

## ***Automaton Musical Clock: A Mechanical Marvel***

Elise M. Besthoff Charitable Foundation Gallery | March to October, 2017

### ***FOR NOMA DOCENTS***



**London, for Chinese Market**

**Likely Henry Borrell, clockmaker (English, b. Switzerland, 1757–1840)**

**In the manner of James Cox, inventor (English, c. 1723–1800)  
*Automaton Musical Clock*, c. 1800**

**Ormolu (gilt bronze) case, Guilloché enamel panels, glass jewels, and metal movements with some contemporary parts  
New Orleans Museum of Art, Bequest of Mr. and Mrs. Robert C. Hills, 2001.253.369**

This exhibition celebrates the recent restoration of NOMA's extraordinary *Automaton Musical Clock*. This luxurious gilt and enamel showpiece has precise clockwork that activates chiming bells and spins bejeweled ornaments on the hour. Still dazzling today, this clock was an object of curiosity and a mechanical marvel when it was made in London around 1800.

From the time Europeans brought clocks to China around 1580, mechanical gadgets were an important part of East-West commercial trade. Eighteenth-century English diplomats and trading companies found that clocks were among the few Western objects that pleased Chinese officials. The Imperial Palace of the Qianlong Emperor had more than four thousand chiming clocks and mechanical novelties. The Chinese called these objects *zì míng zhōng* (self-chiming clocks), a phrase that was understood by the English as "Sing Songs."

NOMA's *Automaton Musical Clock*, the rare type of gadget that could fascinate a Chinese emperor, is presented here alongside Chinese exports that fascinated Europeans. China's secret recipe for a delicate, strong pure white ceramic eluded Westerners for hundreds of years, so Europeans prized Chinese export porcelain such as that on view here from NOMA's collection. The Dutch first brought tea from China to Amsterdam in the early 1600s, and by the mid-1700s the English were the world's most avid consumers of the beverage. This charming collection of English-made tea caddies—a 2017 gift to NOMA—shows the fine craft and prestige afforded containers for securing and storing Chinese tea leaves.

## 2016 Conservation

NOMA acquired this *Automaton Musical Clock* in 2001 as a bequest from Mr. and Mrs. Robert C. Hills, along with their superb collection of Chinese “blue and white” porcelain. When Hurricane Katrina struck New Orleans in 2005, the clock was undergoing basic restoration at a local clock repair shop and was submerged in floodwater. Thankfully, the clock was returned to NOMA safely, but dirty, corroded, and with its inner gears entirely disassembled. In 2015, with support of the Elise M. Besthoff Charitable Foundation, NOMA was able to seriously address the clock’s dire aesthetic and mechanical conservation needs.

The clock traveled to England, specifically to London's Clerkenwell district, the historic headquarters for the clock-making trade and the likely area of its original manufacture. Specialists at Arlington Conservation working with Motionwork LTD cleaned, removed iron oxides (rust), and stabilized the clock's ormolu (gilt bronze) body. They repaired and replaced areas of loss on the Swiss-made enamel panels. Most critically, the inner “automata” clockworks and chimes were entirely dismantled in order to remove dirt from the Katrina floodwaters and subsequent heavy corrosion. Broken and missing gears, hammers, and a new main spring were custom fabricated. All contemporary conservation work was carefully documented and made to be reversible.



Clock shown during restoration at Arlington Conservation and Motionworks LTD, London, 2015





*The reception of the [Macartney] Diplomatique and his suite at the Court of Peking.* James Gillray, published by Hannah Humphrey, London, September 14, 1792. (National Portrait Gallery, London.)

## East-West Trade

NOMA's *Automaton Clock* was made in London, but was likely intended for the Chinese market. In the 1600s and 1700s Europe had an imbalanced trade with Asia. Europeans desired Chinese tea, spices, silks, and fine porcelain like that on view in this gallery, but the Chinese showed little interest in most European goods. An exception were mechanical clocks that were enormously popular in the 18th-century Chinese courts. To keep their lucrative trade active, the East India Company presented gifts of automated clocks and gadgets to Chinese officials.

