



MUSEUM BOERHAAVE, LEIDEN (THE NETHERLAND)

Museum Boerhaave, the Dutch national museum for the history of science and medicine, was founded in 1929. August Crommelin, deputy director of the Leiden Physics Laboratory and the first director of the museum, felt the need to protect collections of nice instruments against a looming demise. In that sense, there is a parallel with the Museum of the History of Science (Oxford, 1924) and the Istituto e Museo di Storia della Sienza (Florence, 1930).

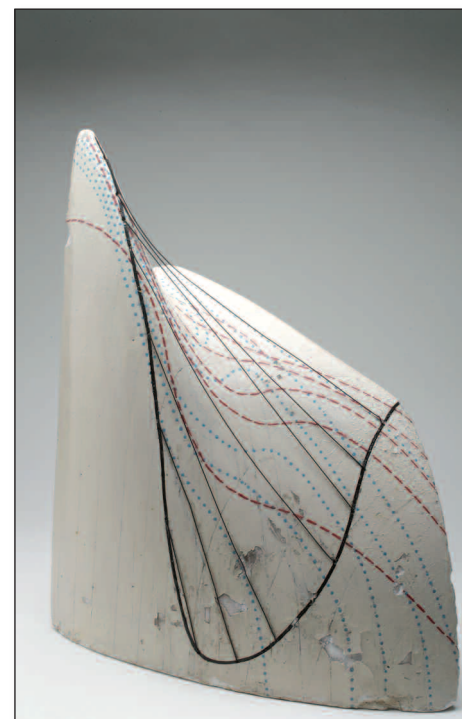
▲ One of the upper floor rooms of Museum Boerhaave, dedicated to the 17th century, the Dutch Golden Age. The showcases display the pendulum clock invented in 1657 by Christiaan Huygens and some lenses he made in collaboration with his brother.

► Plaster model of a Gibbs surface, constructed to test the theory of mixtures of Johannes Diderik van der Waals, ca. 1905.

Crommelin took on the fate of the instruments that Heike Kamerlingh Onnes, pioneer of refrigeration, had relegated to the attic when he arrived in 1882 and started to transform the Leiden Physics Cabinet into a research laboratory. That collection included lenses used by Christiaan Huygens, air pumps and many more demonstration instruments from the eighteenth-century, mostly produced by Jan van Musschenbroeck. Later years of glory are represented by the apparatus Kamerlingh Onnes used in 1908 to liquefy helium, or the three dimensional molecule models of Jacobus Hendricus van 't Hoff, the beginnings of stereo chemistry. But the ambitions of the new museum reached higher. Crommelin and his co-workers soon ventured into the countryside in

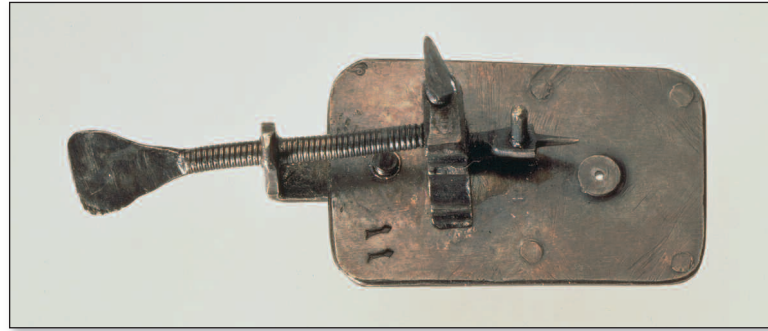
search of new acquisitions. The collection thereby transcended the local level and included the entirety of natural sciences and medicine. The highlights include the Golden Age with a big quadrant used by Snellius, microscopes by Antoni van Leeuwenhoek and telescopes and clocks by Christiaan Huygens. As a national museum, Museum Boerhaave also collects instruments and devices from non-university institutions like the industrial laboratories of Philips and Shell. The artificial kidney of Dolf Kolff, also a top-class piece, was developed in a provincial hospital in Zwolle during World War II. The collection now has some 40,000 instruments, books, prints, etc. Since 1991, the museum is housed in the former Caecilia Hospital in the Leiden city centre, the place where in 1636 Leiden University crea-

ted the first academic hospital and where Herman Boerhaave lectured at the bedside of interesting patients. It works out well that the accent has shifted within research into the



history of science over the past decades from a history of ideas to attention for material aspects. Researchers nowadays are also interested in context, in tap grease and lubricant, in the person behind the scientist and his or her instrument. Increasingly often, we see initiatives to make the material culture of science the subject of study. That culture has mainly been preserved thanks to the deeds of museums. Nonetheless, studies into the history of science have traditionally played out in libraries and archives, based on texts and illustrations. The result is that museum objects are displayed without any reference to their historical context, while the history of science often deals with ideas disconnected from matter.

Museum collections can also be of service to academic education. Second-year bachelor degree science students at Leiden University who follow the introductory 'history of natural sciences' programme go to Museum Boerhaave to see the material form of abstractions such as the 'Second Golden Age' or 'Book of Nature'. At a higher level are the master's students of medical history, history of mathematics or natural



▲ Microscope, Antoni van Leeuwenhoek (1685-1725). Van Leeuwenhoek, a tradesman from Delft, is commonly known as 'the Father of Microbiology'. Using his handcrafted single lens microscopes, he was the first to record bacteria and spermatozoa. His microscopes were able to magnify up to ca. 300 times.

sciences and, not to be forgotten, art history, placed in a position at the Museum Boerhaave to get a close look at forceps, astrolabes and microscopes while the lecturer explains how they work and their context in cultural history. In such a lecture one notices immediately that the eighteenth-century, ornately decorated microscope undeniably bears the message of 'the Book of Nature' by Jan Swammerdam. Or that Kamerlingh Onnes and Einthoven (Nobel prize laureate, the first to make an electrocardiogram), who had their laboratories only dozens of metres from each other in the centre city of Leiden, would *have* to have argued,

given the colossal pumps of the former and the string galvanometer so sensitive to vibrations of the latter.

That education to students can be expanded to the museum store: there, the objects can be taken in hand for further inspection. How do forceps feel? How precise is that astrolabe? The store is also a place for research. For example, the optical properties of Huygens lenses in the collection of the Museum Boerhaave were precisely determined, yielding important information about the quality of his telescopes. ■

■ ■ ■ Dirk van Delft,

Director of Museum Boerhaave

▼ Hydrostatic balance, ca. 1730 made by the Leiden instrumentmaker Jan van Musschenbroek. With this instrument professor Willem Jacob's Gravesande was able to demonstrate the Law of Archimedes.

all pictures are © Museum Boerhaave

▼ Louis Thomas Jérôme Auzoux (1797-1880) was a true artist in *papier-mâché*. His anatomical models, most of which can be dismantled, are world famous.

▼ String galvanometer, Willem Einthoven, ca. 1910. The First electrocardiograph was so large that it could not be placed next to the patient's bed. Hence a connection was made between patient and instrument using a telephone line. Einthoven won the Nobel Prize for Medicine and Physiology in 1925.

