



Thomas Lawrence's portrait of Humphry Davy, who identified nine chemical elements.

HISTORY OF SCIENCE

Elements of romance

Mark Peplow explores chemistry's golden age — and its brushes with Romanticism — at London's Royal Society.

Talk of English Romanticism often conjures up images of William Wordsworth striding through Cumbrian drizzle or Samuel Taylor Coleridge crafting his hallucinatory poem *Kubla Khan*. But this explosion of artistic creativity, concentrated in the first half of the nineteenth century, coincided with a golden age of scientific discovery. More than two dozen chemical elements were identified, and chemistry became the hottest show in town. "It's really the dawning of chemistry as we understand it," says Keith Moore, the Royal Society's head of archives.

Romantic Chemistry, a small exhibition curated by Moore, profiles the scientific stars of the age. Artefacts of their discoveries are displayed alongside cartoons and portraits. Ingots of palladium some two centuries old jostle for space with letters describing pioneering research in beautiful copperplate.

The show also draws out connections between these luminaries and their artistic counterparts. The revolutionary note struck in the United States and France was still sounding for the likes of both Coleridge and

chemist Joseph Priestley. And, in other ways, the 'two cultures' barrier had yet to go up.

Some characterize the Romantic movement as a reaction against the growing rationalization of the world through science, as mathematics and measurement began to unlock the secrets of nature. John Keats' lamentation in his 1819 poem *Lamia* sums up this mood: "Philosophy will clip an Angel's wings/Conquer all mysteries by rule and line".

Not so, argues Moore. The chemist and inventor Humphry Davy was friends with Coleridge and Wordsworth, and edited the 1800 second edition of their co-authored *Lyrical Ballads*, the spark that lit English Romantic literature. Coleridge returned the favour with some unabashed public relations in his *Essays on the Principles of Method* in 1818, reproduced in the exhibition: "If in SHAKESPEARE we find nature idealized into poetry ... so through the meditative observation of a DAVY, a WOOLLASTON, or a HATCHETT we find poetry ... substantiated

and realized in nature".

William Hyde Wollaston is not as well known today as Davy, but in the early 1800s his discoveries of palladium and rhodium propelled him to the cutting edge of science. And Wollaston was quick to exploit palladium's commercial potential. On show is an advertising leaflet he circulated, extolling the metal's properties in remarkable scientific detail and noting it as sold "only by Mr Forster, at No. 26 Gerrard St, Soho, London" — an early example of chemical monopoly.

Around the same time, Charles Hatchett claimed to have found a new element in a mineral sample from Massachusetts, which he dubbed columbium. That discovery was confirmed only after 60 years, and it took almost another century before its modern name — niobium — found common usage. Hatchett's 'finder's letter' to the Royal Society is displayed, as is a specimen of niobium ore.

So are letters from Hatchett's assistant, the Irish chemist Peter Woulfe, bearing clues that these Romantic chemists were living through their field's awkward but thrilling teenage years. Perfect, hand-drawn diagrams of distillation equipment that would hardly look out of place in a modern textbook sit alongside lists of chemicals written in the arcane symbols of alchemy.

But the undoubted star of the exhibition is Davy — a romantic among Romantics. His lectures drew London's elite to the Royal Institution and, as James Gillray's satirical cartoon of 1802, *New Discoveries in Pneumatics*, shows, the front row was packed with ladies wearing ostentatious hats, craning eagerly towards the handsome scientist. "Davy was the Brian Cox of his day," smiles Moore, referring to the floppy-haired particle physicist and darling of British science broadcasting.

Indeed, a print of Thomas Lawrence's portrait of Davy shows the chemist dressed in a dandyish shirt with a fashionably high collar, his kid-gloved fist placed firmly on a table. The gleam in his eye would have set his fans swooning. This master of elements could not be more different from Joseph Wright of Derby's *The Alchymist* (1771). A depiction of the seventeenth-century isolation of phosphorus — the first modern discovery of an element — it features a bearded alchemist in a darkened, cluttered room. His face is illuminated by the glow of the element, extracted from copious quantities of urine.

Some 150 years after those crude experiments, in 1820, Davy — who had by then identified nine chemical elements — was appointed president of the Royal Society, following an acrimonious election. The rowdy Romantic chemists had taken over the establishment. Chemistry had arrived. ■

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