It was six in the evening, and the kind rector had given us permission to play the bells. We found the familiar clavier, which was composed of eight or ten hickory levers, each the size of a shovel handle. Hickory rods an inch square led to the belfry. To ring the bells we had to yank these levers down fully a foot from their normal position. In the belfry were straps, as heavy as the heaviest team harness, running over wooden pulleys, and connecting the vertical rods to the clappers of the bells. Very slowly, and with almost agonizing muscular effort, we picked out the melody of "Sun of My Soul," "Duke Street" or "Eventide," annoying all the neighbors for a mile in every direction, because we invariably substituted an F-natural for an F-sharp, for the simple reason that there was no F-sharp to play. Or, perhaps we would dash off what we fondly believed to be a demonstration of true English change-ringing. It was unmercifully slow, because each lever had to be hauled down at least twelve inches, and the transmitting mechanism was clumsy beyond words. The fact that the treble, or smallest bell, was almost half a tone too sharp, and the G bell sounded as though it were badly cracked, did not dampen your ardor in the least, or mine either.

Now compare that bungling mechanism of a quarter of a century ago with the marvellous clavier of today. We ascend an easy stairway to a well-lighted, cheerful ringing-room above the roofs of the building. It may be a church, or a college building, or an isolated campanile, or even a

commercial building, for they have been hanging carillons in all types of structures lately.

In the center of the room is a compact framework, as beautifully made as a fine organ console. Two rows of levers, each three-quarters of an inch square, project from the clavier. Except for the fact that these levers have rounded ends, and are perhaps two inches or so apart, it looks for all the world like the console of a two-manual organ. Below are two rows of pedal keys, of organ-like appearance. A row of wires, not much thicker than a match, connect with the bells above.

Our curiosity aroused, we ascend a second flight of stairs to the belfry proper. Here we see a framework of structural steel, five tiers high. On the lowest level are hung four monster bells. Above them are seven smaller ones. In the third tier are thirteen yet smaller ones, and as we look high up to the top tier we see long rows of bells, some of which are but five to six inches in diameter. These bells do not swing. They are bolted firmly to the steel framework, or hung dead, as the ringers express it. The clapper of each bell is carefully adjusted so that it remains about an inch from the inner surface, or sound-bow, of its bell.

We return to the ringing-room. The *carillonneur* steps into a small dressing-room, and soon emerges with a light track-suit and sandals in place of his business suit. He seats himself on the bench, adjusts the tension of some of his wires with a peculiar wrench, and then opens a book of music, which we note is arranged in four-part harmony. To our astonishment he turns the pages to Bach's Gavotte in B Minor. He has slipped a pair of small leather pads over the outer edges of his palms. He plays by depressing the levers lightly and rapidly with the edges of his

hands, his little fingers curved inward. Both hands and both feet are flying rapidly over the keys, and from the belfry above comes a most astonishing succession of noble chords, runs, arpeggios, and often a thrilling, sustained *tremolando*, obtained by vibrating two or more levers with marvellous rapidity, so that the separate tones blend into a single chord.

The keys of the modern carillon have a drop of but an inch or so, and the action is so delicately adjusted that the touch is not much heavier than that of a grand piano. Sometimes the player spreads out his hand and depresses two or three levers at the same time. But it is only when he brings out a glorious *crescendo* that he really seems to exert himself. Nothing in the world can send shivers of delight up and down one's spinal column like good carillon playing.

Descend to the ground, walk away four or five hundred feet and listen. The treble bells, played in chords and rapid arpeggios, and the slow-moving bass of the big bells, sound soft and extremely delicate at first. Then the sound swells into a majestic *crescendo*, and the sky is full of music.

