

# Macroscopic Fossils of Garden Plants from British Roman and Medieval Deposits

## *Abstract*

Mainly from macroscopic fossils, the evidence for garden plants is listed and evaluated from selected British sites. The plants include herbs used for medicine and flavouring such as *Anethum graveolens* (Aneto), *Apium graveolens* (Sedano comune) and *Coriandrum sativum* (Coriandolo); evidence for pot herbs includes *Allium porrum* (Porro). Orchard fruits, for instance *Prunus* spp. (Pruno) and *Malus sylvestris* (Melo selvatico), were grown with soft fruits such as *Fragaria vesca* (Fragolo comune) and *Ribes uva-crispa* (*Ribes uva spina*). The occurrences of these plants in Roman, Saxon, Anglo Scandinavian and later Medieval deposits is discussed. The use of *Buxus sempervirens* (Bosso) in Roman Britain is noted.

## INTRODUCTION

During the past twenty or so years old towns, some dating back to very early medieval times, have been redeveloped in Britain as well as in much of continental Europe. Roman forts, towns, farms and villas have also been excavated in advance of modern development. During excavation for deep foundations, pits, disused wells and other features have revealed identifiable plant remains including those from garden refuse. Some deposits include human excrement in latrines and cesspits, containing seeds and other plant remains which have survived the journey through the human gut. Human ordure is an important source of evidence, sometimes preserving the remains of pulses which are seldom found in other deposits. These results go back to at least the beginning of this century when remains of plants from Roman towns in England and Wales were among the first Quaternary plants to be recognised from their seeds, fruits, leaves and wood in Britain. In some instances pollen analyses from these deposits may suggest the use of flowering parts of plants for culinary or medicinal purposes.

As shown in tables 1 and 2, records have been collected of more than fifty different plants most of which are grown today in gardens and orchards.

To produce a representative account of British archaeobotanical records of garden plants, I have been greatly assisted by colleagues who have made available unpublished data. Whether seeds or fruits, all disseminules are here referred to as seeds; the few other plant remains such as leaves and epidermal fragments are distinguished in the text. The nomenclature follows Clapham *et al.* (1987).

The choice of garden plants to be tabulated was determined by the following reasoning. Crop plants and dye plants are usually grown on a large scale and have been excluded. The former include *Cannabis sativa* (hemp) and *Linum usitatissimum* (flax, linseed). Records of dye plants such as *Genista tinctoria* (dyer's greenweed), *Isatis tinctoria* (woad) and *Rubia tinctoria* (madder), identified by their vegetative remains in work pioneered at York University (Tomlinson, 1985), have also been omitted.

Where remains of *Pisum sativum* (pea) and *Vicia faba* (field bean) have been found in cesspits and other garden pits it may be assumed that they were grown in gardens for food and not in fields for fodder. They have therefore been included although field grown pulses may be dried for human food.

Cultivated plants which have seeds inseparable from those of wild plants, such as *Daucus carota* (carrot) and *Pastinaca sativa* (parsnip), have been included if the original author considered that the context suggested cultivation. *Apium graveolens* (wild celery, celery) and other spices were probably initially imported as ripe seeds in the early Roman period and this is discussed.

Wild plants with medicinal uses which grow outside their probable native distribution, as shown by Perring and Walters (1976), include *Atropa bella-donna* (deadly nightshade), *Hyoscyamus niger* (henbane), *Marrubium vulgare* (white horehound) and *Nepeta cataria* (catmint); these no doubt spread initially as garden introductions. Two species almost certainly introduced as potherbs are *Aegopodium podagraria* (goutweed) and *Smyrniolus satrum* (alexanders).

A great many native wild plants were grown in medieval gardens as shown by Harvey (1981, p. 168-180) for medicinal uses and some possibly for decorative purposes. As many of them are widely distributed in Britain it is not usually possible to determine from archaeobotanical lists if they were grown deliberately or occurred as weeds.

Records of fruit often collected from the wild have been excluded although present from all periods and most sites. These are *Fragaria vesca* (strawberry), *Rubus fruticosus* agg. (blackberry), *Prunus spinosa* (sloe) and *Corylus avellana* (hazel). *Prunus avium* (cherry) has been included although the wild fruitstone is not distinguishable from that of cultivars. Trees

introduced for their fruit which need sunny sheltered locations include *Prunus persica* (peach). Cones of *Pinus pinea* (stone pine) were exported from the Mediterranean area and their import probably accounts for their presence which extends north to the Antonine Wall. Records of *Ficus carica* (fig), with seeds commonly found in Roman and medieval cesspits, are omitted as all seeds in British deposits derive from imported dried fruit (Dickson and Dickson forth.).

It is not always possible to distinguish from the context if fruit or nuts have been imported and this is particularly the case with *Juglans regia* (walnut) although documentary evidence may clarify matters.

Although all the plants tabulated have been grown in gardens in the past, the fossil evidence, especially from these early sites, is only occasionally reinforced by excavational evidence for gardens. Frequently, however, the seed assemblage is partly of plants which could not compete in the wild with vigorous weeds and must therefore, in the main, be the product of gardens.

#### ROMAN RECORDS OF GARDEN PLANTS

##### *The archaeological evidence*

The most complete plan of a Roman garden in Britain resulted from the excavation at Fishbourne, Sussex, where, in the first century A.D., a vast palatial residence was built with four gardens. The first excavation revealed a formal garden in the central courtyard containing bedding trenches and bedding pits for trees (Cunliffe, 1971, 1981). Further excavations to the east of the palace have produced a seed of *Papaver somniferum* (opium poppy) in possible compost from garden features (Carruthers forthcoming).

