

Sonic Imaginings, Creative Mementos

The Musical Instruments Museum in Brussels

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[ELISABETH SALVERDA]

'De la musique avant toute chose [...] encore et toujours!' – Verlaine, 1882

'It does not matter if at first it seems to some people more like a cactus than a rose' – Varèse, 1959

The 'Musée instrumental du conservatoire royal de musique de Bruxelles' first opened its doors 140 years ago, in 1878, a year after it was founded by its first curator and cataloguer Victor-Charles Mahillon (1824-1924). Opening on Thursday afternoons between 1 and 3 pm, the museum's collection was formed from instruments collected by two prominent musicologists.

In 1876, Raja Sir Sourindro Mohun Tagore (1840-1914),¹ eminent musicologist, composer and patron of the arts, had gifted 98 rare classical Indian instruments to King Leopold II (1835-1909) along with several books and manuscripts on music, musical theories, systems and notations, in Bengali, Sanskrit and English. As Mahillon stated in his application for the post of keeper of instruments at the Royal Conservatory of Brussels,

the Indian collection...is the richest of all those in Europe [...] I would be happy...to assume responsibility for its classification, catalogue and conservation with all the care a precious collection such as this one demands [...] I would be sufficiently rewarded for my efforts in curating a collection of such profound interest to the musical world.²

Tagore's collection, together with the 82 instruments, 'exactly half of which were extra-European', of the celebrated musicologist François-Joseph Fétis (1784-1871) acquired by the Belgian government in 1872, formed the basis of the museum. Persuaded that no collection could be complete 'without [...] making comparisons amongst *all* possible sound objects', Mahillon massively expanded the scope of the collection, amassing 600 instruments in the first three years alone.

Mahillon, an acoustician, musician, musical instrument maker, and collector, had published a study on musical acoustics in 1874 (*Les Éléments d'acoustique musicale et instrumentale*). He also published a detailed and wide-



ranging inventory of the 3,300 instruments which had entered the Brussels musical instrument collection by 1913: *Catalogue descriptif et analytique du musée instrumental du conservatoire royal de musique de Bruxelles* (5 vol., Ghent, Brussels, 1880-1922 [reprinted 1972]). Mahillon ordered the instruments 'by mode of sound activation', in a taxonomy noted for having the potential to describe any instrument then in existence. Here, the four-fold scientific classification of instruments based on their material components and acoustic factors (vibrations through air, strings, membranes, or solids) found in the ancient Indian treatises described by Tagore will have been of significant influence.³

While clearly fascinated by musical instruments of all shapes and sizes and impressed by the ingenuity of their makers, Mahillon's perspective on many unfamiliar ones remains a barometer of his time. In the context of late nineteenth-century Belgian colonial expansion, and following in the tradition of the earlier cabinets of curiosities, he believed that 'where civilization has remained at a standstill [...] in Africa one can find the origin of all our instruments in an entirely primitive state'. While some of his contemporaries refused to study 'uncivilised' instruments, Mahillon argued they should rightfully be displayed for their acoustic value in a musical instruments museum, and not, for example, in the Royal Museum for Central Africa (RMCA) in Tervuren.

Egyptian Shoulder-harp,
circa 1500 BCE

Back from the brink

At one point the collection was scattered over fifteen locations, but having survived decades of uncertainty the Musical Instruments Museum (MIM) is now a leading cultural attraction. Since 2000, over two million people have visited the MIM in the Mont des Arts/Kunstberg museum quarter with its prominent views

over the city. The MIM is housed in two adjacent buildings: one of imposing white stone and neoclassical design built in 1774 by French architect Gilles-Barnabé Guimard when Brussels was still part of the Austrian Netherlands; the other a decorative art-nouveau facade in glass and black wrought iron built in 1899 by Belgian architect Paul Saintenoy. A dedicated exhibition, *Art Nouveau*, tells the story of the latter's original use as an Old England luxury department store, complete with photos and architectural plans.

Among the museum's founding principles was the aim to preserve and develop research on instruments of all kinds, and to provide music students with the opportunity to study early instruments. Today, as one of three currently open Royal Museums for Art and History (RMAH), with close to 10,000 instruments and open six days a week, the federal scientific institution regularly features students from the Royal Conservatory of Brussels in its own Wednesday lunchtime concert series. In a dedicated play area, children can explore the sound and workings of instruments such as the harp, piano, theremin, chimes, xylophones and talking drums, and multiple groups of excited primary school pupils in fluorescent bibs are often seen in the MIM's four themed galleries: *Keyboards*, *Traditional Instruments*, *Western Art Music*, and *Musicus Mechanicus*.