This satirical cartoon pokes fun at the meeting of China's Qianlong Emperor (reign 1736–1795) and Lord Macartney's Embassy, which was England's first diplomatic effort with China. Macartney's mission aimed to open British trade in China, including the establishment of an embassy and relaxation of restrictions in the Canton (now Guangzhou) trading port.

The Chinese denied all requests. The Qianlong Emperor formally replied in a letter to Britain's King George III, summarily rejecting all gifts:

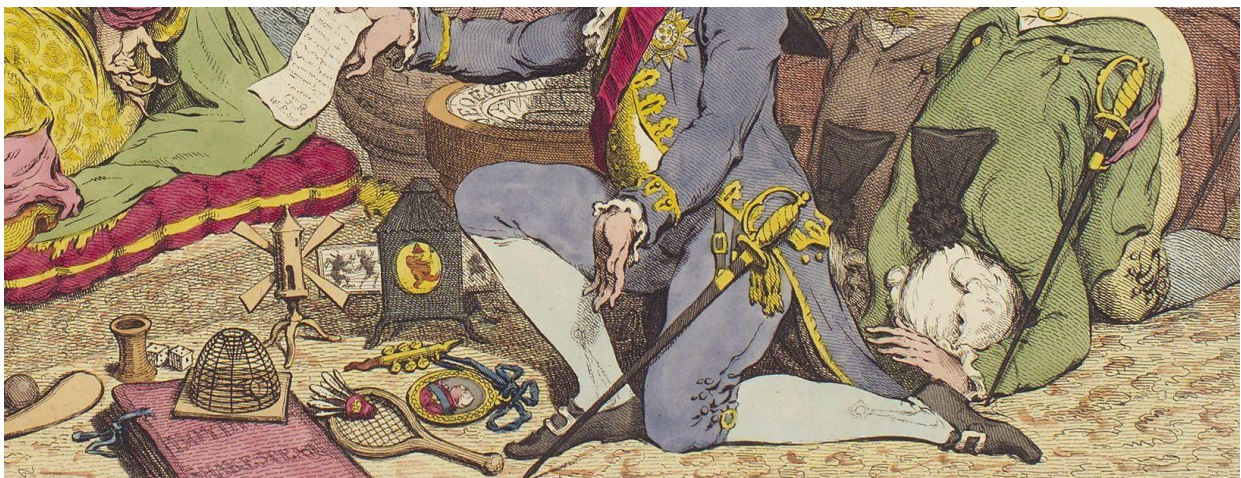




*Our dynasty's majestic virtue has penetrated unto every country under Heaven, and Kings of all nations have offered their costly tribute by land and sea. As your Ambassador can see for himself, we possess all things. I set no value on objects strange or ingenious, and have no use for your country's manufactures.*

From Emperor Qianlong's letter to King George III, 1793

James Gillray's 1792 caricature, published *before* Macartney's mission left England, imagines the meeting of the two parties. Based on contemporary newspaper reports of the gifts being offered by England to the Chinese Emperor, Gillray includes a portrait miniature of King George III, children's toys, and scientific devices, including a mechanical clock.





Trade Card for Cox's Museum [London, England], 1772. Francesco Bartolozzi, engraver. (Bodleian Libraries, Oxford University)

### James Cox

Automaton clocks of this precise type are associated with James Cox, the London inventor, jeweler, and toymaker who made them famous. In 1772 Cox operated a museum in London dedicated to his mechanical marvels, which delighted Georgian England crowds. While Cox's name is best remembered today, there were numerous London watch and clockmakers engaged in this specialized craft. Details on the punch decoration of NOMA's *Automaton Musical Clock* indicate that this particular clock might be the work of Swiss-born English clockmaker John Henry Borrell.

#### ON VIEW AT The Metropolitan Museum of Art:

*Automaton in the form of a chariot pushed by a Chinese attendant and set with a clock*

