

Ferns and gardens: how ferns found their way into the garden.

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The speaker has always been more interested in botany and ecology than gardening. Ferns are not bred like flowers, which have been subject to years of selective breeding and hybridisation. The ferns in the garden are the original species.

Magic and folklore

Ferns were not grown in medieval gardens. Indeed mystery and folklore grew up around them from medieval times. For example, moonwort was long associated with things magical and was believed to have the power to open locks, unshoe horses and change metal. Male fern was seen as essential in a love potion. Pagan ceremonies developed around ferns and “fern seed” was believed to have magical properties, giving invisibility, as mentioned in Shakespeare’s *King Henry V*. It was claimed that fern had a blue flower at midnight on midsummer eve, with the seeds appearing moments after – if collected they gave the power to discover hidden treasure, while to drink the sap conferred perpetual youth. In the 17th century, it was believed that setting growing bracken on fire would produce rain and the High Sheriff of Stafford was asked to prevent this during a visit by King Charles I to ensure fair weather during the visit.

Herbal uses

Renaissance gardens were very formal and had no ferns but ferns had many herbal uses, including male fern, lady fern, royal fern, hart’s tongue, maidenhair fern, polypody, rustyback and wall rue. Infusions were made from ferns for a wide number of ills. Adder’s tongue was regarded as a cure for tumours, to bite on a young crozier in spring was the rural remedy for toothache and extracts from rhizomes of bracken and male fern were used to expel intestinal worms.



In general, the ferns were not grown for herbal purposes but simply gathered from the wild as required. However a list headed *Additional commonly grown plants listed by Jon Gardener circa 1350* includes polypody as a “primarily medicinal herb. Around 1525, Thomas

Fromond, a landowner from Surrey, compiled a list of *Herbs necessary for a garden*, in which herbs for pottage included hart's tongue and in about 1596 John Gerrard of *Gerrard's herbal* is said to have grown black spleenwort, male fern, lady fern, adder's tongue, hart's tongue and wall rue.

Other uses

Bracken was used for bedding for both humans and animals, for insulation under floors and in walls and as thatch where few other materials were available. It was also used as packaging material for produce such as fresh fruit or for transporting Welsh slate. When burnt, bracken was used as top dressing for peatlands because of its high potash content and later it was burnt to produce potash for glass-making and for soap-making..

Fern collections

There were few fern collections in England. John Tradescant, owner of a botanic garden in Lambeth, brought North American plants back from Virginia in 1628, which included ferns. Others were added in 1680 and 1699, including sensitive fern (*Onoclea sensibilis*). The only other recorded exotic fern at the time was a *Blechnum* in King Charles II's garden in 1671.

By the 1770s, collecting ferns was more popular and considered more important botanically. Between 1770 and 1790, 68 species were brought to Britain, most to private collections and the rest to Kew. Joseph Banks, Director of the Royal Botanic Garden at Kew, worked to encourage the introduction of new plants. In 1768, *Hortus Kewensis* listed 10 ferns; in 1789 it was 34. Rear Admiral Bligh (of mutiny on the *Bounty* fame) brought back 37 ferns from the Indian colonies. However, the propagation of ferns was not understood, since they lacked flowers so when a plant died it was replaced with another living specimen imported from abroad.

In 1794, John Lindsay, a British surgeon in Jamaica who had received botanical training, demonstrated that the dust from the underside of fern fronds (spores) grew into something like small liverworts, which would ultimately produce new fern plants. However, it was not till 1848 that the fern life cycle was fully understood,

The 19th century saw a steady inflow of new arrivals to Kew from the colonies and other foreign places. In 1822 there were 40 species of ferns at Kew, by 1845 there were 200 and in 1846 there were 348 species in the fern houses. The first tree ferns were supplied in 1841 from New Zealand. John Smith's catalogue in 1857 included 560 exotic species of cultivated ferns and by 1895 the collection at Kew had risen to 1,116 species and varieties of exotic ferns, 97 fern allies and 586 British forms.

Ferns become popular

By the time of the accession of Queen Victoria, there was a growing interest in the natural world, with a wide range of books and manuals offering guidance on this fashionable pursuit. The middle classes formed natural history societies and the workers had field clubs with whom they had countryside rambles on Sundays.

Knowledge of the propagation of ferns grew slowly, with propagation on a large scale first carried out successfully at Liverpool Botanic Garden in the early 1800s. By the 1840s, there

were notable collections of ferns in both public and private gardens, though the main interest was in exotic species cultivated in stove houses.

The Wardian Case

The invention of the Wardian Case represented a significant advance in maintaining ferns once they had been propagated. This closely glazed case (an ornate miniature greenhouse on legs) was invented by Nathaniel Ward to house a hawk moth chrysalis but he noticed that spores of male fern germinated within the case and flourished in the humid atmosphere so he then experimented with ferns. Previous efforts to cultivate ferns had been unsuccessful in the midst of the smoke and fumes of Victorian London. At the same time, new glass-making techniques and the abolition of the glass tax in 1845 meant no home was without a Wardian case. Initially used for expensive, imported exotic species which required heat to survive the British winter, they were soon used also for the cultivation of hardy British ferns, which were available free of charge and needed no artificial heat. Fern collecting became all the rage, especially with the expansion of the railways making more of Britain accessible.

Ferneries

From the Wardian Case, it was but a small step to the fernery in a glazed Victorian conservatory alongside the house or in botanical gardens. Examples included a great exhibition of 1866, Brighton Aquarium, Benmore Fernery, Edinburgh Botanical Gardens and Tatton Park, which still has its fernery. The fernery at the Swiss Garden at Biggleswade was built on the 1830s and remodelled in the 1870s, when a pulhamite (artificial rock) arch was added. By the 20th century it was in total ruins but it was restored in the 1970s to 1980s. The fernery at Ashridge near Berkhamstead is no longer used as a fernery but relics remain.

