



The James Carter Memorial Chime (1876)

by Paul W. Thompson

Introduction

Rising above the southeast corner of Wabash Avenue and Huron Street, the historic bell tower of St. James Cathedral houses a historically important musical instrument: the James Carter Memorial Chime. It was installed and dedicated in December of 1876, a noble and enduring monument to Mr. Carter and the generous gift of his four children.

A chime is a musical instrument of between 8 and 22 cast-bronze cup-shaped tower bells arranged in a series. (A carillon, by contrast, has 23 or more such bells.) The Carter Chime, a key example of 19th century American chime craftsmanship, consists of 10 bells weighing a combined total of 10,785 pounds (about 5 tons), with a tenor, or largest bell, of 3,100 pounds. The Chime can be heard every day of the week by 21st century visitors to the River North/Magnificent Mile area of Chicago.

Historical Significance

The James Carter Memorial Chime is one of the earliest installations by an important American bell foundry with an 80-year history. (The firm, Meneely and Kimberly of Troy, New York, was founded in 1870.) Also, the Chime seems to be the only surviving 19th century carillon type instrument in Illinois, and the fourth oldest in the western Great Lakes region. Most significantly, it is believed that, outside of the original 13 colonies, the James Carter Memorial Chime is the nation's oldest operating set of at least ten pitched bells that has not been altered in size or location since its manufacturer's installation.

Surviving the Great Chicago Fire

Before dawn on the second day of the Great Chicago Fire, Monday, October 9, 1871, the devastating flames which destroyed much of the city passed over and through St. James Church, heading north. When the ruins cooled, the surviving elements from the pre-Fire building included the Civil War Memorial Altar and Reredos, some of the church's stone foundation and walls, and the shell of the apparently gutted bell tower.

The Water Tower and its Pumping Station, which form the heart of the Old Chicago Water Tower District, were also spared. Along with the St. James bell tower, these symbols of Chicago were the only pre-Fire structures left in the neighborhood just north of the Chicago River after the debris was removed.

The exterior of the rebuilt church (completed by 1875 and in use today) was like the one that had been lost. After the tower was refitted, the exterior entrance at the base of the tower's north face led directly to a small lobby holding a counterclockwise staircase to the second floor. The staircase provided access to the chapel space over the narthex and, three levels higher in the tower, to a high-ceilinged, top-floor room with open, louvered windows—a bell chamber.

The Carter Family and The Memorial Inscription

In 1876, the bell tower of St. James's Church was made truly complete by the gift of a 10-bell chime by the four children of the late banker and devoted Episcopal churchman, Mr. James Carter. His two sons, Leslie and Ernest, and two daughters, Isabella W. and Helen L., desired the gift to be a permanent memorial to their father, perpetuating the memory of a man who had died three years earlier at the age of fifty-five.

The Scottish-born Carter was an apparently successful banker in the northwestern Illinois lead-mining town of Galena, a town remarkably well preserved as a time capsule of the mid-19th century. A generous supporter of his church there, Mr. Carter moved to Chicago in 1860, at the age of forty-three.

He was among the first to respond to the effort of the Second Bishop of the Diocese of Illinois, the Rt. Rev. Henry John Whitehouse, to establish the Cathedral Church of Saints Peter and Paul. This, the first American Episcopal Cathedral, was located at the corner of Washington Boulevard and Peoria Street, on Chicago's near west side. Mr. Carter subsequently moved to New York, where he lived out his final years. Three years after his death, his children donated a beautiful Chime to St. James in his memory.

Inscribed upon the Chime's largest bell, the tenor, is the following memorial message:

*This Chime of Ten Bells
Is given to
St. James' Church, Chicago, Ill.,
In Memory of
James Carter.
Born at Aberdeen, Scotland,
May 29, 1817.
Died at New York City,
April 18, 1873.
By his Children,
Christmas, 1876.*

Psalm Inscription

In addition to the dedicatory inscription on the tenor bell, a traditional liturgical text, the Morning Prayer Invitatory Psalm "Venite, Exultemus," is inscribed on the set of bells. Beginning with the tenor, there is one verse on each bell, with the last verse divided between the two smallest bells. The text, taken from the Protestant Episcopal Church's 1789 first American version of the "Book of Common Prayer," is especially appropriate in that the Chime summons the faithful to "Sing unto the Lord." It consists of Psalm 95, verses 1-7, and Psalm 96, verses 9 and 13.

