Tutorial and General Papers
HIST Programming - Fall National ACS Meeting 2026

"Dorothea Juliana Wallich (1657-1725), a female alchemist from Weimar (Germany), and the discovery of ligand exchange thermochromism"

Alexander Kraft, kraftalex@aol.com. Independent Scholar, Eichwalde, Germany.

Dorothea Juliana Wallich is a largely forgotten German alchemist. She was born Dorothea Juliana Fischer in 1657 in Weimar. At the age of almost 17, she married the court clerk Johann Wallich (1639-1711). The Wallich couple were wealthy and childless, which gave Dorothea Juliana Wallich the time and means to pursue alchemical activities. She was influenced by the operative alchemical traditions of Early Modern Europe as well as by the cosmic spiritual visions of Jakob Böhme (1575-1624). As an alchemist, she broke all boundaries in 17th-century Weimar. With ground-breaking alchemical experiments and three published works, she established herself in a male-dominated field and corresponded with the leading chemists of her time, including Georg Ernst Stahl (1659 1734), the famous developer of the phlogiston theory. She published her alchemical ideas and findings in three books, which appeared in quick succession in 1705 and 1706 from a Leipzig publishing house. These three books represent the largest extant body of writings from a practicing female alchemist. This lecture will recount the fascinating but also tragic life story of this alchemist who navigated between alchemical writings, princely laboratories, mines in the Saxon Ore Mountains, alchemical swindles, and scientific discoveries. It will also discuss the chemical operations she performed and the discoveries she made. The misguided paths her discoveries led her down will also be described. Finally, I will discuss the ligand exchange thermochromism she discovered and explain why it is still relevant today.

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"Let's talk about jargonium! Teaching the nature of (history of) chemistry in the classroom"

Brigitte van Tiggelen, vantiggelen@memosciences.be. Science History Institute, Philadelphia, PA, United States.

At the soiree of the Royal Society, on March 6th 1869, H. C.Sorby (1826-1908) displayed new spectral lines he had captured using his spectrum microscope. He was examining zircons, also called jargoons. Sorby claimed these lines indicated the presence of a new element associated with the earth jargonia and proposed the name jargonium. Quite soon after, a priority controversy arose with A. H. Church (1834-1915) who insisted he had made a similar suggestion back in 1866 while analyzing zircons: indeed, in his publication, he had

mentioned dark spectral bands missing in other samples, which pointed to a previously unknown element. Although still in progress and unpublished, Church argued he had obtained a spectrum similar to Sorby's and claimed credit for the discovery, proposing the name nigrium, referencing the black bands in the spectrum. In less than a year, though, the controversy went extinct as Sorby retracted his claim to have discovered a new element and acknowledged he had, in fact, observed a mixture of zirconium and uranium. However, jargonium's story doesn't end there. In 1923, D. Coster (1889–1950) and G. de Hevesy (1885–1966) announced the discovery of hafnium in zircon ores. They detected the element using X-ray spectroscopy analysis, relying on the Moseley Law—a principle that unequivocally links atomic numbers to unique X-ray signatures. Soon after, Th. L. Walker (1867-1942) sent a short note to Nature, reminding the community of Sorby's work, which he thought "may possibly entitle him to rank as the discoverer of the new element of atomic number 72, and that jargonium may have priority over hafnium [...]". The story of jargonium is one of expectations, anticipations, professional standing and appreciation, standardization of new and old analytical methods, and the exciting hunt for new chemical elements, all together, but it also highlights retrospective attributions and historical reconstructions of discoveries. As jargonium disappears from textbooks, or lists of elements, it enters the category of (potential) forerunners to the elements as we now know them. Using the story of jargonium, an element that isn't but is presented as a predecessor of hafnium, might even be more fruitful in the classroom than scrutinizing a well-established element's discovery story, as it allows the students to think critically about what substantiates a discovery claim in the context of the time, and simultaneously, about how history of chemistry is constructed.