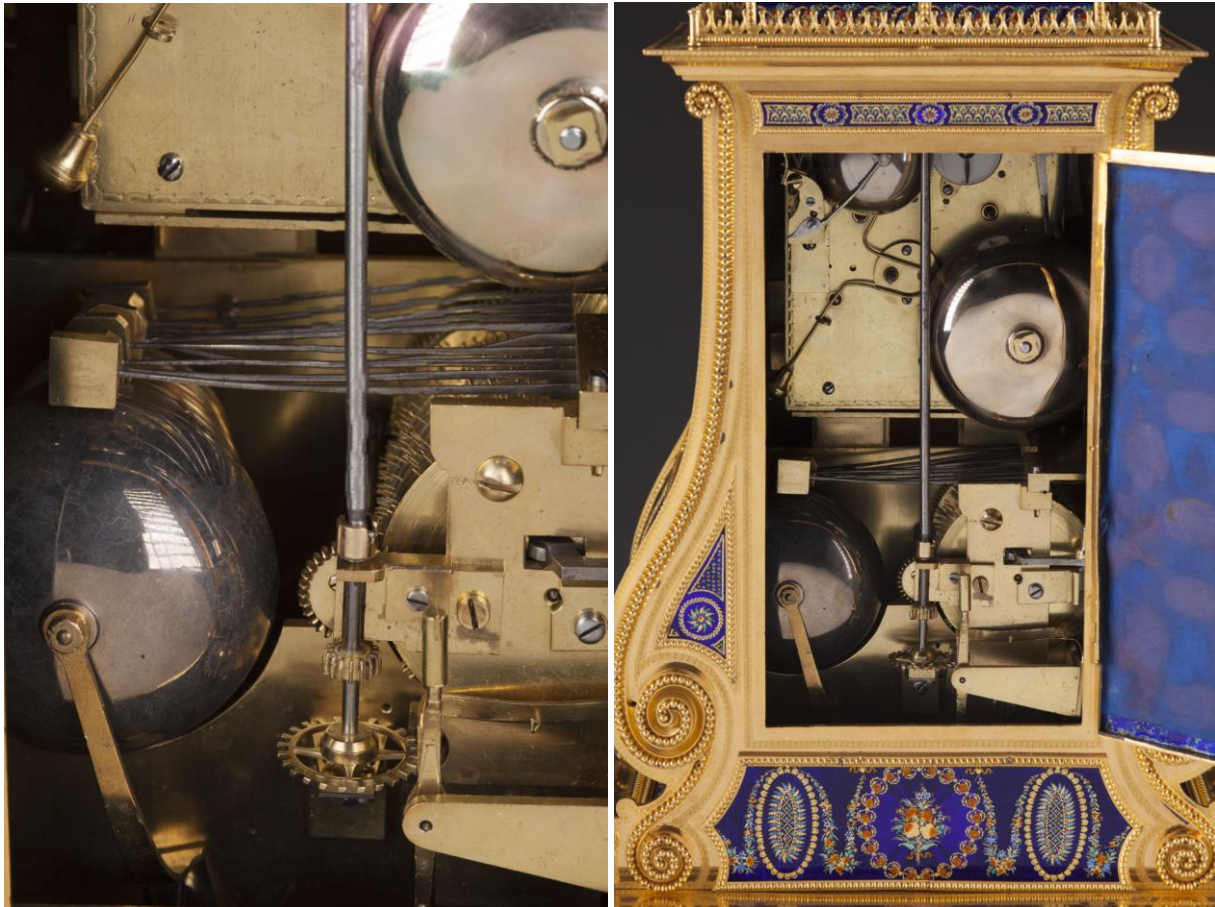
James Cox (British, ca. 1723–1800), 1766

James Cox produced lavishly ornamented articles for trade with Asia. In China, his products were well-received and called “toys” or “sing-songs.” Originally one of a pair, this automaton was commissioned by the English East India Company for presentation to the emperor of China. The chariot’s wheels are driven by a spring, and tiny levers activate the whirligig held in the lady’s left hand and the wings of the bird in her right.





## CLOCKWORK



The first clocks were designed in Medieval Europe to measure the movements of the heavens (astrology) rather than the minutes of man (time). These were powered by hanging weights and mostly found in cathedrals and public clock towers. Clockwork powered by a coiled spring, like in NOMA's *Automaton Clock*, appeared in the 1400s and led to domestic clocks and individual watches. Along with powering clocks to measure the hours, the mechanized motors, springs, levers, and gears powered entertaining curiosities and also led to modern computing. Here see fanciful examples of sophisticated "Automaton" amusements and Charles Babbage's 1849 "Difference Engine" mechanical calculator.