At Froucester, Gloucester a small rural villa retains evidence of areas of garden soil spread during the fourth century; the evidence is reviewed by Cunliffe (1981) and Zeepvat (1991).

At Bancroft villa in Milton Keynes, Buckingham (Zeepvat, 1991), excavation has demonstrated first to fourth century enclosures attached to farm buildings; these have yielded plant remains suggestive of kitchen gardens (Pearson and Robinson forth.).

In Roman towns such as Silchester and Caerwent, which both date from the end of the first century A.D., pits and wells produced numerous remains of garden plants and weeds identified by Clement Reid (1901-1909, Boon, 1978). As courtyards and open spaces existed around the houses it may be assumed that most of the plants represented grew within the town in gardens and waste places.

Samples from the York colonia, the civil town, date from the second to the fourth centuries. The legionary fortress at York was the military

capital of Britain from the end of the first century ; its samples date from the mid second to mid third centuries. The evidence for gardens attached to Roman forts is more complex and is considered below.

### *The plants - imported or grown in Britain ?*

The earliest evidence so far found in Britain for herbs originating from southern Europe is mainly of seeds from Roman sites. The problem is, were the seeds imported and used for their aromatic qualities or were they grown in gardens for use of both seed and the green herb ?

Seeds of *Anethum graveolens* (dill), *Apium graveolens* (celery, wild celery), *Coriandrum sativum* (coriander), *Papaver somniferum* (opium poppy) and other spices were imported for sale in Britain by A.D. 60 (Murphy, 1984 ; Murphy and Scaife, 1991). Seeds of these particular species have been found in Roman forts from the first century onwards as far north as the Antonine Wall in Scotland and from Roman garrisons in Germany. They seem to have been part of the standard supplies issued to each fort (Dickson, 1989). Evidence that the seeds were eaten as flavourings is given by their provenance which, at Bearsden and in some deposits at York, is human excrement. These finds are tabulated from only two of the forts, Bearsdes (13) and York (29) but forthcoming publications will add more species.

Seeds were undoubtedly imported in bulk in the first century A.D. for both army and civilian use. To determine their possible uses we need to know the properties of the seeds. Those of the Umbelliferae are aromatic ; oil canals are embedded in the fruit wall and the flavouring may need to be released by grinding with a pestle and mortar. Some members of this family were also grown by the Romans for their use as fresh or dried herbs. If we consult the cookery book of Apicius written at the time of Imperial Rome, we find a list of spices, seeds and dried herbs recommended to be kept in the kitchen (Apicius transl. Vehling, 1977, p.236). These spices are mainly of middle eastern origin, none of them so far found in British contexts. Those herbs used as both seeds and dried herbs include coriander and dill. The recipes include the use of green rue and rue seeds (*Ruta graveolens*), green fennel and fennel seed (*Foeniculum vulgare*) and celery roots and celery seed. Plants used as dried herbs only include marjoram (*Origanum vulgare*). Parsley (*Petroselinum crispum*) seeds were also used. Seeds of all these plants have been recorded from Roman sites in Britain (Table 1). As most of these aromatic plants were used as seeds as well as dried herbs, the context must be considered for evidence of their cultivation in Britain.

A plant grown for its seed and introduced into Britain is *Sinapis alba* (white mustard) whereas *Brassica nigra* (black mustard) may be native. Seeds

of *Papaver somniferum* (opium poppy) were sprinkled on bread by the Romans although they also used the latex from the immature capsule for its narcotic properties; the active principles are not present in the mature seed. We have no clear evidence that any of these species were grown in Britain by the Romans although opium poppy was widely distributed (Table 1).

Iron Age and earlier cultivation of *Vicia faba* (field bean) is established but direct evidence linking beans and *Pisum sativum* (pea) with Roman horticulture is lacking at present. Dried pulses may have been transported for the army.

Two plants formerly used as potherbs and which are almost certainly not native have their earliest known occurrences from Roman sites; they are *Smyrniolum olusatrum* (alexanders) from Caerwent (4) and *Aegopodium podagraria* (goutweed) from the York colonia (26). As the name suggests goutweed was also grown as a medicinal plant, although Roman uses are not recorded for either plant.

Plants with powerful medicinal properties which were recognised in classical times are of particular interest. Seeds of *Atropa bella-donna* (deadly nightshade) and *Hyoscyamus niger* (henbane) were found in the York fort and colonia although they are probably only native in southern Britain. Later records of henbane must be treated with caution as once established the plants persist as weeds (Hall, 1986), moreover seeds of henbane have been shown to germinate after lying dormant for 600 years (Odum, 1965). Finds of *Chelidonium majus* (greater celandine) are listed as the plant may well be introduced; at present we have no direct evidence that it was grown in gardens at this early period. A single record of *Verbena officinalis* (vervain), with medicinal uses well known to the Romans, was made at Caerwent (4). In this instance the native range includes south Wales and it may have been collected.

Another possible medicinal plant from Caerwent is *Lavatera* cf *arborea* (cf tree mallow), which was identified from its wood (Lyll, 1911, p. 448). The plant, which grows up to two metres high, has attractive large pink flowers and its leaves have been used medicinally. Its native habitat in Britain is always near the sea so either its wood was collected or it was specially grown in the Roman town. Many aromatic plants have medicinal as well as culinary uses and these include *Anethum graveolens* (dill) and *Ruta graveolens* (rue) both praised by Pliny (book 20) for their medicinal virtues and this could be the main reason for their introduction.

Collection from the wild is probably the origin of *Rosa canina* agg. (dog rose) and *Rosa* sp.; however we know that the rose was cultivated by the Romans and associated plants with decorative qualities should be considered in Roman and other contexts as possible garden plants.

