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Mad dogs and pixie cups

Martin & Rowan Spray look at often overlooked plants, some of which are essential to the health, indeed existence, of our gardens.

Fig. 1 Ferns may be a minority interest, “just green”, and “all the same” – though these amazingly varied fronds of hart’s-tongue (*Asplenium scolopendrium*) suggest otherwise.

If you stop to think what makes a ‘garden’, the word that bursts forth in glory is *plants*. Whether your plot is afroth with the contents of

the *Plant Finder*, a pin-stripe lawn with flower border, or beds of vegetables with a token ‘wildlife area’ in one corner, you say “plants”... and

forget to add some such qualification as “a limited range of”.

Think of a garden, and we tend to think flowers – and unless a flower is at least modestly showy, it doesn’t really count. But aren’t flowering grasses beautiful? And conifers? And what about ferns? And the little things? Spend a few minutes looking at some of the beautiful – or at least fascinating – hardy plants that grow in our gardens but which feature neither on the typical garden label nor in plant catalogues. This article isn’t burdened with botanical detail, and the precise names of things don’t really matter (we probably don’t know them anyway). The types of things, however, do matter: there are a lot of them, and though most are



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Fig. 2. The maidenhair spleenwort (*Asplenium trichomanes*) is small, and demure, and likes lime mortar in old walls. This example is self-sown. Unlike the hart’s-tongue it is (genetically) conservative. It tends to be taken for granted.



Fig. 3 An unwanted, persistent, untidy weed, the common horsetail (*Equisetum arvense*) isn't so bad when one can see only one stem. (We had to visit a friend's garden for this one, fortunately.) There are much more elegant species which are easily kept under control in the garden, but they can be tricky to establish.



Fig. 4 Looking like hairy blisters on a wall top, these drought-resistant mosses (probably *Grimmia*) are much slower growing than ones on moist woodland soil.

pretty small they can have significant parts to play in the comedy called Life. We don't (usually!) plant them, but they are almost always there. They are a part of the garden that makes its own way, and that may seldom or never come to our notice. However, without many of them, we would have no gardens.

So – what grows in the garden? Flowering plants; and grass; and conifers; and ferns; and moss in the lawn... But take a closer look. Here are just a few examples of what botanists not so very long ago called Cryptogams – plants without flowers, that don't reproduce from seeds. Let's start with the bigger ones.

Ferns and their relatives are currently gaining greater visibility, and appear in more and more gardens, but they are still generally regarded as SCOPMIs – a Secondary Class Of Plants of Minority Interest. They are, for instance, listed in the *Plant Finder*, but your garden centre may just lump them together as 'hardy ferns' (figs 1 & 2). Just a few dozen ferns and a handful of their relatives (fig. 3) are native to Britain, and relatively few of them are common garden interlopers.

Over 600 kinds of moss are native to Britain. We think of them as lurking in dark, dank corners, ready to creep out into the lawn, but many interesting mosses require the desert conditions of walls, roofs and rockery. Indeed,

many mosses are pioneers, making conditions slightly more to the liking of flowering plants – which then begin to elbow their way on to the scene. The Japanese, of course, take mosses seriously, and have made them central to some of the world's most famous gardens. Their survival depends partly on a ruthless elimination of invading 'Higher' plants.

Philip Miller, in *The Gardener's Dictionary* (7th ed. 1759), dismissed mosses as 'plants of no use or beauty', at least part of which modern gardeners would surely deny. Moss has been used since the Bronze Age for caulking boats, and for centuries it saved goods from damage in transit. In WWI the British used a million medical dressings of *Sphagnum* each month. Many people also find some mosses exquisitely beautiful (figs 4 & 5).

Take in any garden view in enough detail, and you'll see huge numbers of these tiny but vital organisms.

Liverworts, which used to be grouped with the mosses, are more associated with moist conditions (fig. 6). Some of them are distinct for having colonies of photosynthesising bacteria within their bodies, and some puzzling quirks. Liverworts are generally less 'obvious' than mosses, easily

overlooked, or mistaken for lichens. Many mosses and their relatives often play an understory role in both natural vegetation and gardens (fig. 7).

Much of the fine-detail beauty of our gardens (less so in the more polluted areas) is not from the stones of walls or rockery, concrete paving slabs, or the trunks of trees. You may not actually see these things, but the patina you are looking at is probably a skin of (mostly) lichens.

Each lichen consists of an amalgam of a fungus and a photosynthetic alga or photosynthetic bacterium species, sometimes both. Some have very elaborate, fascinating, forms of growth or are highly coloured (figs 8, 9 & 10). Although sensitive indicators of air quality, lichens are famously widespread and tolerant – or, one might say, patient.

