

PLANT TAXONOMY

The love of plants

Carl Linnaeus's use of erotic language to describe plants ultimately helped him to recruit a global network of specimen collectors.

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In August 1749, Pehr Kalm, a medical student from Finland, travelled through Quebec on behalf of the Royal Swedish Academy of Sciences. The members of the academy, among them the botanist Carl Linnaeus, had sent him there in the hope that he would find useful plants to boost the Swedish economy. While in Quebec, Kalm observed a startling behaviour among the locals. All over the province, he wrote in his travel journal, "high officers, fortress commanders, priests, Jesuits, soldiers, tradesmen, and even the nobler sex, were to be seen running about the forests gathering plants as though they were trained by Doctor Linnaeus".

Kalm himself had taken part in Linnaeus's famed excursions into the surroundings of Uppsala University — colourful events involving hundreds of academics, students and lay-people alike — where he had learned how to collect and correctly identify plants. It must have been astounding for Kalm to see that this custom had also been taken up in what was then one of the remotest corners of the world.

Kalm's observation shows the degree to which Linnaeus's fame had spread around the globe in the mid-eighteenth century. The secret of this success lay in an ingenious tool that Linnaeus had designed when teaching botany at Uppsala University. Known as the sexual system of plants, it was a simple classification system whereby the number and position of the reproductive organs in the flower were used to determine the class and order to which a plant belonged. Linnaeus described this system in the *Systema Naturae*, a major work published in 1735 in which he laid out his ideas about classifying the animal, plant and mineral kingdoms. There, Linnaeus referred to flowers as 'beds' and stamens and pistils as 'husbands' and 'wives'. Indeed, the sexual system comprised a veritable catalogue of eighteenth-century sexual relations, from monogamy and polygyny, to homosexuality, miscegenation and incest. Using the sexual system to classify plants, especially in company, would not have been an entirely innocent affair. For many, it must have turned botany into a highly amusing, if not stimulating, pastime.



The 'sexual system' sparked interest in plants.

But the success of the sexual system came at a price. Some, such as the botanist Johann Georg Siegesbeck, accused Linnaeus of subjecting students to immoral influences. More serious attacks came from naturalists such as the Comte de Buffon, who wanted more from taxonomy than mere distinctions. For all the amusement it may have provided, ultimately the sexual system said little about plants and the relationships between species. During his lifetime, Linnaeus saw himself portrayed as a dry scholastic, whose interest lay in diagnostic definitions, not in biological questions.

If the sexual system had been his only achievement, Linnaeus would probably have whole-heartedly agreed with this verdict. He used to emphasize that the sexual system was artificial — nothing but a diagnostic tool for beginners — and was clearly aware of the fact that organisms were interrelated by a complex web of associations that could not be unravelled by simple definitions. "The true beginning and end of botany," he wrote in 1751 in the *Philosophia Botanica*, "is the natural system", a system in which "all plants exhibit mutual affinities, as territories on a geographical map".

The natural system was supposed to pay attention not to a few selected characters, but to the overall morphology of flower and fruit. Working out the 'natural system' of plants required empirical work on a huge scale. Plant specimens had to be procured from all over the world and meticulously collated, described and compared. In 1753, Linnaeus published *Species Plantarum*, a book listing the names and definitions of

more than 5,000 plant species. While preparing the book for publication, Linnaeus complained to his close friend Abraham Bäck, a physician in Stockholm, that he felt like a hen, laying an egg a day.

But as well as the dedication needed to work through thousands of specimens, piecing together the natural system required exceptional abilities in recruiting correspondents and travellers. Linnaeus was a genius in networking. In one of his autobiographies, he described his vast network of correspondents as an army, with Europe's leading botanists serving as generals, and lay-people as far away as Istanbul and North America serving as footmen. It was in establishing this network that the sexual system played a crucial role.

The popularity of this system created a large number of adepts in Linnaean botany all over the world, who would send him specimens and seeds, following the conventions he had introduced with respect to naming and describing new species. In this way, the sexual system served as a recruitment tool to engage the public in a research project of a grand scale: the quest for the natural system. And it worked spectacularly. In 1763, Linnaeus even named a new species *Quassia*, in honour of an African-American slave from Suriname who had communicated specimens of that species to him.

Since Linnaeus put the natural system on the map, plant taxonomy has undergone numerous technological and conceptual revolutions. But in 2007, the tercentenary of Linnaeus's birth, the quest for the natural system continues. Today, plant taxonomists use sophisticated computational and molecular tools to uncover the relationships of descent that underwrite the natural system. Plant taxonomy may have lost some of the charm it held for the public in the eighteenth century, but it is still one of the most vibrant research areas in the life sciences. ■

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FURTHER READING

Blunt, W. *Linnaeus: The Compleat Naturalist* 2nd edn (Frances Lincoln, London, 2004).
Koerner, L. *Linnaeus: Nature and Nation* (Harvard Univ. Press, Cambridge, MA, 1999).
Natural History Museum, London *The Linnaean Plant Name Typification Project* www.nhm.ac.uk/research-curation/projects/linnaean-typification/index.html.

