

WHAT IS A CARILLON?

By Marietta Douglas, June 2002

What is a carillon? A carillon is a musical instrument composed of at least 23 carillon bells (the lowest C-sharp and E-flat were often not installed for reasons of space and expense), arranged chromatically and tuned harmonically so they may be played together from a keyboard permitting control of expression through variation in touch.

It is played from a keyboard that has broomstick-like keys which are played with a loosely formed fist and pedals that allow the feet to play the heavier bells.

Where can you find carillons? The world's greatest concentration of carillons is in Belgium and The Netherlands. Carillons are now found throughout the world. There are about 200 in North America. These instruments may be found at churches, colleges and universities and municipal buildings.

Where are there carillons in Connecticut?

Danbury - St. James Episcopal Church - 25 bells

Hartford - Trinity College – 49 bells

New Britain -First Church of Christ, Congregational – 37 bells

New Canaan - St. Mark's Episcopal Church – 30 bells

New Haven - Yale University - 54 bells

New Milford - Canterbury School – 23 bells

Simsbury - Simsbury United Methodist Church – 55 bells

Stamford - First Presbyterian Church - 56 bells

Storrs - Storrs Congregational Church –31 bells

West Hartford - First Church of Christ, Congregational – 50 bells

When were the first bells made? The first tuned carillon was cast by the brothers Pieter and Francois Hemony, and installed in Zutphen, The Netherlands, in 1652.

Where are bells made now? There are several major foundries in Europe that supply all the bells for present day instruments. Taylor Bell Foundry and Whitechapel Bell Foundry in England, Paccard Bell Foundry in France, Petit & Fritsen and Eijsbouts Bell Foundries in The Netherlands.

What is the difference between a carillon and a chime? A carillon has a minimum of 23 bells. If there are less than 23 bells it is a chime. In addition, many chime bells are not well tuned so that only simple one line melodies can be played. The keyboard of a chime looks very different from that of a carillon. In playing a carillon, the performer sits on a bench and uses a loosely formed fist to play notes that look like broomstick handles and the feet play pedals like that of an organ. In a chime, the keys are much larger and resemble pump handles. The player must stand and use considerable force to activate the bells. Usually there are no more than 3 or 4 pedals which are also played while standing. If you are watching a chimier it may appear that he/she is standing (hopping) on one foot! Since most chimes are about 8 bells there are few black notes. These black notes are not raised up like in a carillon or a piano. Instead they are at the same height and distance apart as the white notes. The chimier must be careful that he/she is really playing an F and not an F#!

What is change ringing? England never developed a tradition of playing music on sets of bells (usually 8 or a bit larger). Instead, they invented a unique system of ringing mathematical variations on bells. In a carillon, the performer presses a baton with a hand or a pedal with a foot. In turn, through a series of linkages, the clapper inside the bell is brought to the side of the bell and it rings. In change ringing, the bells are played by pulling on ropes. These ropes turn the bell from being completely upside down to a position where the clapper hits the bell. There is one change ringing tower in Connecticut at the Kent School.

What is a zvon? Russian bells are called zvons or trezvons. These are sets of random bells. Typically, a few large, medium and small ones are needed; they normally don't fit any musical scale. The large bells are connected to pedals; the smaller bells may be linked to each other in pairs. The large bells set the tempo while the smaller bells may be rung in pairs at a faster tempo. There are a few in this country, notably at Harvard University.

What is a chimola? A chimola is a type of chime but the bells look like saucers instead of the traditional bell shape. These types of "bells" were cheaper to make but since they have a different profile, they do not sound well. An example of a chimola may be found at Greenwich Point in the bathhouse.

Do all carillon bells sound alike? No. Carillon bells are cast in England, France and The Netherlands. Each bell foundry has a unique "sound" that a trained ear can distinguish. In addition, a "new" type of bell has been introduced in recent year known as the "major third bell" which looks a bit more like an old-fashioned Coca-cola bottle with a bulge in the middle. These bells sound a bit brighter than the traditional carillon bell. An example may be found at the Crystal Cathedral in California.

What is a travelling carillon? Believe it or not there are a few carillons that travel from place to place. These instruments are carted around on a flat bed truck. Not only do people who don't live near any instruments get the opportunity to hear a carillon but you also get to see it in action on ground level. Also, the traveling carillon makes playing duets using two carillons possible!

How many bells do carillons have? Present day carillons have anywhere from 2 to 6 octaves of bells (23 to 77 bells). An instrument with at least 4 octaves (47 bells) is most common and can play most available carillon music. In contrast, a piano has 88 notes.

Why does the carillon sound out of tune? Carillon bells have different harmonics than other instruments. The fundamental tone is the pitch associated with the note being played, for instance C. However, unlike most Western instruments, there is a minor third overtone (most have a major third). This minor third creates a somewhat dissonant, somber tone. Additionally, if you have perfect pitch, you will find that not all carillon instruments are in concert pitch. The lowest bell, called the bourdon, which is usually connected to a C is not necessarily a C! Many carillons will have a higher note connected to the C note, like a bell that rings D#. These "transposing" carillons cut down on the expense of the carillon (larger bells cost more money) or may be required due to the amount of space in a tower.

Where is the largest carillon in the world? The largest carillon bell is at the Rockefeller carillon in Riverside Church, New York City. It sounds the note C, weighs over 40,000 lbs (20 tons) and exceeds ten feet in diameter. In contrast, in most concert pitch carillon instruments, a bell sounding its octave (low C) weighs approximately 5,000 lbs (2.5 tons) with a diameter of about 5 feet. A bell sounding the next octave (middle c) weighs approximately 580 lbs (a quarter ton) and has a diameter of approximately 30 inches. While Riverside church has 74 bells and is the heaviest instrument, it is not the largest in terms of number of bells. The largest carillon, by number of bells, is in Kirk-in-the-Hills, Michigan (77 bells).

What does carillon music look like? Like piano music, the music is written in two staves. However, instead of playing the upper treble staff with your right hand, in a carillon it is played with both hands! The lower bass staff, normally played with the left hand on the piano is played with the feet on a carillon.

What kind of music can be played on a carillon? Many folk songs have been arranged for the carillon as well as hymns, arrangements of music borrowed from other instruments and original music.

What are carillon bells made of? Carillon bells are cast from bronze, an alloy composed of approximately 78% copper and 22% tin, which is heated in a furnace to above 2,000°F.

Can a carillon bell be tuned? Yes, but only if it taken out of the tower, turned upside down and ground with a lathe. The only thing a performer can do to vary the sound is to adjust the "turnbuckles" of each bell which in turn adjusts the distance the clapper is from the side of the bell. If the clapper is too far away, the clapper won't touch the bell and there won't be any sound. If the clapper is too close, the sound is muffled or clangs. The clappers must be adjusted so that the bell clearly rings.

Where have the newest carillons in America been installed?

2000 Berea, KY - Berea College – 56 bells

2000 Grand Rapids, MI - Grand Valley State University – 48 bells

2000 Naperville, IL – Riverwalk – 72 bells

2001 Kennet Square, PA - Longwood Garden – 62 bells

2001 Springfield, MO - Southwest Missouri State University – 48 bells

2002 Muncie, IN - Ball State University – 48 bells

2002 Erie, PA - Penn State Erie, The Behrend College – 48 bells



Marietta Douglas at the First Presbyterian Church Stamford, CT Carillon