TABLE 1. — REMAINS OF GARDEN PLANTS FROM ROMAN SITES IN BRITAIN.  
FOR SITE-NUMBER, SEE LEGEND TO FIGURE 1.

<i>Plant names</i>	FORT	COLONIA/TOWN	FARM/VILLA
<i>Aquilegia</i> cf <i>vulgaris</i> (cf Columbine)		31	
<i>Papaver somniferum</i> (Opium Poppy)	13, 29	4, 26, 38, 45	21, 51
<i>Chelidonium majus</i> (Greater Celandine)		4	30, 35
<i>Brassica oleracea</i> (Cabbage, Colewort)	5		
<i>B. nigra</i> (Black Mustard)		26, 40	34, 35
<i>Brassica</i> sp. (cultivated sp.)			35
<i>Sinapis alba</i> (White Mustard)		36, 47	
<i>Beta vulgaris</i> (Beet)	32	26, 31	11
<i>Malva sylvestris</i> (Common Mallow)	13 (p)		
<i>Lavatera</i> cf <i>arborea</i> (cf Tree Mallow)	4		
<i>Ruta graveolens</i> (Rue)		26	
<i>Ilex aquifolium</i> (Holly)		26, 39	
<i>Buxus sempervirens</i> (Box)	29	26, 37	1*, 6, 15*, 17* 30, 44, 52, 53
<i>Vicia faba</i> (Field Bean)	13	26	
<i>Pisum sativum</i> (Pea)		4, 41, 47	
<i>Rosa canina</i> agg. (Dog Rose)		36	
<i>Rosa</i> sp. (Rose)		45	30
<i>Prunus persica</i> (Peach)		47	
<i>P. domestica</i> ssp. <i>domestica</i> (Plum)		26, 36, 44, 47	30(cf), 34, 35, 44
<i>P. domestica</i> ssp. <i>insititia</i> (Bullace/Damson)	29	26, 36, 45, 47	6, 30(cf), 34

P. avium (Wild/Cultivated Cherry)		36	30(cf), 34, 35
P. Sect. Cerasus (Wild/Cult./Sour Cherry)	29	26, 47	44
P. lusitanica (Portugal Laurel)		38	
Malus sylvestris s.l. (Wild/Cultivated Apple)	29	4, 26, 36, 45, 48	30
Mespilus germanica (Medlar)		38	
Coriandrum sativum (Coriander)	13, 29	4, 26, 36, 45, 47	6, 11, 30, 34, 35, 44
Smyrniolum olusatrum (Alexanders)		4	
Aegopodium podagraria (Goutweed)		26	
Foeniculum vulgare (Fennel)		4, 26(cf), 47	
Anethum graveolens (Dill)	13, 29	4, 26, 39, 45, 47	30
Apium graveolens (Wild Celery)	13, 29	4, 26, 36, 45	34, 35
Petroselinum crispum (Parsley)		38	
Euphorbia lathyris (Caper Spurge)			34, 35
Morus nigra (Black Mulberry)		26, 40, 47	
Juglans regia (Walnut)	29	26, 47	44
Atropa bella-donna (Deadly Nightshade)	29	4, 26, 36	
Hyoscyamus niger (Henbane)	29	26	11, 21, 34, 35
Verbena officinalis (Vervain)		4	51
Origanum vulgare (Marjoram)			51
Satureja hortensis (Summer Savory)	29	26	34, 35
Nepeta cataria (Catmint)		26, 30	
Asparagus officinalis (Asparagus)		31	
Allium porrum (Leek)		26, 45	

---

### *Evidence for gardens in forts*

An unusual discovery from a well at Chesterholm (5), a fort on Hadrian's Wall, is of a « root and a base of a stalk of a cabbage » identified by Blackburn (1970). Such a find must represent a locally grown brassica. The question is therefore raised as to whether or not forts had gardens attached to them. There is a tradition, recorded in the seventeenth century and quoted by Davies (1970), that at Walltown on Hadrian's Wall, Roman soldiers had planted medicinal herbs. Only *Allium schoenoprasum* (chives), uncommon as a wild plant in Britain, is reported by Davies as growing there.

At Bearsden fort on the Antonine Wall, clusters of pollen of *Malva sylvestris* (common mallow) were recovered from Roman sewage (Dickson, 1989). The medicinal properties of the plant, of which leaves and flowers are used, were well known to the Romans and it seems probable that the plant was deliberately grown.

The case for *Satureja hortensis* (summer savory) from the York fort is discussed below.

### *Evidence for gardens - towns, villas and farmsteads*

A plant introduced from the Mediterranean region by the Romans for its aromatic leaves and shoots (the seeds are not deliberately eaten) is *Satureja hortensis* (summer savory). This annual, unlikely to compete successfully with the local weeds, must have been cultivated. Seeds are recorded from the legionary fortress (29) and the colonia (26) at York as well as from Bancroft villa (35) and a nearby farmstead at Wavendon Gate (34). Further evidence for kitchen gardens from the two latter sites is given by associated plants. At Bancroft an area near to a farm building complex has also produced seeds of *Coriandrum sativum* (coriander) and a species of *Brassica* (a cultivated species including cabbage, turnip etc.). Seeds of *B. nigra* (black mustard) and *Apium graveolens* (celery) may be of wild or cultivated plants. Seeds of *Euphorbia lathyris* (caper spurge), a strong purgative and another introduction were also found. Pearson and Robinson (forth.) conclude that « the occurrence of these ... is suggestive of horticulture ... ». From a late Roman pit outside the main enclosure at Wavendon Gate, a small rural farmstead, Pearson (forth.) has recorded a similar plant assemblage. Stones of *Prunus domestica* ssp. *domestica* (plum) and *P. domestica* ssp. *insititia* (bullace, damson) were found at both sites. Pearson notes that they may have been deliberately cultivated but points out that they can spread by suckering and become naturalised and they may have been growing in a nearby hedge or shrub community.