The Meneely Bell-Making Legacy

As is also inscribed on each bell, the James Carter Memorial Chime was manufactured and installed in 1876 by the Meneely and Kimberly company of Troy, New York. The Troy area was the center of the American bell industry, which was essentially a family industry.

Andrew Meneely, the son of Irish immigrants, bought America's first bell foundry and operated it in West Troy (now Watervliet), New York, beginning in 1826. The resulting Meneely and Company made an estimated 75,000 bells over a 125-year period. After he died in 1851, Andrew Meneely's two oldest sons, George and Edwin, operated the business (referred to today as "Meneely/Watervliet").

The older Meneely sons kept the third, Clinton Hanks Meneely, out of the firm after he returned home from service in the Civil War. In 1870, in partnership with Mr. George H. Kimberly, Clinton established a rival firm, Meneely and Kimberly. Kimberly left the firm in 1880, which resulted in a company name change, but the company operated in Troy proper, directly across the upper Hudson River from the first Meneely foundry, until 1952.

Overall, the firm referred to as "Meneely/Troy" made an estimated 25,000 bells, including the one hung in Philadelphia's Independence Hall as a replacement for the Liberty Bell.

Measuring St. James' Chime.

The melted bronze poured into molds by Meneely and Kimberly to create the Carter Chime was composed of "Lake Superior copper and new tin, in the proportion of 78 to 22," according to an 1876 account. The bronze used by modern European foundries is made of 80% copper and 20% tin.

The first available account of the bell weights totals 10,785 pounds, not including the supports or the strike mechanisms:

<u>Bell Number</u>	<u>Pitch</u>	<u>Weight in Pounds</u>	<u>Diameter in Inches</u>
1	E-flat	3,100	52.75
2	F	2,000	46.5

3	G	1,550	42.25
4	A-flat	1,225	39
5	B-flat	825	33
6	C	525	29.75
7	D-flat	475	29.5
8	D	450	28.25
9	E-flat	360	26
10	F	275	23.25

The Chime's ten fundamental pitches, or strike tones, therefore comprise a diatonic scale in the key of E-flat Major, with an added high F (the ninth of the scale) and D-flat (the flatted seventh). These ten notes enable tonal melodies to be played in either E-flat Major or A-flat Major, and modal tunes can generally be played in F-minor or C-minor.

Secondary only to the fundamental pitch, or first partial, each bell also possesses a unique prominent minor third partial, the pitch called a tierce, which gives all carillon-type tower bells their characteristically solemn sound, unique in Western music.

But 19th century American chimes were cast prior to the development of the modern system of ten-point tuning, used to affect bell partials during the modern casting process. (The first set of "Simpson-tuned" bells were installed at Iowa State University, Ames, Iowa, in 1899.) As the Carter Chime pre-dates this technological development by twenty-three years, its sound differs from most bell installations in the world today. The overtones of St. James' bells, and the way the bells sound as a group, are distinctive, defining characteristics.

Installation and Dedication

The cost of the manufacture and installation of the Chime to the four Carter children was estimated at about \$7,000. (In contrast, the replacement cost of the Chime in 2001 was estimated at a minimum of \$200,000). Installation of the bells in the top-level room of the tower reportedly occurred around the third week of December 1876. Clinton Meneely came to supervise the hanging of the bells, bringing with him a foreman, a Mr. Dyer. Each bell was apparently hoisted into place through the center of the tower, where a series of three trap doors would have been removed for their installation, then replaced. Inside the tower's belfry, or bell chamber, nine of the bells were hung from a framework of metal beams in a fixed, or dead, position, so that they did not move or swing while being played. The largest bell was hung

on a wheel mechanism above the others so that it could swing, though it has since been immobilized.

The bells were originally designed to be played by a chimer grasping and pushing down with a full arm-stroke the ten levers, or pump handles, which comprised the keyboard and which were probably in a single straight line. Each pump handle was connected, by its own rope hanging down through the tower, to an apparently iron clapper, which hung from the inside top of each corresponding bell and which struck the lower inside of each bell when the pump handle was depressed. This entirely manual, traditional mechanism of ropes, pulleys and the like allowed for changes in volume and expression, controlled by the actions of the player. The full keyboard was held inside a framework or case called a console, or, in this specific case, a chime stand, which was in the bell tower, most likely in a playing room two levels below the open-air bell chamber.

