



BOTANY

He made plants a profession

Jim Endersby revisits the legacy of trailblazing botanist Joseph Dalton Hooker.

Joseph Dalton Hooker, born 200 years ago this month, made extraordinary contributions to science over a life (1817–1911) that spanned the Victorian era and beyond. Royal Society president and director of the Royal Botanic Gardens, Kew, he was knighted in 1877 for scientific services to the British Empire.

Hooker presided over his own empire, too — a global network of botanic gardens, from Sydney to Calcutta and Trinidad, which were used to investigate economically vital plants such as rubber and to arrange where they could be cultivated profitably. Hooker's numerous expeditions took him to remote regions, and he wrote foundational works on plant classification, such as *The Botany of the Antarctic Voyage of H.M. Discovery Ships Erebus and Terror in 1839–1843* (1844–60); *Handbook of the New Zealand Flora* (1864); and *The Flora of British India* (1872–97). Even in the weeks

before his death in December 1911, the 94-year-old Hooker was still hard at work on a comprehensive reclassification of the genus *Impatiens* (the Himalayan balsams; see page 474). And, as Charles Darwin's closest friend, Hooker was part of a collective effort that, in the decade after the 1859 publication of *On The Origin of Species*, shifted opinion radically towards acceptance of the idea of evolution by natural selection.

A RESPECTABLE TRADE

Hooker was one of the first to pursue a paid (and successful) scientific life and make doing so respectable, which paved the way for the careers of modern scientists. In fact, he sounded all too much like a modern scientist in 1868, in an address to the delegates and guests of the British Association for the Advancement of Science (BAAS), of which he was president. He complained that he would have liked to “sketch the rise and progress of Scientific Botany”, but was stymied by the pressures of official duties. As

the “administrator of a large public department” he had to “drag a lengthening chain of correspondence” and could not spend his brief holidays on research.

Hooker's first love was plants. Aged just seven, he began attending the Glasgow University botany lectures of his father, William Jackson Hooker, and joined the students on field trips. As soon as Joseph had obtained his medical degree from Glasgow, he boarded HMS *Erebus* as official botanist on a four-year expedition to the southern oceans. Over the course of his life, he travelled from Antarctica to the Himalayas, and from Africa's Atlas Mountains to the North American Rockies, in search of plants.

Among the legacies of Hooker's Indian travels was the profusely illustrated *The Rhododendrons of Sikkim-Himalaya* (1849), whose stunning hand-coloured plates helped to ignite a rhododendron craze in Britain. However, his most lasting legacy was probably the *Genera Plantarum* (1862–83), which he co-wrote with George Bentham

HOOKER (1849-51), THE RHODODENDRONS OF SIKKIM-HIMALAYA, LONDON; REEVE, BENTHAM AND REEVE.



Specimens featured
in Joseph Hooker's
*The Rhododendrons
of Sikkim-Himalaya*,
illustrated by
Walter Hood Fitch.

and which laid the foundations for much of modern plant classification.

Historians have tended to lump Hooker in with Darwin's other young supporters. The biologist Thomas Henry Huxley and physicist John Tyndall, for instance, took every opportunity to attack what they saw as the corrupt Anglican hierarchy that held back the progress of British science. Huxley, Tyndall and Hooker were all members of the slightly shadowy X Club, working behind the scenes to support Darwin and reform science. Yet a closer look at Hooker's life suggests that he was the odd one out.

In the early 1870s, for instance, Hooker became embroiled in a public spat with Acton Smee Ayrton, the government minister responsible for Kew. Hooker railed that Ayrton (who was famously rude) had interfered in the running of the gardens and had lied to the prime minister about it. The press in general rallied to Hooker's defence. The *Globe* newspaper described Ayrton as someone "whom the thick breath of a turbulent suburban democracy has blown for a moment into patronage and power", threatening a public servant whose loss "to the interests of universal science would be absolutely irreparable". In calmer terms, *The Times* reported that a politician had told Parliament to treat naturalists as gentlemen, with "consideration, delicacy, refinement, and courtesy".

