

CORNELIS JACOBUSZ. DREBBEL
1572-1633

Drebbel was born in 1572 in the city of Alkmaar. The occupation of his father, Jacob Janszoon Drebbel, is unknown, but it is likely that he was a farmer or landowner. It is assumed that Drebbel was an Anabaptist or Mennonite, since later on many of his friends and relatives belonged to this denomination. After an elementary education (including some years at the Latin school), around 1590 Drebbel became an apprentice to the famous engraver Hendrik Goltzius in Haarlem. He lived with Goltzius, proved to be an apt pupil of the master, was initiated by him in the art of alchemy, and in 1595 married Goltzius's younger sister, Sophia.

After his marriage, which proved to be unhappy because of Drebbel's spendthrift ways, Drebbel settled in Alkmaar as an engraver and map-maker. He also tried his hand at mechanical inventions and in 1598 a patent was granted to him for a pump and a clock with a perpetuum mobile. This mechanical toy operated on the basis of the changes in atmospheric temperature and pressure. He applied this thermoscope in regulating heat in ovens and furnaces (as a modern thermostat). In 1601 he built a fountain in Middelburg and in 1602 another patent was granted to him for an improved chimney. In 1604 Drebbel published *Een kort tractaet van de natuere der elementen* (a meteorological tract).

Around 1605 Drebbel moved to London, where he presented his inventions to James I and Henry, the young prince of Wales. The handsome inventor entered into the service of Henry and lived at Eltham Palace. His main task was to help with the construction of machines that were used in stage performances. He was also interested in optics and from 1607 had a dye house in Stratford-Bow (14 miles from London). At Eltham Palace he was visited by a number of high ranking people, including the German Emperor Rudolph II and the duke of Württemberg. Drebbel accepted Rudolph's offer to come to his court in Prague and moved to the Continent in October 1610. He devoted himself to alchemy, the construction of a perpetual motion machine and mine pumps. After Rudolph's deposition by his brother Matthias (1611), Drebbel lost his most important patron and was put in jail for a short time. In 1613 he was allowed to return to England.

After his return to London Drebbel devoted himself to optics and

the manufacture of microscopes. He was an expert lens grinder and in 1619 made compound microscopes. In 1620 he constructed a submarine that could carry several people (it actually was a diving bell: the bottom was open and a rower above water level directed the vessel). With this submarine he was able to go from Westminster to Greenwich. Since there was no open connection between the twelve rowers under water and the open air it has been said that Drebbel must have discovered oxygen, but there is no evidence for this. In fact, the story of this invention was much embellished by the four Kuffler brothers, who became business associates in Drebbel's dye house around 1622 (two of them married daughters of Drebbel). These Kuffler brothers acted as agents and promoters of Drebbel's inventions in England and on the Continent. This mainly involved the exploitation of Drebbel's discovery of a tin mordant for dying scarlet with cochineal. Part of the promotional activity was also the publication of Drebbel's *De quinta essentia tractatus*, an alchemical tract. For a time Drebbel was also employed by the English navy. He made the explosives and the fire-ships to be used by the expedition to raise the French siege of the Huguenot city of La Rochelle (1628). After leaving the navy, Drebbel became a poor man and had to earn a living by keeping an alehouse. Although he was engaged in schemes for land reclamation near London and around Cambridge and Huntingdon (where another Dutchman, Cornelis Vermuyden, had been working since 1627), he remained poor. Drebbel died in London in 1633.

Primary works

Een kort tractaet van de natuere der elementen, ende hoe sy veroorsaecken, den wint, reghen, blixem, donder, ende waerom dienstich zijn ([s.l.], 1604; reprinted many times, translated in German as *Ein kurzer Tractat von der Natur der Elementen*, Leiden, 1608); *De quinta essentia tractatus* (Hamburg, 1621).

Secondary sources

C. van der Woude, *Kronyk van Alckmaar* (The Hague, 1746) 99-102; H.A. Naber, 'Cornelis Jacobsz. Drebbel 1572-1634', *Oud-Holland* 22

(1904) 195-237; H.A. Naber, *De ster van 1572* (Amsterdam, 1905); F.M. Jaeger, *Cornelis Drebbel en zijne tijdgenooten* (Groningen, 1922); G. Tierie, *Cornelis Drebbel (1572-1633)* (Amsterdam, 1932); L.E. Harris, *The two Netherlands. Humphrey Bradley and Cornelis Drebbel* (Leiden, 1961); J.R. Partington, *A history of chemistry*, II (London, 1961) 321-324; H.A.M. Snelders, 'Alkmaarse natuurwetenschappers uit de 17e en 18e eeuw', in *Alkmaarse historische reeks*, vol. 4 (Zutphen, 1980) 101-122, especially 110-119; *idem*, *De geschiedenis van de scheikunde in Nederland. Van alchemie tot chemie en chemische industrie rond 1900* (Delft, 1993) 42-47.
S. Edelstein, in: *DSB*, vol. 4, 183-185; F.M. Jaeger, in *NNBW*, vol. 6, 451-453.

[K.v.B.]