The symbiotic arrangement of lichens – fungus plus alga (plus bacteria in some cases) – was recognised about 150 years ago. Since then, the living together of two or more types of organism, often vastly different (sea-slugs and green algae, for instance), has been recognised with suspicious frequency. It is now thought that the complex cells of all but the most primitive organisms resulted from amalgamations. We shall move on with the thought that the relationship which the roots of 'Higher' plants have with



Fig. 5 Here, a fir moss (*Polytrichum*) makes its own forest.



Fig. 6 Besides rogues (e.g. Creeping Buttercup) and opportunists (Herb Robert), some pots arrive from nurseries with crusts of the liverwort *Marchantia*, easily seen when they have these reproductive structures. They usually die once the thing you paid for is planted out.

fungi – making structures called mycorrhizas – may be universally important. Without them, there'd be no orchids or heathers, and probably no roses, potatoes or daisies.

Unless you have a pond or a damp garden, you may not knowingly meet members of the rag-bag called algae, the biology of which is being drastically updated. But a typical garden probably has hundreds or thousands of kinds (fig. 11), ranging from microscopic single-cell things

in the soil to green skins on plant pots to *Spirogyra* filling up the pond with slimy green threads.

The photosynthetic Green Algae worldwide are enormously important for the new biomass they produce each year. Much of our soil flora is a mirror of the much bigger aquatic populations. For some soils, estimates of algal cells range up to 10,000 in one gram.

Last is an enormous and enormously important group, which we'll include for

historic reasons. 'Fungi' is another rag-bag term (fig. 12); they are not plants, and in fact some show aspects of animal biology. Gardeners still tend to think of fungi as enemies to be wiped out, but although some are potentially disastrous plant diseases (*Phytophthora*, *Armillaria*, *Chalara fraxinea*), others are intimate symbionts with Flowering Plants without which the plant is often unable to survive. Nondescript fungi are busy in the soil, in the compost heap, and the rotting pile of wood. There is considerable anxiety about the decline of soil fungus activity because of intensive agricultural activity in several parts of the world. But that's another story. 🍄

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Fig. 7 Pearlwort (*Sagina procumbens*) and moss, with some Mind-your-own-business (*Soleirolia soleirolii*) and giant leaves of *Viola* and *Geranium*, make a Lilliputian meadow next to a seat.

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Figs 8 & 9 The *Cladonia* lichens are amongst the most familiar types, including these pixie cups here drooling on a wall and combining fascinatingly with house-leeks. More elaborate kinds have cups standing on the rims of cups.



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Fig. 10 The dog lichen (*Peltigera*), once thought to cure rabies, is an untidy, less elaborate lichen, anchored to the ground by root-like hairs.



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Fig. 11 There must be enough moisture as well as light reaching the back of this garden shelter for this powdery growth to be sustained. Besides wood, stones and animal skulls in the shelter are also coloured by algae.



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Fig. 12 A section through a piece of firewood will serve to represent 'fungi'. The pattern of black lines is made by the no-go boundaries of individual wood-rotting colonies, of perhaps several species.

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If you'd like to know more...

Ferns If you don't grow them, look through David Jones *Encyclopaedia of ferns* (Timber Press 1983 repr. 1997), or Martin Rickard *The Plantfinder's guide to garden ferns* (David & Charles/Timber Press 2000), or see the British Pteridological Society's webpage <http://ebps.org.uk>. Sarah Whittingham's *The Victorian fern craze* (Shire 2011) is brief and well illustrated.

Mosses & Liverworts Plenty of illustrations of Japanese gardens are available, but little from the West on moss cultivation. *Moss gardening including lichens, liverworts, and other miniatures* by George Schenk (Timber Press 1997) enthuses about them. It has dubious things to say about collecting from the wild, but gives brief reviews of the use of mosses in East and West, how to cultivate them, where they grow, and cameos of about 60 genera. Much more homely, with only line illustrations, is the *Moss grower's handbook* by Michael Fletcher (1991); now rather obscure, but worth attention if you take growing British mosses seriously.

Lichens Schenk's book, above, is good (with the same reservations). Their natural history is explained by William Purvis in *Lichens* (Natural History Museum 2007 reprint), or in more detail in Oliver Gilbert's *Lichens* (Collins New Naturalist 2000).

General Although a little out of date, the *Grasses, ferns, mosses & lichens of Great Britain and Ireland* by Roger Phillips (Pan Books 1980) is a good overview of several of our lesser gems, and includes grasses.



Fig. 13 This is a piece of mulberry branch, but you can't see it. The mulberry is hidden by tufts of moss and half a dozen types of lichen.