Over 1,200 instruments from all over the world – both originals and replicas – are on display, with others either out on loan, in storage for safekeeping, or being restored in the conservation workshop on the sixth floor, where instrument makers and researchers may request to examine them, and where conservators supervise students from University College Ghent's faculty of Musical Instrument Making. With an 'Instrument of the Month' feature, the MIM's trilingual website is an invaluable online resource. In addition, the museum participates in several free online catalogues, such as Carmentis, EUROPEANA, and the MIMO project, an inventory with sound recordings of multiple



Old England (detail)



A Ruckers keyboard depicted in: *El Oído (Hearing)*, 1617 - 1618.
Oil on panel, 64 x 109.5 cm.
Museo del Prado, Madrid. Jan Brueghel the Elder (1568-1625)

musical instrument museum collections which is available in ten languages, while the extensive archive of the MIM's own reference library is currently being digitised.

In October 2017, the MIM hosted the fourth conference in a four-part series on WoodMusICK (WOODen MUSical Instrument Conservation and Knowledge) supported by the COST programme (European Cooperation in Science and Technology). The conference brought together researchers from different but related disciplines, including acousticians, organologists and instrument makers, conservators and curators, but also chemists, wood, material and mechanical scientists and engineers, often but not exclusively working in museum contexts. New publications at the MIM include an impressive tome of research, *The Golden Age of Flemish Harpsichord Making: a Study of the MIM's Ruckers Instruments* (2017), under the direction of the MIM's keyboard instrument curator Pascale Vandervellen. A multi-disciplinary and international project, the study brought together over thirty researchers from both cultural and academic institutions to examine the history, construction, alteration and restoration of the eighteen instruments in the MIM collection 'considered at the time of their acquisition to be made in the Ruckers workshop'.

Harpsichords and virginals made by the Ruckers family, active in Antwerp across four generations between c. 1580-1680, came to be held in such high esteem that counterfeit production became organised on a large scale. They are depicted on many Old Master paintings, such as *El Oído / Hearing*, painted by Jan Brueghel the Elder (1568-1625) in 1617-18, and currently displayed at the Prado Museum in Madrid as one of a set of paintings on the five senses by

Brueghel and Peter Paul Rubens (1577-1640). *El Oído / Hearing* presents an ode to music via hearing, communicated in images: an idyllic scene portrays a singing Venus at centre stage, surrounded by musical instruments, scores and birds, and in the background a group of merry musicians. Paintings within the painting show dancers and players in the act of listening, further symbolising the presence and enjoyment of music throughout history.

Turning now to the MIM's collections, we note that these are similarly filled with illustrations of sound and music on vases, prints, tapestries, paintings, and descriptions of instrument making and musical styles, testifying to musical experience as a timeless pursuit. The MIM offers a survey of an extraordinary creative array, from the oldest instrument, an Egyptian shoulder-harp circa 1500 BCE, via small Yucatan drums and whistles circa 600-900 CE, a 1930s Finnish bugle made from birch bark, to one of its newer additions, the 2014 electronic *Linnstrument*, an 'expressive MIDI controller with polyphonic touch sensing' resembling 'a musical iPad'. I can do no more than present a few unique highlights of invention and restoration related to music and mechanics and leave you to discover your own favourites.