Good evidence for a garden in the Roman town of Alcester (31) in the third century is given by Moffett (1988). Seeds of *Asparagus officinalis*



(asparagus) were found in a hearth. The young shoots of both wild and cultivated forms are eaten and Moffett quotes the advice given by Cato and Columella on the preparation of asparagus beds. Seeds of *Aquilegia* cf. *vulgaris* (cf. columbine) were found in the same hearth and it is tempting to suggest that such an attractive plant was grown for its decorative qualities, but the plant has medicinal uses for which it was no doubt originally cultivated. A number of *Beta vulgaris* (beet) fruit clusters were also found and Moffett states that both Columella and Pliny record the use of beet leaves as a potherb. As beet seed is not eaten, the other records, away from the plant's native coastal habitat, must also demonstrate local cultivation for leaves or roots; these are Rochester fort (32), York colonia (26) and Denton villa (11).

From the University of York, work on plant epidermis has established that well preserved leaf epidermis of *Allium porrum* (leek) can be identified (Tomlinson, 1991). Leek epidermis has been identified from Nantwich (45) and York (26). Such delicate remains as these leaf fragments are only preserved in permanently waterlogged cesspits. Leeks were frequently used in Roman cooking. These plants must have been locally grown.

#### *Fruit - locally grown or imported ?*

*Morus nigra* (black mulberry), with perishable fruit which must be picked when ripe, is recorded from London (47), Silchester (40) and York (26). Although the Romans did attempt to preserve the fruit in its own juice with boiled new wine this was not very successful (Apicius transl. Vehling 1977, p. 52). It seems highly probable that the trees were grown in these three Roman towns. Although other fruit was preserved in honey in amphorae it was recommended by Apicius that the fruit should not touch each other. It seems unlikely therefore that fruit preserved in this way was imported. However the possibility of dried fruit being imported cannot be discounted. Hardskinned peaches (*Prunus persica*) were pickled in brine; the record from London (47) may represent fruit imported in this manner although peaches will ripen in southern Britain especially on southfacing walls.

Possible evidence for the cultivation of plums from two locations has already been discussed. It is not known whether the records for *Prunus domestica* ssp. *insititia* are of bullace (wild) or damson (cultivated); although Lambrick and Robinson (1979) suggest that fruit stones from Farmoor (30), a farmstead, resemble those of the modern damson. The records of *P. avium* and *Prunus Sect. Cerasus* may be of wild or cultivated cherries; the same doubt is attached to *Malus sylvestris* (wild/cultivated apple). A single record of *Mespilus germanica* (medlar), a native of south east Europe, may provide evidence for the introduction of the tree.

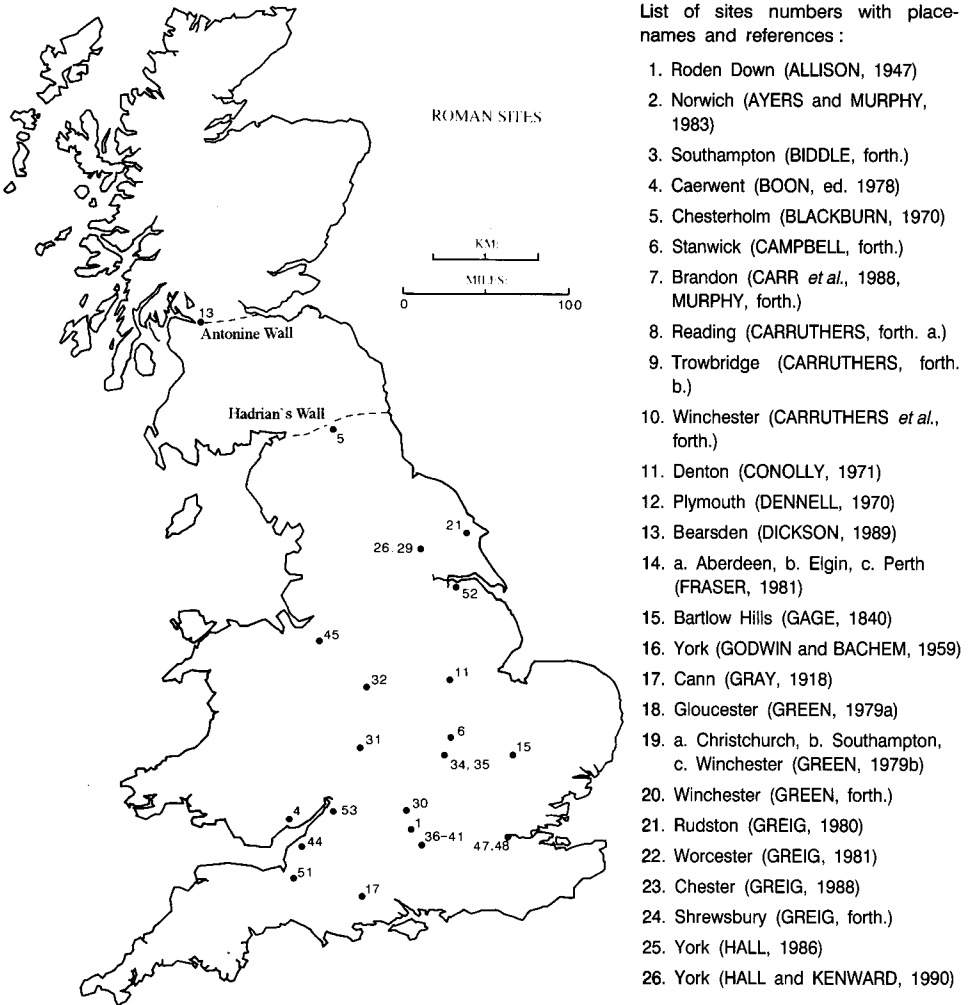


Fig. 1. Survey map with British Roman sites used.