The truth about this disagreement was

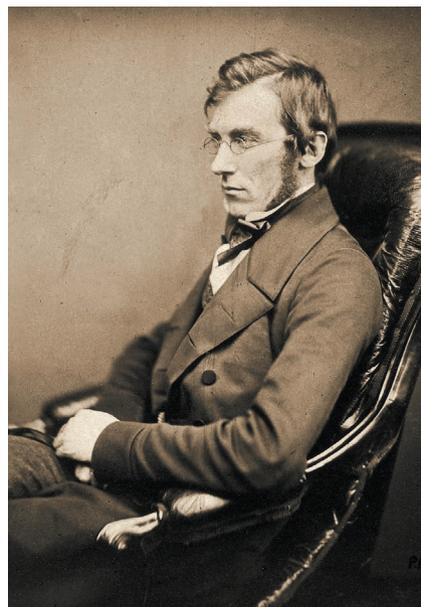
more complex. Hooker objected to Ayrton's demand that applicants for clerical positions at Kew take the civil-service examinations rather than be appointed on Hooker's whim.

Ayrton had also insisted that all building work at Kew be put out to tender; Hooker used the same firm he and his father had always used. If anyone was trying to put science on a more professional basis, it was Ayrton.

Unlike Darwin, whose father's wealth spared him the need to earn his own money, Hooker had to find a way to make a living from botany without compromising his gentlemanly status. The world of science was changing rapidly. When William Hooker was appointed to the chair at Glasgow in 1820, he had never heard — much less delivered — a university lecture. He owed the position to the support of his aristocratic patron Joseph Banks, de facto director of Kew under King George III. Half a century later, the Darwinian young guard were supposedly committed to eradicating such practices, yet Joseph Hooker privately referred to Kew's herbarium collections (which his father had created) as "future estates" comparable to inherited land. The government's reluctance to lose these valuable collections was crucial in ensuring that when William died in 1865, Joseph stepped into the post.

DEBT TO DARWINISM

Hooker became the first scientist to publicly embrace Darwinism, in 1859. In his 1868 BAAS speech, he reflected on the fate of Darwin's theory: although criticisms continued, he asserted that by this time, less than a decade after its first publication, "almost every philosophical naturalist"



Joseph Hooker, photographed in his youth.

accepted natural selection. Even *The Guardian* (a conservative Anglican newspaper, not its current liberal namesake) acknowledged Darwinism's "triumphant and almost unopposed" reign. Such was the debt of Darwinism to Hooker; but what did Darwinism do for him?

During his first voyage to Antarctica, Joseph had written to his father, "if I cannot be a naturalist with a fortune, I must not be too vain to take honourable compensation for my trouble".

"Hooker had to find a way to make a living from botany without compromising his gentlemanly status."

One of the many problems Hooker faced as he worked for that compensation was that botany had little status at the time; it was seen as too heavily focused

on collection and description. Darwinism offered the prospect of real, applicable scientific laws. In *Origin*, Darwin argued, for example, that "community of descent is the hidden bond which naturalists have been unconsciously seeking". That provided a sound scientific basis for what had previously been largely a matter of individual, often idiosyncratic, expertise. For Hooker, using evolution to put plants in their proper place within the system of classification was also a way of putting botany into a better place within science.

Yet being a naturalist with a fortune would have been his first choice, as the argument with Ayrton shows. Hooker's career bridged the old world of patronage and the new one of government-funded science. The latter opened careers to the relatively poor, but at the cost of bureaucratic interference and that "lengthening chain of correspondence". In Hooker's youth, there were no clear scientific paths, so careers had to be improvised against a background of rapidly changing expectations. The men (for it was almost all men) of Hooker's generation struggled to earn a living, persuading others that they were still gentlemen receiving an honorarium rather than a salary. Hooker's aristocratic values may seem slightly absurd today, but some of science's core ideals — such as suspicion of profit-driven secrecy instead of the free exchange of knowledge — are a legacy of his need to act like a gentleman. ■

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