Linnstrument, 2014



IPEM studios, 1960s-70s

Infinite possibilities

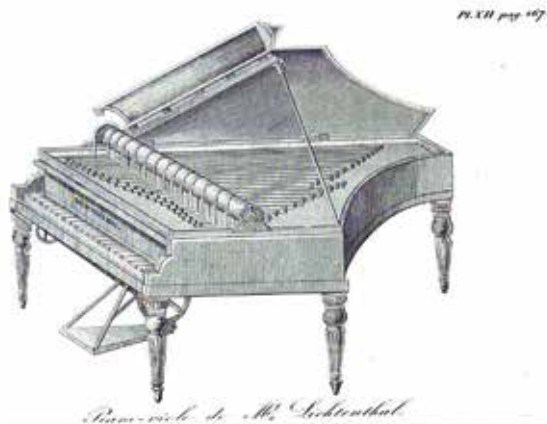
The *Musicus Mechanicus* gallery showcases mechanical, electrical and electronic instruments, many of which relate to short-lived quirks and novel special effects. Charting the history of music technology, the collection ranges from automated music-boxes via the first amplifiers in the 1920s to the original 1960s-1970s sequencing equipment of the Institute of Psychoacoustics and Electronic Music (IPEM) in Ghent. One experimental endeavour which came into the collection under Victor-Charles Mahillon in 1876 is the *Componium*, an orchestrion built by the inventor of the metronome, Diederich Nicolaus Winkel (1777-1826), in Amsterdam in 1821. With nine organ stops for different timbral registers (3 flute, piccolo, violin, salicional, gamba, quintadena and trumpets), a tambourine and a triangle, the concept of the *Componium* was really an automated one-organ band. No longer housed in its original cabinet, it is possible to view how mechanical receivers are designed to read music 'data' from two large wooden cylinders, perforated paper rolls or cardboard books. The infor-



*The Componium by
Diederich Nicolaus Winkel,
Amsterdam 1821*

mation coded on the different inputs sets the machine in motion, creating musical output. As well as being able to play recognisable songs, the *Componium* had another 'shuffle' setting: it could play and compose or compute a practically infinite⁴ and entirely unpredictable range of musical sounds. The two cylinders could be programmed to turn randomly, which would create different combinations of input data. A precursor to live coding perhaps, it required the turn of a crank to function. It didn't catch on, but composers such as Edgard Varèse (1883-1965), Pierre Boulez (1925-2016), Karlheinz Stockhausen (1928-2007) or György Ligeti (1923-2006) might have approved; Ligeti, after all, wrote *Poème Symphonique* for 100 metronomes in 1962, exploiting another invention of Winkel's.

The *Keyboards* exhibition explores all types of instruments operated via a keyed interface, from six-pedal pianos via synthesizers, keyed oboes, clarinets and harps to American composer Cecil Effinger's 1955 *Musical Typewriter* with notes and other musical script instead of letters. A rare hybrid instrument on display here is the only remaining original 'luthéal' mechanism in the world, a grand piano effects system built in 1919 by Belgian organ builder Georges Cloetens (1871-1949). Like the *Componium*, it has organ-like stops for creating different timbres. By lowering materials such as felt or metal onto or close to the piano strings, as well as its original piano setting, the 'luthéal' can imitate the sound of a lute with octave harmonic; a harpsichord; or a cimbalom (a hammered dulcimer) through combining the lute and harpsichord registers. Up to 18 combinations across the range of the keyboard are made possible since the bass and treble sections can be set to different effects. French composer Maurice Ravel (1875-1937) was the first to write music for the device, at around the same time that American composer Henry Cowell (1897-1965) was explor-



Engraving of the *Piano-Viole*,
La Belgique Industrielle (1835)

ing the range of sounds which could be produced by playing a piano's strings instead of its keys. Installed in a 1910 Pleyel, Wolff, Lyon & Cie grand piano at the MIM, the system was restored to playing condition in 1979 by Dutch violinist Theo Olof and piano technician Evert Snel. Olof's research into the meaning of the score indication of Ravel's 1924 *Tzigane*, *Rhapsodie de concert pour violon et luthéal* had led him to discover the device in the MIM's instrument reserves. With their restoration of a long-forgotten instrument, Olof and Snel revived Ravel's intended sound palette, providing new insight into an essential component of his composition, where the registers are used to contrasting effect. Several recordings of Ravel's *Tzigane* have now been made using the luthéal at the MIM, and it has also been the source of inspiration for new compositions. For those unable to access the instrument itself, high-quality samples of its special sound can be procured from www.realsamples.net.