### Hedges, trees and shrubs

One of the plants most frequently recorded from Roman sites is *Buxus sempervirens* (box). Leaves, rarely with fruit, are recorded from a fort, towns, villas and a farmstead and from Roman cemeteries, the last marked with an asterisk in Table 1. The leaves probably represent clippings from box hedges. Box wood has been recorded from Frocester villa (54) identified by J.C. Mabey (Gracie, 1970). However wood records are usually of artefacts which were probably imported. Box hedges are still used as a low living edge to formal garden beds in Britain.

List of sites numbers with place-names and references:

27. Cowick (HAYFIELD and GREIG, 1989)
28. London (JONES *et al.*, 1991)
29. York (KENWARD *et al.*, 1986)
30. Farmoor (LAMBRICK and ROBINSON, 1979)
31. Alcester (MOFFETT, 1988)
32. Rocester (MOFFETT, unpub.)
33. Norwich (MURPHY, 1987)
34. Wavendon Gate (PEARSON, *forth.*)
35. Bancroft (PEARSON and ROBINSON, *forth.*)
36. Silchester (REID, 1901)
37. Silchester (REID, 1903)
38. Silchester (REID, 1905)
39. Silchester (REID, 1906)
40. Silchester (REID, 1907)
41. Silchester (REID, 1908)
42. Perth (D. ROBINSON, 1987)
43. Oxford (M. ROBINSON, 1985)
44. Chew Valley (STANT and METCALFE, 1977)
45. Nantwich (TOMLINSON, 1987)
46. Hull (UNDERDOWN, 1980)
47. London (WILLCOX, 1977)
48. London (WILLCOX, 1978)
49. Hull (WILLIAMS, 1977)
50. Chester (WILSON, 1975)
51. Low Ham (GODWIN, 1957)
52. Winterton (DIMBLEBY, 1978)
53. Frocester (GRACIE, 1970)
54. Durham (DONALDSON, 1979)
55. York (KENWARD and HALL, *forth.*)
56. Abbots Worthy (CARRUTHERS, 1991)

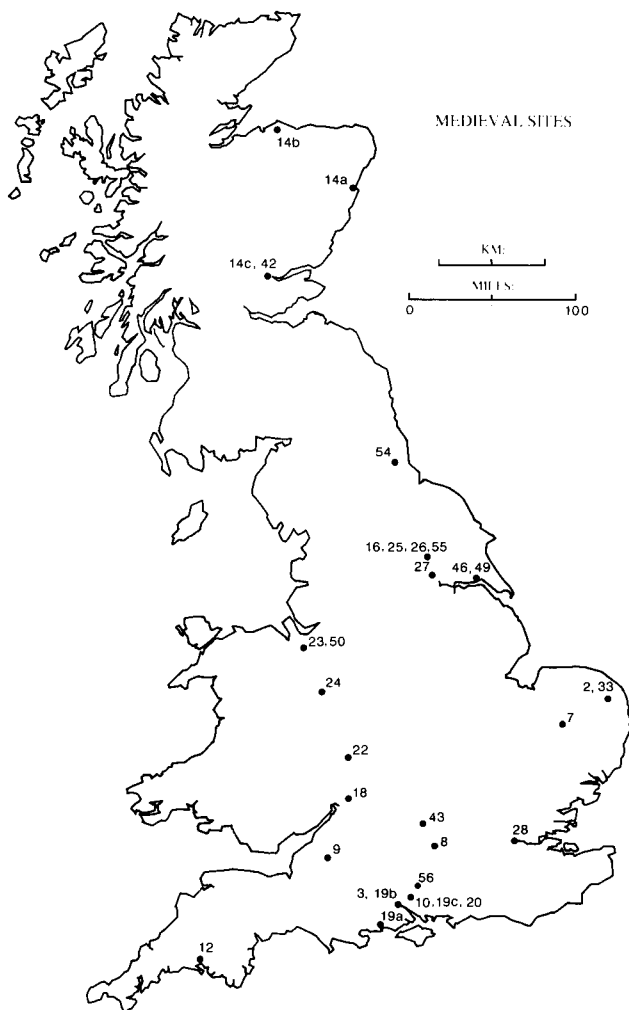


Fig. 2. Survey map with British Medieval sites used.

Leaves and twigs have been identified as coffin linings in Roman burials in at least five places. Gage (1840) states that according to Varro (writing in the first century B.C.) the Romans planted box at their burial places. It seems that *Buxus* was widely introduced by the Romans into areas where it does not grow naturally. The native sites are restricted to a few places on chalk and limestone in southern England (Perring and Walters, 1976). Roman occurrences are from as far north as York (26, 29) and west to Chew Valley (44) (see Figure 1).

The Romans favoured evergreen trees and shrubs and records of *Ilex aquifolium* (holly) leaves from Silchester (38) and a flattened fragment of a

holly twig from York (26) found together with box leaves (Hall and Kenward 1990, p. 359) may represent ornamental trees or shrubs. A single location for *Prunus lusitanica* (Portugal laurel) from Silchester (38) may represent an import, brought in for its evergreen foliage.