II

It was from Belgium, Holland and French Flanders that we imported the carillon. Franz and Pieter Hemony were the first men to understand the art of scientific bell tuning, and between 1645 and 1680 they made a number of fine carillons. Their first was for a wine house in Zutphen. They were followed by the van den Gheyns. Since then the Low Countries have erected carillons in great numbers. A single city in Holland or Belgium may contain three or four. In 1734 the people of Malines installed a great drum, made of gun metal, and operated by gigantic clock-

work, to play their carillon automatically. It is five feet three inches in diameter, with 180 rows of holes, or perhaps 10,000 in all, into which pegs are fitted, as in a Swiss music box. A similar drum was installed at Bruges in 1746, and a public holiday declared when it was finished. Throughout Belgium and Holland, carillons are thus played by clock-work, often as frequently as eight times an hour, but this is only supplemental to recitals by famous *carillon-neurs*, who play from the hand clavier.

The success of a carillon depends upon the perfect tuning of the bells, a secret mastered in the Low Countries nearly three centuries ago. In 1895 it was discovered again by a firm of English bell founders. Today two British firms have learned it, and almost all the American carillons are made by them. In America, Professor J. Prower Symons, of Cincinnati, has been carrying on experiments in bell tuning, and has succeeded in making a carillon of twenty-five tuned bells. They are now hung in the tower of the Episcopal Convent of the Transfiguration at Glendale, Ohio. The Meneelys, of Watervliet, N. Y., have built three carillons recently.

Most people are not aware of the fact that a bell yields five distinct tones audible to the ordinary ear, and seven, ten and even thirteen tones recognized by the trained ear. When next you hear a bell ringing, try to locate the exact note on your piano. It is a difficult thing to do at first, because one hears not a single note, but a chord of five notes. The most prominent is the strike-note, as it is called. Likewise one hears the hum-note, which is an octave lower, the octave above the strike note, the minor third and the major fifth. These five notes must be in absolutely perfect pitch if a bell is to be in proper tune with itself. In fine tuning, even more harmonics must be brought into correct tune.

Bell founders have known this for a long time, but the difficult task was to do it properly. Small bells are especially hard to tune, and that is why the average small chapel bell or school bell sounds like a fire wagon approaching. The harmonics are out of tune. Tuning is accomplished by placing the bell mouth upward in a vertical lathe, and with delicately-adjusted, but powerful cutting machinery, skimming off thin shavings of metal on the inside of the bell. Just where and how much to take off is the big problem. The old-timers worked by crawling inside the bell and chiseling away, each stroke of the hammer causing the bell to ring. Sometimes this went on for days and weeks.

It is only since the rediscovery of the art of scientific five-tone tuning that the carillon has once more been possible. Until a few years ago there were but six carillons in America. The forty-three bells in St. Joseph's Cathedral, in Buffalo, were cast by the Bolleés as early as 1870. The Bolleés also made the series of thirty-two bells in the University Chapel at Notre Dame, Ind. In 1883 van Aerschodt installed twenty-five bells in Trinity Church, Philadelphia.

In 1897, just after the rediscovery of the art of tuning in England, the John Taylor firm, of Loughborough, sent over a set of ten bells, which were placed in the campanile of the college at Ames, Iowa. These were the first correctly tuned bells in America. In 1929, the same founders increased the peal of ten bells to a carillon of thirty-six. In 1922-23, the little Portuguese Church in the fishing village of Gloucester, Mass., installed one of thirty-one. The same year brought over a set of twenty-three bells to Plainfield, N. J., one of twenty-five to Birmingham, Ala., the beginning of a series of thirty-seven to Phillips Academy, Andover, Mass., twenty-eight to the House of Hope Presbyterian Church, St. Paul,

and thirty-five to St. Peter's Episcopal Church, Morristown, N. J. That same year the carillon began to be front-page news. Recitals were given in Morristown by Frederick Rocke, and later by Anton Brees, of Antwerp Cathedral. The crowds attending these recitals were so dense that traffic on Highway No. 24, which runs through the town, had to be diverted.

III

In 1925 the great Rockefeller carillon, in New York, was started with fifty-three bells—eight more than in the world-famous cathedral at Malines. In 1931 the number was increased to seventy-two, making it the largest carillon in the world. In 1927 carillons ceased to be confined to the church tower and college campus. Albany ordered sixty big bells for her city hall, Edward Bok built his singing tower at Mountain Lake, Florida, and two years later hung seventy-one bells in it, and Norwood, Mass., built a war memorial in the form of a campanile in which are fifty bells. The same year Princeton hung thirty-five bells in the tower of her Graduate School. Ottawa placed fifty-three bells in the tower of her Houses of Parliament, Toronto University dedicated twenty-three bells, and St. Chrysostom's Church, Chicago, got forty-three.