Another unique hybrid now restored to playable condition at the MIM concerns an invention on permanent loan from the Royal Palace of Brussels since 2014. Once belonging to King Leopold I, the *Piano-Viole* is a mechanically bowed, pedal-operated keyboard instrument invented in 1830 by the renowned Brussels piano maker Herman Lichtenthal (1795-1853). It has a unique belt-bow mechanism that can be traced back to one of three recorded Leonardo da Vinci drawings of bowed keyboard designs⁵ for the *Viola Organista* circa 1490. A surprising invention, the *Piano-Viole* in fact belongs to a larger tradition of bowed keyboards, over 200 of which were built in the last 400 years. With a six-octave range (F-F), each string (one per note) can be bowed individually by a corresponding vertically turning leather belt-bow; the pedal crankshaft, assisted by a flywheel, operates a cylinder pulley above the string level on which all 73 bows are mounted. Resembling a grand piano in appearance, a distinctive semi-circular protrusion in its lid covers the cylindrical contraction when closed and resembles the hump of a dromedary camel.

Discovered at the palace in 2006 in a state of disrepair, restoration of the instrument has not been straightforward. With only two imprecise drawings, an 1830 patent description and varying reviews from the time to go on, and little left of the original mechanism, a process of reinvention, research and exploration of how the instrument might have worked and sounded began. This

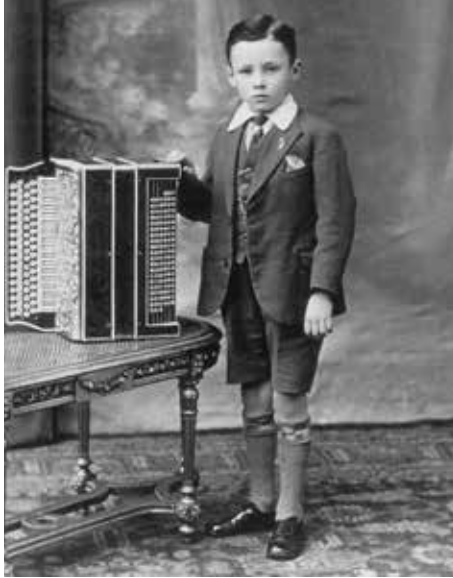
involved dozens of experiments regarding sound quality, consistency, dynamic and tonal potential, focussing on mechanism prototypes and interaction of different materials such as types of leather, strings, their advantages and disadvantages. An initial and promising result was demonstrated at the MIM in October 2017, and future events related to the *Piano-Viole* can be expected.

Listening to light

Alongside its permanent collections, the MIM also hosts temporary installations and exhibitions related to music and sound. In 2017, Overtoon, a platform for sound art, presented an exhibition in Brussels exploring the act of listening, *Où sont les sons? Where Are Sounds?*. As part of the exhibition the MIM exhibited a sound work, *Heliophone*, on its tenth-floor rooftop terrace. Curator Nicole Gingras states that various sound works in the show 'suggest that it is not only possible to hear a sound but also to see it, touch it, be pervaded by it'. *Heliophone*, a work by one of Overtoon's founders, Brussels-based artist and researcher into light Aernoudt Jacobs (b. 1968), is a photo-acoustic installation which transforms energy from the sun's rays into sound without recourse to electronic amplification: translating visible to audible. The constantly undulating tone which visitors were able to hear on the restaurant terrace and also via a speaker on the fifth floor indicated the fluctuating intensity of the light from the sun. Taking us back to the 1880s, Jacobs's installation employs the effect discovered by Alexander Graham Bell (1847-1922) while investigating the transmission of sound over long distances. Sunlight is focussed onto one point



Heliophone by sonic artist and researcher Aernoudt Jacobs
on the roof of the MIM



Toots Thielemans as a young boy

by means of a parabolic lens, and a rotating disc chops the light into small fragments, transforming them into sound waves via a photo-acoustic cell. Victor-Charles Mahillon would definitely have been intrigued.

Beyond the preoccupations and times of their curators, musical instrument museums such as the MIM in Brussels are testament to the creativity and skill of sound and music makers, allowing us to learn about and imagine the musical and sonic environments of past times – here and elsewhere – while maintaining their relevance for future generations the world over. Alongside the preservation of strange and ancient instruments, there is also an ongoing stream of new acquisitions: most recently, the instruments used and collected by the world-famous Belgian musician Toots Thielemans (1922-2016), tribute to a life lived in song. It is hard to think of a better place than the MIM for these musical legacies. ■

NOTES

- 1 An elder relative of the poet, philosopher and winner of the Nobel Prize for Literature in 1913, Rabindranath Tagore (1861-1941), Raja Sir Sourindro Mohun Tagore attained some notable firsts: in 1884, he was the first Bengali to be knighted by Queen Victoria, for whom he wrote songs; in 1875 and 1895 he received honorary doctorates in Music from the University of Pennsylvania and the University of Oxford, respectively; and he set up the first Bengal Academy of Music. Interested in Western music, S.M. Tagore learnt to play the piano to pursue comparative musicological study. He published more than 68 works of and on music, and donated collections of instruments to dozens of museums worldwide, including the Royal College of Music in London, which honours him annually with a Tagore gold medal award, and the Metropolitan Museum of Art in New York.
- 2 Archives générales du Royaume (AGR), *Fonds conservatorium*, Dossier 552, in: Vandervellen, 2013. My translation.