#### SUMMARY

We have good evidence from towns, villas and farmsteads and increasing indications from forts that gardens existed and a variety of plants was grown. *Coriandrum sativum* (coriander) was grown for its aromatic seeds and perhaps for the green herb and *Satureja hortensis* (summer savory) certainly for the fragrant leafy herb. The evidence for the cultivation of other aromatic herbs is mounting, for use of the aromatic seeds, green herb or both. Vegetables include *Asparagus officinalis* (asparagus), *Beta vulgaris* (beet), *Allium porrum* (leek) and *Brassica oleracea* (cabbage, colewort). Medicinal plants are *Euphorbia lathyris* (caper spurge) and *Malva sylvestris* (common mallow); although many of the plants contain medicinal properties well known to the Romans.

Fruit trees were cultivated and these include *Morus nigra* (black mulberry), *Prunus domestica* ssp. *domestica* (plum) and *P. domestica* ssp. *insititia* (damson). It is less certain whether *Malus sylvestris* (wild/cultivated apple), *Prunus avium* and *Sect. Cerasus* (wild/cultivated cherries) and the wild form of *P. domestica* ssp. *insititia* (bullace) were wild or cultivated.

*Buxus sempervirens* (box) was grown in towns, villas and the legionary fortress at York as well as at burial sites for use at least partly as hedging.

The evidence for purely decorative plants is slight and those such as *Aquilegia* cf. *vulgaris* (cf. columbine) and *Lavatera* cf. *arborea* (cf. tree mallow) may equally well have been grown for medicinal purposes. Roses, violets and lilies were used in Italy for chaplets (Pliny Book 21) but this usage may not have reached Britain.

In the future cesspits and other waterlogged deposits may produce epidermal layers of plants eaten as green herbs thus demonstrating more certainly their local cultivation. Pollen analysis may indicate flowering parts in cesspits and other waterlogged deposits. Careful excavation should disclose more evidence of garden soils with perhaps remains of bonfires of garden plants. We may expect archaeobotany to extend still further our knowledge of Roman gardens in Britain.

#### MEDIEVAL RECORDS OF GARDEN PLANTS

##### 7th to 9th centuries - Middle Saxon

The ever increasing body of macrofossil evidence for crops and garden plants in the medieval period has been reviewed by Green (1984) for

southern England, by Greig (1991) for England generally and (1983) for northern Europe.

The period following the departure of the Romans in the early first century is often referred to as the Dark Ages, although archaeology is now shedding light on the early Saxon period in Britain. The least known periods are the fifth and sixth centuries, the main period of the folk migrations into Britain. At the end of the fifth century, monasteries were established in western Britain and as Christianity spread so did monastic communities which grew vegetables, medicinal herbs and fruit trees as evidenced by a ninth century idealised plan for a monastery garden in Switzerland (Willis, 1848). Saxon settlements were established and trade, especially through Southampton, must have brought in seeds from the south once again. The evidence for crops, vegetables, herbs and fruit from Saxon Wessex is reviewed by Green (forth.).

Seasonal fluctuations in water levels and the recent lowering of the water table as water consumption has increased have resulted in only the most durable plant material being preserved in some cases. Evidence from five sites, Abbots Worthy (56), Brandon (7), Gloucester (18) and Southampton (3, 19b) is given in Table 2. Mineralised plant remains, usually from cesspits, contribute some of the records for *Pisum sativum* (pea) and *Vicia faba* (field bean) which have been recognised from all five locations. None of the records so far from medieval sites seem to be of the broad bean (*V. faba* ssp. *major*), the large seeded type unknown before c. 500 A.D. (Simmonds, 1976).

Flavouring herbs are represented by *Brassica nigra* (black mustard), from wild or cultivated plants and *Coriandrum sativum* (coriander). Medicinal plants include *Papaver somniferum* (opium poppy) which was grown in gardens in France at this time (Harvey, 1981, p. 176), presumably as a drug plant, although morphine with its unique painkilling properties was not isolated until the early nineteenth century. Other drug plants which were either cultivated or gathered from the wild are *Atropa bella-donna* (deadly nightshade), *Hyoscyamus niger* (henbane) and *Verbena officinalis* (vervain).

Durable pips and fruit stones were preserved at all sites. Those of *Malus sylvestris* (wild/cultivated apple), *Prunus avium* and *Sect. Cerasus* (wild/cultivated cherry) and *Prunus domestica* ssp. *insittia* (bullace, damson) may represent wild or cultivated fruit. Fruit stones of *Prunus domestica* ssp. *domestica* (plum) more certainly result from cultivation. A single record for *Pyrus communis* (pear) from Southampton is of note. Nuts of *Juglans regia* (walnut) are more likely to have been imported. The above identifications show that pulses and herbs including medicinal herbs were grown, although work in progress suggests that many more herbs were being grown in middle Saxon England. There is slight evidence for orchards and there is no doubt

TABLE 2. — REMAINS OF GARDEN PLANTS FROM MEDIEVAL SITES IN BRITAIN.  
FOR SITE-NUMBER, SEE LEGEND TO FIGURE 1.