Reports exist of a special service and concert of dedication on the Wednesday before Christmas, which in 1876 was December 20th. Despite reported severe weather, the service, which may have been held in the new second floor chapel, was full for the dedicatory concert, played by Mr. Walter Marsh, the chimer at St. Peter's Episcopal Church in Albany, New York. Mr. Marsh traveled to Chicago with Meneely and Dyer, carrying a reputation as a chimer of some renown, to demonstrate the use of the Carter Chime and to teach a St. James musician how to play it.

Mid-20th Century Changes

As the years passed, the James Carter Memorial Chime sadly fell into disrepair, and by the mid-20th century its bell chamber had become a roost for near-north side pigeons. In the few years after St. James became the Cathedral for the Diocese of Chicago in 1955, several changes were made to the building. These included the modification of the sanctuary's north transept to become a Musicians' Gallery, with the choir and the organ console relocated there and an organ installed in the transept's east wall. Also relocated to the Musicians' Gallery at the time were the controls for the tower's Chime—any access from the narthex to the bell tower itself was sealed off, and the tower's exterior door was locked for safety reasons.

The keyboard placed in the Musician's Gallery was installed by the Verdin Company of Cincinnati, Ohio, a fifth-generation family company founded by three French immigrant brothers in 1842. The keyboard was a small electrified table-top box shaped like a typewriter. The loss of the mechanical chime stand (presumably removed and discarded), plus the corresponding addition of electronic action installed in the tower for each bell, meant that the Chime could no longer respond to the sensitive touch of the player. Each bell strike sounded at the same volume and quality as every other. The keyboard's only traditional element was the fact that it was transposing. This meant that the chimer played in the key of C Major, but the bells of course, sounded in the key of E-flat—the keyboard transposed each note up three semitones.

Decline and Renaissance

Even after major structural repairs to the bell tower during the 1980s, the condition of the Chime deteriorated again. Age, pigeons, weather, and benign neglect combined to render all but four the bells unplayable by the 1990s, and electrical problems in either the tower or the keyboard frequently reduced the number to two. The condition of the instrument made the playing of composed music (indeed, the playing of all strikes other than a simple invitation to worship) impossible.

Under the leadership of Dr. William P. Crosbie, who was appointed Organist-Choirmaster in 1988, a Music and Arts Ministry capital campaign called "Fulfilling Our Covenant to Future Generations" was launched in 1998. Co-chaired by Mr. John Bramsen and Mr. John Brown, the campaign raised \$600,000 for three much needed goals: the rebuilding and expansion of the Cathedral's main organ, the purchase of a concert grand piano, and the restoration and refurbishing of the tower bells.

The fundraising effort and the implementation of the all three goals were accomplished in a little over two years. A \$250,000 challenge grant from Mrs. H. Earl Hoover and the H. Earl Hoover Foundation applicable to gifts through January 31, 2000 provided the seed money for the overall project. However, another generous challenge grant from John and Norma Bramsen for gifts to the organ restoration through September 30, 1999 contributed matching dollars toward the tower bell restoration to the total cost of that project.

The Chime Was Restored and Rededicated

The James Carter Memorial Chime was restored and is now maintained under contract by the Verdin Company, which calls itself the "World 's Largest Supplier of Bells, Carillons and Clocks." The restoration work, set at price of just over \$50,000, took place in the summer and fall of 1999. The Rt. Rev. William D. Persell, Eleventh Bishop of the Diocese of Chicago, blessed the restored Chime during its rededication on November 28, 1999, at St. James' annual Advent Procession of Lessons and Carols.

The bell chamber was cleaned and protected from birds, and entirely new electronically-controlled hammers, or striker units, each with a bronze striking ball, were installed to strike each bell on the outside at the strike bow, the point at which the best tone is produced.

New control mechanisms manufactured by Verdin were installed as well, centering the Chime's controls in an area on the west wall of the Musicians' Gallery in the north transept, roughly over the exterior entrance to St. Andrew' s Chapel. Verdin installed two components to the controls, the computerized, programmable Digital Bell Controller, and an electronic piano-like keyboard. The Bell Controller and the keyboard were connected electronically to ten circuit breakers and solenoids (electro-magnets) located in the bell tower, one level below the bells themselves—the solenoids were engineered to trigger the hammers of the corresponding bells. The loss of dynamic shading remained, however, for access to the bell tower itself remained restricted.