- 3 Mahillon's framework was developed in 1914 by musicologists Curt Sachs (1881-1959) and Erich Moritz von Hornbostel (1877-1935) into their eponymous system still used today. While 'electrophone' was later added as a category, the H-S system cannot accommodate many hybrid instruments or extra features. Classification issues in museums, such as attributions to makers, also often arise with recycled instruments or restoration projects.
- 4 For a more recent foray into infinite installations, see Jem Finer's Longplayer project: <http://www.independent.co.uk/news/business/analysis-and-features/jem-finer-from-here-to-almost-eternity-5368800.html>
- 5 Manual bow, wheel bow, belt bow. Examples of the wheel bow can be seen on instruments such as the hurdy-gurdy, and the 2012 *Viola Organista* after Leonardo da Vinci by Polish instrument maker Sławomir Zubrzycki, featured by Björk on her 2015 album *Vulnicura*.

FURTHER READING

Faure, Eugène Gressin-Dumoulin, Benoît Valerius, *La Belgique Industrielle, Compte-Rendu de l'Exposition des Produits de l'Industrie en 1835*. Hauman, 1836.

Pierre Gevaert, Michel Terlinck, Elisabeth Salverda, 'Restoring the Piano-Viole: an Adventure in Sound', paper presented at the WOODMusICK conference at the MIM, 6 October 2017.

Nazir Ali Jairazbhoy, 'The Beginnings of Organology and Ethnomusicology in the West: V. Mahillon, A. Ellis and S.M. Tagore', *Selected Writings in Ethnomusicology, Volume 8: Issues in Organology* (1990), pp. 67-81.

Margaret Kartomi, 'The Classifications of Musical Instruments: Changing Trends in Research from the Late Nineteenth Century, with Special Reference to the 1990s', *Ethnomusicology* 45 (2) (2001), pp. 283-314.

Barry Lloyd, 'A Designer's Guide to Bowed Keyboard Instruments', *The Galpin Society Journal* 56 (2003), pp. 152-174.

Pascale Vandervellen, 'Histoire d'un joyau muséal: le mim'. *Brusselse Cahiers Bruxellois, Revue d'histoire urbaine / Tijdschrift voor stadsgeschiedenis: Promenades musicales / Muzikale wandelingen* (2013).

Pascale Vandervellen, *The Golden Age of Flemish Harpsichord Making: a Study of the MIM's Ruckers Instruments*. Musical Instruments Museum, Brussels (ed. 2017).

Stéphanie Weisser, 'Des palais des maharadjas à l'Old England de Bruxelles. Les instruments indiens du mim'. *Brusselse Cahiers Bruxellois, Revue d'histoire urbaine / Tijdschrift voor stadsgeschiedenis: Promenades musicales / Muzikale wandelingen* (2013).

Stéphanie Weisser and Maarten Quanten, 'Rethinking Musical Instrument Classification: Towards a Modular Approach to the Hornbostel-Sachs System'. *Yearbook for Traditional Music*, Vol. 43 (2011), pp. 122-146.

Saskia Willaert, 'The Growth of an "Exotic" Collection. African Instruments in the Musical Instruments Museum, Brussels (1877-1913)', Annual Meeting of the CIMCIM 2011 / Rencontre annuelle du CIMCIM 2011 (2012), pp. 61-71.

WEBSITES

www.aernoudtjacobs.info/heliophone.html

www.europeana.eu/portal/en/exhibitions/music-and-mechanics

www.metmuseum.org/blogs/of-note/2014/raja-tagore

www.mim.be

www.mim.be/the-golden-age-of-flemish-harpsichord-making

www.mimo-international.com/MIMO

www.museodelprado.es/en/the-collection/art-work/hearing