<i>Plant names</i>	<i>7th to 9th</i>	<i>10th to 12th</i>	<i>12th to 14th</i>	<i>14th to 15th</i>
<i>Aquilegia vulgaris</i> (Columbine)		19c		
<i>Papaver somniferum</i> (Opium Poppy)	7, 56	2, 19c, 26, 28 33, 54, 55	14a, c, 19c, 23 26	43, 46, 49
<i>Chelidonium majus</i> (Greater Celandine)		16, 19c	19c	19c, 43
<i>Brassica cf oleracea</i> (cf Cabbage, Colewort)		16	42	
<i>B. nigra</i> (Black Mustard)	3		50(cf)	12, 22(cf) 43(cf)
<i>B. rapa</i> (Wild Turnip, Turnip Rape, Turnip)			14a, b, c, 42	
<i>Beta vulgaris</i> (Beet)		20, 55	26	49
<i>Atriplex cf hortensis</i> (cf Garden Orache)		16		
<i>Buxus sempervirens</i> (Box)			8, 10	27(p), 43
<i>Vicia faba</i> (Field Bean)	3, 7, 18 19b, 56	3, 19c, 26 33, 55	19c, 23, 26	19c, 24
<i>Pisum sativum</i> (Pea)	3, 7, 18 19b, 56	2, 3, 19c 33(cf), 55	19c, 23, 28	19c
<i>Fragaria vesca semperflorens</i> (Alpine Strawberry)				43
<i>Rosa canina</i> agg. (Dog Rose)				14b
<i>Rosa</i> sp. (Wild/Cultivated Rose)	55		9, 23, 49	22
<i>Prunus persica</i> (Peach)			25	19c
<i>P. dulcis</i> (Almond)				12, 43
<i>P. spinosa</i> x <i>domestica</i> ssp. <i>insititia</i> ( <i>P.</i> x <i>fruticans</i> )			50	22(cf)
<i>P. domestica</i> ssp. <i>domestica</i> (Plum)	3, 7, 18, 19b	2, 16, 19c, 55	8, 19c, 23	8, 12, 19a, c, 43
<i>P. domestica</i> ssp. <i>insititia</i> (Bullace, Damson)	3, 7, 18	2, 8, 16, 18, 19c 26, 33, 55	2, 8, 9, 14c, 19c, 23, 26, 50	2, 8, 14b, 19a, c 22, 33
<i>P. domestica</i> ssp. <i>italica</i> (Greengage)				12
<i>P. domestica</i> s.l. (Plum/Bullace/Damson)		28, 33, 54	9, 23	3, 46
<i>P. avium</i> (Wild/Cultivated Cherry)	3	2, 8, 19c, 28, 33(cf)	8, 14c, 19c, 23	8, 12, 14b, 19a, c, 33(cf), 43
<i>P. cerasus</i> (Sour Cherry)		28	23	22(cf)
<i>P. Sect. Cerasus</i> (Wild/Cult./Sour Cherry)	18	26, 55	26	12, 46
<i>Pyrus communis</i> (Pear)	3	19c, 28	10, 23	22(cf), 43

<i>Malus sylvestris</i> s.l. (Wild/Cultivated Apple)	3, 7, 18 19b, 56	2, 18, 19c, 24 26, 33, 54, 55	8, 9, 10, 14c 19b, c, 23, 24 26	8, 14b, 19c, 22(cf) 24, 33, 43, 46
<i>Mespilus germanica</i> (Medlar)		33		
<i>Ribes uva-crispa</i> (Gooseberry)			23	22
<i>Coriandrum sativum</i> (Coriander)	3	8, 26, 55	8, 10, 49	8, 19c, 22, 33 46, 49
<i>Smyrniolum olusatrum</i> (Alexanders)		28		
<i>Aegopodium podagraria</i> (Goutweed)		19c	19c, 26	19c
<i>Foeniculum vulgare</i> (Fennel)		28(cf)	23, 24, 26(cf)	19c, 22, 33, 46
<i>Anethum graveolens</i> (Dill)		2(cf), 26, 28 (cf), 55	10	
<i>Apium graveolens</i> (Wild/Cultivated Celery)	56	2, 28, 33, 55	49	49
<i>Pastinaca sativa</i> (Wild/Cultivated Parsnip)		2		
<i>Daucus carota</i> (Wild/Cultivated Carrot)		28	46, 49	49
<i>Euphorbia lathyris</i> (Caper Spurge)		55	8	14b
<i>Morus nigra</i> (Black Mulberry)		28	10	33
<i>Juglans regia</i> (Walnut)	3, 7	2, 19c, 26 28(cf), 55	8, 14c, 42	8, 12, 14b, 19a 33, 43, 46 49
<i>Primula veris</i> (Cowslip)				49
<i>Atropa bella-donna</i> (Deadly Nightshade)	7	55	42	14b, 22
<i>Hyoscyamus niger</i> (Henbane)	7, 56	16, 26(cf) 28, 55	14c, 24, 26, 42	22, 24, 43
<i>Verbena officinalis</i> (Vervain)	3	55		49
<i>Mentha</i> spp. (Mints)	3		19c	
<i>Satureja hortensis</i> (Summer Savory)		26, 55		
<i>Nepeta cataria</i> (Catmint)		55		
<i>Marrubium vulgare</i> (White Horehound)		28, 55		
<i>Chamaemelum nobile</i> (Chamomile)		28		
<i>Matricaria recutita</i> (Wild Chamomile)			23	
<i>Calendula officinalis</i> (Pot Marigold)		2, 55		8, 43(sp), 49
<i>Allium porrum</i> (Leek)		26, 55	23, 26	
<i>Allium cepa/porrum</i> (Onion, leek)			10, 23	

that fruit trees including apple, sweet cherry, bullace and pears were planted in France (Harvey, 1981, p.168-180), although documentary evidence is generally lacking for England from this early period.

### *10th to 12th century - Late Saxon, Anglo-Scandinavian and Norman*

Several towns have produced plant remains dating from the tenth to twelfth centuries, most records are from London (28), Norwich (2, 33), Winchester (19c) and York (16, 26, 55). Two separate cultures are represented; the continuing Saxon one in London, Winchester and Norwich and the Anglo-Scandinavian culture in York following the Viking invasion and settlement from the end of the ninth century. The Norman conquest of 1066 resulted in a greater interchange of ideas from the continent. From literary sources it seems that gardens were aesthetically pleasing; roses and other flowering herbs are recorded as growing in the garden of one of the English Abbeys in the early eleventh century (Harvey, 1981, p. 8). As was the case for earlier deposits, the fossil evidence is unfortunately limited by differential preservation. On well-drained chalk soils, such as those at Winchester, organic deposits have largely dried out and only the most durable fruit stones and seeds have survived.