All this happened in 1927. The following year the Mayo brothers placed a carillon in the tower of their clinic building at Rochester, Minn. Since 1927 a singing tower, with a great carillon, has been a popular form of war memorial, and several cities are in the process of getting one.

Six carillons were dedicated in 1928, six in 1929, and twelve within the past three years. Conspicuous among these is the great singing tower at Chicago University, in which are seventy-two fine bells by Gil-

lett & Johnston, of Croydon, near London. This carillon was dedicated last Thanksgiving Day, with 50,000 people attending. It contains ninety tons of bell metal, and its compass is six chromatic octaves. Incidentally, Mr. C. F. Johnston, the distinguished builder of the carillon, fell afoul of a gang of Chicago hold-up men in the very shadow of the University chapel.

A carillon's importance is judged not only by the quality and number of its bells, but by their weight. There is a vast difference between a carillon whose bourdon, or lowest bell is in the key of C and one whose bourdon sounds G, just five notes

higher. A C-bell weighs 50,000 pounds or more, and is about ten feet five inches in inside diameter. The G, just five notes higher, weighs but 12,500 pounds and is less than seven feet in diameter. The C above that is a very modest thing, weighing about 4,700 pounds, and is about five feet across, or the size of many a church bell. Thus it is that the New York carillon, whose range is from an octave below tenor C upward, has a total weight of 102 tons for the bells alone, while the bells of the Regal Cinema carillon, pitched but two octaves higher, weigh but two and one-half tons.

THE ARTS AND SCIENCES

Penology

CAPITAL PUNISHMENT BY LETHAL GAS

BY ANTHONY M. TURANO

THAT hanging was originally employed for the execution of criminals mostly because of its impressive terror is evidenced by the fact that in England executions were always public, and that the body was subsequently gibbeted as a part of the performance. It is doubtful whether the question of painlessness was ever considered under the earlier jurisprudence. But the retention of the gallows in modern times is large'y due to the knowledge that it does not, in fact, cause much pain. If a hanging is properly performed there seems to be no doubt that the release of the trap produces an almost instantaneous loss of consciousness, and a cessation of the heart beat within from seven to fifteen minutes.

Death does not result, technically, from strangulation, but from a fracture or dislocation of the cervical vertebrae that severs or wounds the spinal cord; although it is true that the result is also hastened by the noose itself, through its compression of the windpipe and its obstruction of the cerebral circulation.

Among the reasons that caused a number of American States to depart from execution by hanging is the fact that the preliminaries require rather skillful handling. If the drop is insufficient the fracture of the vertebrae will not take place; and unless the performance is repeated, death occurs by the much slower proc-

ess of strangulation. And it has happened lately in at least one case that a barbarous decapitation of the prisoner has been caused by too deep a drop for an unusually heavy body.

It is generally agreed that death by electrocution is more rapid than by hanging, but there is a division of opinion on the question of its painlessness. There is small doubt, however, that the first application of 1,700 or 1,800 volts brings about, by the end of the first ten seconds, a complete cessation of all the vital functions, including respiration and circulation. The current is then reduced to low voltage, and later again increased, as a measure of precaution, and to suppress the remaining reflexes. As in the case of hanging, a successful electrocution depends on expert operation. An imperfect application of the current may cause great pain, as is reported to have occurred in the case of Ruth Snyder. And the body may be burned at the places where the electrical contact is made.

When the Nevada Legislature decided, several years ago, to try capital punishment by lethal gas, it expected to remove, for humanitarian reasons, all of the objections that attend the other methods. It was to be a physically painless death in the absolute sense, and it was to exclude all possibility of bungling in technique. The main consideration was to save the condemned man the terrors of the ordeal, as well as some of the mental anguish of its anticipation. It was planned, therefore, that the sentencing court should fix the