How is the Chime Played Today?

In the 21st century, the James Carter Memorial Chime represents both the Flemish and English church and community bell traditions dating from at least the 13th century. The bells sound every day, regardless of weather, and can be controlled by three different methods.

First, the presets programmed into the Digital Bell Controller allow the Chime to act as a timepiece for the neighborhood. The Controller is set to Central Time (automatically converting between Standard and Daylight), is synchronized with Greenwich Mean Time, and accounts for leap years. The bells automatically sound the Westminster Chime Quarters with Hour Strike Mondays through Saturdays from 9:00 a.m. to 5:45 p.m.

The Westminster Chime Quarters is based on a tune attributed to composer George Frederick Handel which fits the following text:

*All through this hour,
Lord, be my guide,
And, by thy power,
No foot shall slide.*

In the traditional manner, the Carter Chime plays one phrase at 15 minutes past the hour, two phrases at half past, three phrases at 45 minutes past, and the full four-phrase melody at the top of the hour. The full Quarters are followed immediately by a tenor bell strike indicating the number of the hour, one through twelve. This is the familiar pattern rung by the bells at London's Palace of Westminster, and made famous through broadcast on BBC radio. The largest bell there, nicknamed "Big Ben," is probably the world's most-heard tower bell. (In a similar vein, some have taken to calling St. James' largest bell "Big Jim" referring to both James Carter and to the church's patron saint, James the Apostle, the brother of John.)

At 6:00 p.m. Mondays through Saturdays, an exciting minute-long multi-bell Angelus strike is sounded. The Angelus is a prayer, known by the first word of its Latin text, traditionally recited three times a day (6:00 am, noon and 6:00 pm) in Roman Catholic practice. Honoring the Incarnation, the prayer evolved from the 11th to the 16th centuries. It is announced by and recited during the ringing of a bell.

Before and after services, the Carter Chime can be played by a carillonneur, using the second and third methods of playing the Chime. The second of the ways involves buttons on the Digital Bell Controller, which are pushed manually to summon worshippers to the Cathedral, or, in the case of the peal, also to signal that worship has ended. The third way to control the Chime is using the current Verdin keyboard, which unlike the first keyboard, is not transposing, but plays the bells at actual pitch. Hymns, strikes and "changes" can be played.

The Carter Memorial Chime is available and appropriate for weddings and funerals. Among other occasions, the Chime was utilized for a City of Chicago moment of remembrance responding to the terrorist hijackings of September 11, 2001. Brief, midday, summertime

concerts have also been held, enjoyed by the office workers who gather to eat outdoors in fine weather.

The Heritage and Legacy of the James Carter Memorial Chime

Churches and their spires, steeples and towers have risen heavenward for centuries. Such towers in Europe have held bells, tuned and untuned, since at least the Early Middle Ages, a phenomenon which served as the setting for Frenchman Victor Hugo's 19th-century novel, "The Hunchback of Notre Dame." The novel's hero is Quasimodo, the bell ringer of Paris' Notre Dame, that city's Roman Catholic Cathedral.

Since the European settlement of North America, the Episcopal Church has been a leader in installing, maintaining, and playing carillon-type instruments. The very independence of the United States from England might well hinge on the existence of the tall bell tower at Boston's Old North Church (Christ Church). Since 1745 the tower has held the first bells heard in America, and the relationship of one of the founders of its guild of bell ringers, Paul Revere, to its belfry was crucial to "the shot heard 'round the world."

St. James Cathedral's James Carter Memorial Chime is the embodiment of the long Episcopal Church bell tradition, and the enduring pioneer in Illinois' own proud bell history. Chicago residents and visitors alike can experience the exact same live, unamplified musical tones that six generations of those who approached the church have witnessed.

The bells of St. James, our historic tower bells, hang in a tower, historic in its own right. Together they lift the spirit, inspire the soul, and evoke the Chicago of a time long past. These remarkable 19th century treasures honor the memory of the men and women whose hopes and dreams created them and sustained them to the present day. May each of us convey them to the future.