The obliging manna ash

The only flowering ash, and it is a good garden tree but the drug derived from its sap, known as manna, was here long before the tree was introduced. Gareth Evans puts it under the spotlight.

The leading authority on British garden trees and shrubs describes the manna ash (*Fraxinus ornus*) as 'now one of the best known of exotic trees'. An urban favourite, young trees are often found next to highways and driveways with their raised canopy and unwillingness to succumb to drought. Gardeners are patient with their manna ash's late coming into leaf. They know that after other spring-flowering garden trees are finished, its attractive flowering will be welcome.

The manna ash is in fact a native of southern Europe – a region not as exotic as perhaps it was once was. The introduction is conventionally credited to the well-travelled William Sherard (1659-1728). The seeds he brought back were cultivated in the renowned 'garden of exotics' at Enfield owned by his friend, schoolmaster Dr Uvedale. Whenever the introduction actually occurred, by 1714 it appears to be familiar enough that features of even more exotic introductions could be compared to 'our manna ash'. Usefully compact compared to our native ash (*F. excelsior*), it can be identified by its smooth mature bark and showy white clouds of flowers that give its alternative name of flowering ash; a name which would seem to be perfectly adequate as it is the only ash species with conspicuous flowers. However a drug that was derived from the tree that went by the name of manna was already popular here long before the tree was introduced.

Spontaneous and naturally sweet

The term manna is most obviously associated with the well-known biblical narrative; however it may not in fact directly refer to the foodstuff that miraculously appeared to Moses and his people in the desert. Some suggest that the word is older than the bible story, being derived from terms in early Middle Eastern cultures. Whatever its origins, the term manna came to be applied to certain sweet natural products, especially if their appearance was apparently spontaneous.

Globally manna takes many forms: fungi, desert lichen or 'honey dew' exuded from insects that are associated with a particular plant. However the best-known type of manna originates from the sap of trees. This can be sourced from many species, but for centuries in Europe manna was a ubiquitous medicine and referred almost exclusively to the dried sap of the bark of *F. ornus*.

> The main medicinal uses of manna, and mannitol, derive from its ability to change osmotic pressure over a membrane. By drawing water into the intestine from its walls it acts as a laxative. This and other properties of mannitol make it an essential modern medical drug, used in such condition as head trauma and the development of treatments involving the brain.

Sometime before 1750 Robert More, an English traveller and naturalist, came across a manna ash coppice at Azriano in southern Italy that was closely guarded by a trigger-happy militia. He explained: "the King of Naples has so much revenue from them [the ash] that he is extremely jealous of it". Although its method of extraction was a revelation to the Englishman (letters were subsequently published by the Royal Society), this manna was already familiar through the extensive British trade in it from Livorno (Leghorn), as well as Palermo in Sicily.

Then, as now, a hot dry summer ensured a good harvest, initiated by cutting a sequence of incisions in the bark of young mature trees. By leading the flow of the colourless sap away from the trunk a white stalactite of wind-dried manna is created, usually with a hollow core and a spongy texture. This is manna cannelata, which is deemed the best quality, unlike the contaminated sap that has clung to the bark. Traditionally a bowl-shaped leaf from the prickly pear (the introduced New World *Opuntia* spp used locally for hedging) catches the falling sap. At its

Fraxinus ornus is an elegant, compact tree.

Eye-catching white flowers in spring.

Collecting manna in Sicily, from Houel's *Voyage pittoresque*, 1782-1787.

Photos: Gareth Evans

most sustainable, ash groves can be pollarded to one shoot which is left to mature for about six to seven years. This is tapped for about 10 years until exhausted when it is cut back to the stump to regenerate. It an almost ideal crop for a region historically considered underdeveloped; no fertilisers or insecticides are needed, just careful technique. A true 'gift of nature', as it is known in Sicily.

Sweet and soluble, manna is believed to have been generally available by the 15th century when it was first taken as a general laxative, only later was its use confined to children, the infirm and the elderly. Manna must have been a godsend to ministering parents. Victorian children had to be reminded that manna was not a food but a medicine. The doctor-trained poet John Keats could confidently refer to it among ship-borne exotic imports that would have been familiar to his readers: "Manna and dates, in argosy transferr'd" (*The Eve of St. Agnes*, 1819). The relative safety of manna led to it being associated with the rather unadventurous sort of medical practitioner.

An 18th-century caricature of a country apothecary alludes to this association by dubbing him Matthew Manna. "He delighted in innocent remedies – manna, magnesia, and camphor julep [a confection]" went a gentle 19th-century satire on the same subject. Manna was often combined with other laxatives such as senna and rhubarb to make a more palatable and effective mixture (Salus's Manna and Fig Syrup is a present-day example).

Raw and synthesised manna

In time the principle of manna was discovered. Mannitol is a sugar alcohol, as is sorbitol that was discovered in the rowan family. This group of now synthesised artificial sweeteners has significantly fewer calories than the glucose that makes up everyday sugar. In the 1920s raw manna from Sicily came from some 6,700ha of ash plantations, or frassinetti, supporting a significant rural economy.

It was eventually discovered that mannitol is widespread throughout the plant world so that by the 1980s the production of manna in the Italian countryside declined after more readily available plant sources such as seaweed and molasses were found. Raw manna had been in demand as an ingredient of such potent digestifs as Fernet Branca and Amaro, but this market too declined when more readily available substitutes were found. Nevertheless many of the present-day commercial brands of the well-known formula Swedish Bitters still use raw manna as an active ingredient, in accordance with the original 18th-century recipe.

Nowadays the production of manna (about 250ha) is confined to an area around Palermo where the old ash groves mixed with olive and fruit trees form a distinctive landscape. It was reported that at one time ice cream in Palermo was sweetened with manna. A local tradition of including it in cakes and confectionery (it was thought by some that fresh manna was less laxative) is apparently still to be found. The Italian Slow Food movement has taken Sicilian manna under its wing creating a group (*Presidium Madonie Manna*) to define its quality and help maintain its traditional methods of production that were in danger of being lost. Some modern artisan food-makers use manna in their products, that include diabetic chocolate, cosmetics and health drinks using natural ingredients.

Although incomplete I hope this overview of the manna ash (see box) indicates how interesting a European tree it is. Many things to many people, it partly reflects one tradition of the manna of the biblical story, each person who tried it found in it what they liked best.

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Manna Ash away from Manna

Fraxinus ornus is the ash tree of hot southern Europe. The species' range stretches from north-eastern Spain to western Turkey and north to southern mid-Europe. Today the drought-defying qualities of the tree make it useful to urban landscapers, and agriculturists see its value in regenerating waste land. The wild species is known for its variability and several garden cultivars have been selected. An attractive small garden tree, it will particularly appeal to those who like plants with a story to tell.

In the wild the leaves can provide important fodder for livestock in arid regions where it thrives. The chewing of twigs to assuage thirst in the absence of water has been recorded. The number of active constituents in the tree's bark, leaves and flowers is reflected in the wide range of traditional medicinal uses: anti-bacterial, anti-parasitic, sun prophylactic, wound healing, anti-inflammatory and antiviral.

In the valleys of northern Greece manna ash is found growing in woods or thickets. Known as melia to the ancient Greeks, the strength and flexibility of its wood made it the best for lances and javelins and so lent its name to these weapons. The wood's reputation for implacability was incorporated into images of Nemesis, the goddess of justice, who grips a rod of ash. There was a class of nymphs who were the 'most ancient of divinities of nature' who were charged with protecting flocks. Some writers see a link to these Melian nymphs not only in the name, but in the upraised, canopy-supporting, branches of the trees.

The manna ash depicted on a present-day product