GERARDUS JOHANNES MULDER
1802-1880

Mulder was born on 27 December 1802 in Utrecht, where his father was a surgeon. Mulder Jr. also was educated as a surgeon, but in 1819 he matriculated at the University of Utrecht to study medicine. In March 1825 he took his degree in medicine with a dissertation on the alkaloids of opium, *De opio ejusque principiis, actione inter se comparatis.* Two months later he also graduated in pharmacy. Mulder practiced medicine in Amsterdam for a while before he moved to Rotterdam in 1826. In addition to practicing medicine he lectured at the Bataafsch Genootschap voor Proefondervindelijke Wijsbegeerte (Batavian Society for Experimental Philosophy) and taught botany to student apothecaries. In 1828 Mulder became lecturer in botany, chemistry, mathematics and pharmacy at the newly founded Clinical School in Rotterdam. Until 1835 he combined this with his medical practice, but after that year he devoted himself solely to teaching and research. He especially paid attention to the practical training of his students in the laboratory of the School. From 1826 onwards Mulder edited five Dutch chemical journals, in which he published most of his work. He also published a textbook for chemistry, *Leerboek voor scheikundige werktuigkunde* (1832-1835), which was inspired by Faraday's chemical practice. A few years later he edited a Dutch translation (done by three of his students) of Berzelius' textbook of chemistry as *Leerboek der scheikunde* (6 vols, 1834-1845).

In 1840 Mulder became professor of chemistry at the University of Utrecht, where he immediately reorganized the training of the students in chemistry. A new laboratory was built, where Mulder could teach that chemistry first of all was a practical science. He also started a new journal, *Scheikundige onderzoekingen, gedaan in het laboratorium der Utrechtsche hoogeschool* (1842-1851), in which he published the results of the research done in his laboratory. Through these efforts, he may be regarded as the founder of modern chemical science in the Netherlands. His own research concentrated on the protein theory. In 1836 Mulder (at that time he was still lecturer in Rotterdam) had formulated the theory that all albuminous substances consist of a radical compound of carbon, hydrogen, nitrogen and oxygen, in combinations with varying amounts of sulfur and phosphorus. On the advice of Berzelius, Mulder called this radical compound protein. He published this theory in his *Proeve eener*

algemeene physiologische scheikunde (translated in English as *The chemistry of vegetable and animal physiology*, 1845-1849). Berzelius and Liebig at first accepted Mulder's analysis, but later on Liebig voiced dissenting opinions, which led to a very fierce polemic between Mulder and Liebig.

In the early 1850s Mulder became active in politics. He was one of the leaders of a conservative movement against the liberal administration of prime minister Thorbecke. The opposition of Mulder and some influential conservative Protestants against the reintroduction of the Roman-Catholic episcopal hierarchy (April movement) led to the fall of Thorbecke in 1853. Partly because of Mulder's antagonistic behaviour, the conservative movement however was unable to become a recognizable political force in the Netherlands. In 1854 Mulder had a mental breakdown. He submitted his resignation to the King, but this was not accepted. Mulder went on leave for a year, and in 1855 resumed his teaching obligations.

In the mid-1850s Mulder also returned to the practice of science. He did fundamental research in agricultural chemistry and investigated humic and ulmic acids and humus substances. He considered humus to be the main source of plant nutrition, on which point Liebig also disagreed with him. The Utrecht professor integrated his studies in his treatise *De scheikunde der bebouwbare aarde* (1860). He also analyzed a large number of other substances, such as wine (1855), beer (1857) and dyeing oils (1865).

In 1868 Mulder resigned as professor at Utrecht and moved first to Apeldoorn and then to Bennekom, where he lived for the rest of his life. He had become a bitter and lonely man. Although he was an excellent teacher, he was unable to cooperate with others for long. He had alienated most of his friends, colleagues and devoted students by his suspicious, malicious and vehement behaviour. His health deteriorated (headache and sleeplessness underminded his constitution) and a few years before his death he became blind. Still, Mulder wrote (or rather dictated) some books and brochures in which he reacted to contemporary developments in higher education. He died on 18 April 1880 in Bennekom.

Primary works

Poggendorff, vol. 3, 949; vol. 4, 1047; vol. 5, 888; vol. 6, 1804. *Dissertatio*

de opio ejusque principiis, actione inter se comparatis (Utrecht, 1825); *Leerboek voor scheikundige werktuigkunde*, 2 vols (Rotterdam, 1832-1835); *Proeve eener algemeene physiologische scheikunde*, 2 vols (Rotterdam, 1843-1850); *De vraag van Liebig aan de zedelijkheid en de wetenschap getoetst* (Rotterdam, 1846); *De scheikunde der bebouwbare aard*, 4 vols (Rotterdam, 1860); *Getuigenis in zake Hooger Onderwijs* (Rotterdam, 1876). An autobiography by Mulder was published posthumously: *Levensschets. Door hem zelven geschreven en door drie zijner vrienden uitgegeven* (Rotterdam 1881). For his correspondence, see H.G. Soederbaum, ed., *Briefvaexling mellan Berselius och G.J. Mulder* (Jac. Berzelius Bref, vol. 5, Uppsala, 1916); H.A.M. Snelders, ed., *The letters from Gerrit Jan Mulder to Justus Liebig (1838-1846)* (Amsterdam: Rodopi, 1986).

Secondary sources

J.W. Gunning, in: *Mannen van beteekenis in onze dagen* (Haarlem, 1882) 139-188; W. Labruyère, *G.J. Mulder (1802-1880)* (Leiden, 1938), with a bibliography of Mulder's works; E.J. Cohen, 'Wat leeren ons de archieven omtrent Gerrit Jan Mulder?', *Verhandelingen der Koninklijke Nederlandsche Akademie van Wetenschappen, afdeling Natuurkunde* 19 (1948) no. 2, 1-73; M.J. van Lieburg, 'Gerrit Jan Mulder: docent der Clinische School te Rotterdam', in: J. van Herwaarden, ed., *Lof der historie. Opstellen over geschiedenis en maatschappij* (Rotterdam, 1973) 213-240; E. Glas, 'The protein theory of G. J. Mulder (1802-1880)', *Janus* 62 (1975) 289-308; E. Glas, 'The Liebig-Mulder controversy', *Janus* 63 (1976) 27-46; J.C. Boogman, *Rondom 1848, De politieke ontwikkeling van Nederland 1840-1858* (Bussum, 1978); H.A.M. Snelders, 'Het chemisch laboratorium 'De Leeuwenbergh' te Utrecht', *TGGNWT* 7 (1984) 129-140; E. Homburg, 'Over het boekenbezit van Gerrit Jan Mulder, aan de hand van een veilingcatalogus', *ibid.*, 10 (1987) 45-56; H.A.M. Snelders, *De geschiedenis van de scheikunde in Nederland. Van alchemie tot chemie en chemische industrie rond 1900* (Delft, 1993) 93-108; G. Hooykaas, 'Gerardus Johannis Mulder (1802-1880), hoogleraar in de scheikunde, orangist', in: *Utrechtse biografieën. Levensbeschrijvingen van bekende en onbekende Utrechters*, vol. 3 (Amsterdam/Utrecht, 1996) 141-145; R. van Raak, 'De jobstijding van Gerrit Jan Mulder. Nederlands conservatisme in de negentiende eeuw', *Geschiedenis van de wijsbegeerte Nederland* 8 (1997) 44-69 (on Mulder's political ideas).
H.A.M. Snelders, in: *DSB*, vol. 9, 557-559.

[K.v.B.]