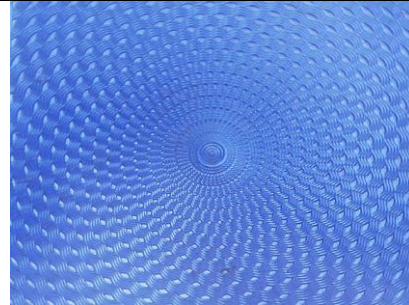
You can see the nestled bells along left side of this photo, and the series of hammers that are powered by the patterned pricks on the wheel.

## Luxurious Materials

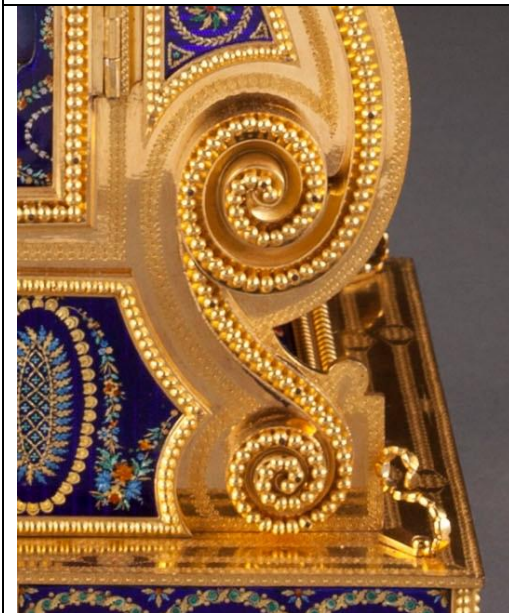
The main case of this clock is made up of a popular 18th-century metal mixture called ormolu, an alloy of copper and zinc that is cast into shape and then gilded with a thin layer of gold. The colorful blue, red, and green panels are enamel (a glassy substance fired onto metal) in the guilloché style, likely made in Switzerland. Guilloché means that below the colorful glass-like enamel the substrate metal has a fine, engine-turned pattern. The jewels on this clock are not the rubies, emeralds, and diamonds they appear to be. These are “paste jewels,” pieces of glass adhered with metallic foils that gives the appearance of gemstones.



Guilloché enamel



Enamel of same type, detail showing machine turning



Ormolu



"Paste" jewels



## Chinese Export Porcelain

For centuries China held the secret to delicate, white porcelain, a material coveted by Europeans through the 16th, 17th, and 18th centuries. This group of Chinese-made porcelain show their destiny for an export European market through subtle cues, such as the fact that punch bowls are a Western form not used in China, and through designs customized for the European market. Two plates are ornamented with English family armorial crests, designs that would have been sent on paper to China for copying onto the porcelain. The scenic landscape on the punch bowl shows the kilns near Jingdezhen, the largest center of porcelain manufacture in China



Chinese, for Export to England  
*Armorial Plate with Leake Okeover Family Arms,*  
1740 or 1743  
Porcelain, enamel and gilding  
Museum purchase, Elise Mayer Besthoff Fund,  
2000.183



Chinese, for Export to England  
*Plate with Tower Family Arms, c. 1728*  
Porcelain, enamel, and gilding  
Museum purchase, Funds provided by the Buddy  
Taub Foundation, Dennis A. Roach and Jill Roach,  
Directors, 2016.76





## Tea Caddies

Tea drinking reached a mania in the 18th century. Imported tea and costly tea-drinking accessories, such as fine Chinese-export porcelain teacups and sterling silver teapots, were a passionate fashion in England and her colonies. Tea leaves could be stored in a tea caddies, small boxes or jars used to keep the leaves secure and dry. The earliest (pre-1750) tea caddies were usually porcelain, and were much smaller than these, reflecting tea's greater expense. By the mid-18th century, tea was relatively more affordable and was consumed in greater quantities by a larger segment of society. The tea caddies displayed here are all English-made caddies showing a range of expensive materials and intricate workmanship, from molded and dyed tortoiseshell, to rolled paper "filigree." Each of these boxes has at least two inner compartments, lidded and often marked for green and black tea, or sometimes with a glass for mixing the tea leaves or for storing sugar.

All tea Caddies

Gift of Michael and Carolyn Christovich in honor of Mr. and Mrs. William K. Christovich