		
<i>Tatton Park Fernery</i>	<i>The Swiss Garden Fernery with pulhamite arch</i>	<i>Edinburgh Botanical Gardens 2007</i>
		
<i>Ashridge</i>	<i>Canonteign Fern Garden</i>	<i>Bench at Ashridge</i>

Tree ferns

Most of the tree ferns on sale now come from Tasmania, where there are estimated to be 120 million *Dickensia Antarctica* tree ferns. However, large areas have been clear-felled for plantations, road-building etc and there has been no control over harvesting on private land.

Cut trunks readily grow new roots at one end and fronds at the other, even if not planted. Sale of tree ferns is now licensed by the Tasmanian government,

Fern books and artefacts

In 1837-41, the first of a number of detailed and well illustrated fern books (Shirley Hibberd’s *The fern garden*) were launched and spurred on the growing band of field botanists. In the mid-1840s, the emphasis changed to fern varieties and cultivation hints. 20 guides were published between 1840 and 1866.

Ferny artefacts included benches with fern backs at the Swiss Garden and at Ashridge.

Fern collecting

Fern collecting became a profitable sideline and even normal species were collected by the “spivs” of the day who invaded ferny areas and dug up every fern they found. In 1896, *The Gardener’s Chronicle* reported that two men from Bexley, Kent, were charged in Totnes with damaging Devonshire hedges. They were engaged with a horse and cart in wholesale removal of ferns and about 5 hundredweight of roots were found in an outhouse. Fines of £5.00 and £2. 10s plus damages were imposed and in default of payment one man was sentenced to 6 weeks hard labour and the other to one month. Commercial collectors followed hard on the heels of the amateurs.

		
<p><i>Royal fern</i></p>	<p><i>Oblong woodsia</i></p>	<p><i>Hard ferns</i></p>
		
<p><i>Hart’s tongue</i></p>	<p><i>Male fern</i></p>	<p><i>Polypody</i></p>

The effects of this collecting were significant. The royal fern suffered greatly and it has disappeared completely or become very rare at many of its old haunts where it had been common.

Because of publicity giving exact locations of its habitats, the Killarney fern has vanished from practically all of them. It was first discovered in Scotland in 1863 by Robert Douglas, the “walking postman” of Arran. Despite a warning from the Edinburgh naturalist W.B. Simpson to keep the location secret, Douglas showed the location to some gentlemen from Glasgow, one of whom returned and stripped the site bare. It was also eradicated from one of its few sites in north Wales when the discoverer mentioned its location to a friend. Only a handful of small colonies of Killarney fern remain today, the location of which is kept secret.

The small alpine fern *Oblong woodsia* was almost eradicated by collectors. In the Natural History Museum herbarium are sheets containing numbers of plants that were pressed entire, including roots. Wholesale collection of this naturally rare species soon exceeded what the wild populations could stand and it is today teetering on the edge of extinction in Britain.

The emphasis changed from collecting in the wild to commercial suppliers, such as the W & J Birkenhead Nursery. Catalogues offered over 1,000 species and varieties and one offered 50 varieties of hart’s tongue.

Fern varieties

Variation is caused by genetic mutation, resulting in all or most of the leaves having a peculiar feature. Some variants breed true 100% of the time, while others produce a mixture with wide variation, with only 5 or 10% having the desired form. A limited number of species produce variants, particularly lady fern (more than 300 forms named from it), hart’s tongue and soft shield fern. There is a remarkable abundance of fern variations in Britain (about 1,000 named). A number of forms originally found in the wild as single plants have been propagated by spores or by division so that their existence has continued to the present day. Apogamous ferns produce direct from the spore, while, in normal ferns, the spore germinates to a small liverwort-like growth which produces male and female organs which fuse to form the fern.

Exotic ferns

		
<i>Ostrich fern</i>	<i>Sensitive fern</i>	<i>Dryopteris lepidopoda</i>

A common exotic fern is the Ostrich fern, native to central and northern Europe and North America but not to the UK. It multiplies by rhizomes and there used to be one at Boston Manor. The sensitive fern at Grimsdyke is probably a relic of Victorian planting. There are a

lot of ferns endemic to Japan, such as *Dryopteris lepidopoda*, with its rather gaudy colour and the autumn buckler fern or rosy buckler fern (*Dryopteris erethrosora*). The house holly fern flourishes in warmer climates such as the Mediterranean region. There are also shield ferns from the far east and from North America (sword fern).

Modern production

Modern production is by in vitro reproduction, taking bits of tissue and putting them in sterile jelly, as practised at a very large scale in Dallas, Texas. The one exception in terms of the breeding of ferns is a cross of lady fern with Japanese painted fern. For home propagation, the speaker uses sterilised compost in a self-sealing plastic bag, into which he taps the spores and leaves for a couple of months.

Ferns today

The fern craze continued until the early 20th century and was really finished by the First World War, when garden staff and knowledge were lost, large estates broken up and ferneries became disused.

Rock gardens, in which ferns were included were fashionable in the 1920s and after the Second World War there was a rediscovery of the countryside. Bottle gardens were in vogue in the 1960s and 1970s and tree ferns became popular in the 1990s. Since then a number of Victorian and Edwardian ferneries began to be restored and there have been new constructions such as the Princess of Wales Conservatory at Kew and the Eden Project biomes in Cornwall.