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History

Exploits in the Dutch history of mathematical sciences

Why did no one tell me that I was so close to Huygens, that historical automatons were within half an hours ride, that I could have seen more of Mondrian than any mathematician could digest! The following brief survey is meant to help you avoid such frustration after coming home from 5ECM.

A trip to the historical city of Amsterdam is not complete without visiting one of the famous Amsterdam museums appearing in the most common tourist guides (like the Rijksmuseum, the Van Gogh museum and the Stedelijk museum) but the Amsterdam Archive would like to present to you some additional Dutch exploits in the history of mathematical science and the related arts. We assume that the reader will be able to find windmills, dykes and Deltaworks without assistance.

Automatons
Those who are fascinated by automatons, and even those who can't suppress a smile at the sight and sound of a music machine, must find their way to Utrecht, located near the centre of the Netherlands, less than half an hour by train from Amsterdam. In the historical town centre lies the museum *Van Speelklok tot Pierement*. Located in a former church the museum houses a living collection of mechanical music: Carillon clocks, music boxes, Pianolas, belly organs and orchestrions, as well as full-sized street, fairground and dance hall organs. A tour of this museum tells the story of automated musical instruments through the ages. Of course, live demonstrations of the instruments are all part of the visit.

New in the museum is an automaton of Vincent van Gogh and, thanks to the fact that the museum has the world's number one restoration shop, three antique musical clocks from China on loan from the imperial collection of the Palace Museum in Beijing.

A larger detour, but certainly worth it, will take the lover of automatons to Franeker, further north in Friesland, to see one of the greatest orreries in history: Eise Eisenga's planetarium — built in 1774–1781 and still in operation.

History of the mathematical sciences
From the same age dates the Netherlands' oldest museum *Teylers Museum* (1784) in Haarlem. The railway track leading west from Amsterdam to Haarlem is a memorable track, since it was the first track to be constructed and used in the Netherlands. The city's old market square is dominated by St. Bavo's cathedral with its huge and nicely restored cylinder organ, which once attracted Mozart to play on it. Teylers museum, around the corner from the old market, is a museum that has been preserved in its original 18th century form. In ancient cabinets it presents drawings, prints and paintings, fossils and minerals, scientific instruments and coins and medals. It has a fine collection of drawings by Michelangelo, Rembrandt and others. Teylers' major attraction is the number of instruments showing the state of the mathematical sciences in the late 18th century, for example from the world's largest electrostatic generator — imagine those sparks flying.

Fifteen minutes from Haarlem, and ten minutes by train from Schiphol, is Leiden with its famous old university (1575). A memorial stone of mathematician Ludolph van Ceulen in *the Pieterskerk* shows why π was once called *the Ludophian number*. From 1600 onwards Leiden University had a school of *Duytsche Mathematique* (practical mathematics taught in Dutch) and Van Ceulen was among its first professors. An interest in Christiaan Huygens is a good reason to come to Leiden. The Scaliger Institute of the university library holds for the connoisseur exquisite treasures like the manuscripts of Huygens.

Much more accessible, in the *Museum Boerhaave*, are Huygens' clocks, lenses, orreries and telescopes. The Boerhaave Museum's history began in 1907, when an historical exhibition of the natural sciences and medicine was held in the academy building of Leiden University. The success of the exhibition provided the impetus for the founding of the Netherlands Historical Science Museum, the forerunner of today's national museum for the history of science and medicine, better known as the Boerhaave Museum. In terms of the history of science and medicine, the collections in the Boerhaave Museum are among the most important in the world. Early modern science is on display; do not miss the world's oldest herbarium. From the golden age of the 17th century not only Huygens' material is presented but also Willem Blaeu's giant quadrant, and microscopes by Antoni van Leeuwenhoek. The 18th century

is splendidly represented by the cabinets — science demonstration laboratories — of Professors Gravesande and Van Musschenbroek. The huge quantity of 19th century objects includes Dr Zander's physiotherapeutic devices and papier-mâché anatomical models. The early 20th century, the scientific era known as the second golden age, is another highlight in the museum showing the legacy of Dutch Nobel Prize winners Van 't Hoff, Lorentz, Zeeman, Van der Waals, Kamerlingh Onnes and Willem Einthoven.

To further indulge in a Huygens museum one will want to visit the Huygens family estate *Hofwijck* in Voorburg, near The Hague, designed in a harmony of 'mathematical' relations by Christiaan Huygens.

Mathematics in art

As can be judged from another contribution in this issue, it is no longer fashionable for mathematicians to confess a liking for Escher. One does not have to travel to the Netherlands to find Escheriania abound in antiquarian bookshops. For those who cannot control their, now covert, weak spot for the prints of Maurits Cornelis Escher (1898–1972), there is a permanent museum in The Hague, and after 5ECM there is the 'Bridges' conference in Leeuwarden with an occasional exhibition at Escher's place of birth.

By contrast mathematicians are on their way to a reappraisal of Mondrian. Visit the Gemeente Museum Den Haag for the richest collection of his work, or the Mondriaanhuis in Amersfoort to see more of Mondrian's life and constructive and concrete art.

Rinus Roelofs (see the cover of this issue), the new star on the bridge between mathematics and art, will be present in person at the Leeuwarden Bridges Conference. Otherwise, in the absence of a real world Roelofs museum, rush home and consult his wonderful web site. ⟵·····

Websites
- Van Speelklok tot Pierement
  http://www.museumspeelklok.nl
- Teylers museum
  http://www.teylersmuseum.nl
- Museum Boerhaave
  http://www.museumboerhaave.nl
- Pieterskerk Leiden
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Windmills near Zaandam