From Norwich and London tenth century deposits have produced *Anethum graveolens* (dill) and *Apium graveolens*. At this time *A. graveolens* was still the wild form of celery known as smallage, used medicinally. Its presence with cultivated plants at these sites suggests that it was grown or deliberately collected. Identifications from York (26) include the same herbs with *Coriandrum sativum* (coriander) from tenth/eleventh century contexts. Coriander was also found at Reading Abbey (8) in twelfth century deposits. It is of interest that these are the three herbs most commonly used for flavouring and medicine in Roman Britain. *Satureja hortensis* (summer savory), recorded from Roman York and earlier discussed, was found in more than eighty contexts in York (Kenward *et al.*, 1986).

There are tentative identifications of *Atriplex hortensis* (cf garden orache) and *Brassica oleracea* (cf colewort) from York (16); both plants were probably used as potherbs. *B. oleracea* includes the leafy variety var. *acephala*, (colewort, kale) which was very commonly grown as a pot-herb (historical records of the headed cabbage date from the early fourteenth century in England). Pot-herbs are leafy plants which were simmered with meat when it was available. The dish, known as pottage, was flavoured with aromatic herbs and, with the addition of bread, formed a substantial part of the food of the poor, but was consumed by all classes of society. *Allium porrum* (leek), also used as a potherb, has been identified from York (26, 55).

The earliest certain identifications of *Calendula officinalis* (pot marigold) come from tenth/eleventh century contexts at Norwich (2) and York (55).



The flowers of *Calendula* used to be added to broth or soup. Both flowers and leaves have medicinal properties. The flowers and leaves of *Borago officinalis* (borage) have similarly been used as a pot herb and seeds have been recorded from York (Hall pers. comm.). Both these plants were introduced from central Europe or the Mediterranean region. The bright orange flowers of *Calendula* and brilliant blue of *Borago* would have added vivid colour to the herb garden. *Aquilegia vulgaris* (columbine) from Winchester (19c) could have been grown or gathered from the wild for medicinal purposes.

Two introduced plants with Roman records, are *Smyrniium olusatrum* (alexanders) from London (28) and *Aegopodium podagraria* (goutweed) from Winchester (19c). The latter was originally grown as a medicinal herb but both were cooked as pot-herbs. Fragments of the seed coats or hilums of *Pisum sativum* (pea) and *Vicia faba* (field bean) give continuing evidence for pulses. Garden peas were eaten with pods as peasecods. Both plants were and still are grown as crops, dried and stored for winter use as well as for fodder. Rare finds of pod fragments in cesspits are therefore more certainly from garden peas.

Fruits of *Pastinaca sativa* from Norwich (2) may be those of the cultivated parsnip. The wild plant is most commonly found growing on calcareous soils. *Pastinaca* and *Daucus carota* (carrot) from London (28) were both found with the remains of other food plants. The London finds were accompanied by *Apium graveolens* and possible «brassicas» (Jones *et al.* 1991, p. 349).

Evidence for medicinal plants from London (28) includes *Papaver somniferum* (opium poppy) and *Hyoscyamus niger* (henbane) seeds from a tenth century pit. Jones *et al.* suggest «a chemist's shop or, perhaps, a herb garden in which medicinal plants were grown». A twelfth century cesspit, also from London (28), has produced seeds of *Ballota nigra* (black horehound), *Chamaemelum nobile* (chamomile), *Marrubium vulgare* (white horehound) and *Papaver somniferum*; all have medicinal uses (Grieve, 1976). It is of interest that white horehound was still grown in cottage gardens in Norfolk and Suffolk for treating coughs and colds earlier this century (Grieve, 1976). Other finds of medicinal plants grown in gardens or gathered from the wild are *Chelidonium majus* (greater celandine), which is always found near habitations, identified from Winchester (19c) and *Hyoscyamus niger* (henbane) from York (16, 26cf, 55). *Hyoscyamus* has Roman records from York and, as previously stated, its seeds can remain dormant for hundreds of years. Other medicinal plants from York (55) are: *Atropa belladonna* (deadly nightshade), *Euphorbia lathyris* (caper spurge), *Marrubium vulgare* (white horehound), *Nepeta cataria* (catmint), *Papaver somniferum* (opium poppy) and *Verbena officinalis* (vervain).

Orchard fruit is recorded from all deposits of this period. *Morus nigra* (black mulberry) from London (28) must represent local produce. *Prunus domestica* ssp. *domestica* and *P. domestica* ssp. *insititia* are usually present. The fruit of *P. spinosa* (sloe) must have been plentiful in the vicinity of towns since its fruit stones are commonly encountered together with those of orchard fruit; perhaps they were eaten for their medicinal properties (Launert, 1981). Some fruit stones from Norwich (33) are intermediate in size between those of *P. domestica* s.l. and *P. spinosa* and are presumably the result of hybridisation. *P. avium* (wild/cultivated cherry) and *Malus sylvestris* (wild/cultivated apple) are common and *Mespilus germanica* (medlar) and *Pyrus communis* (pear) are rare finds. Various cultivated varieties of apples, plums, cherries and pears had been developed in Europe by the ninth century (Harvey, 1981, p. 29).

### *12th to 14th centuries*

An increasing variety of plants is recorded from this period. The evidence is from towns in England and Scotland and Reading Abbey (8) which produced a record of *Euphorbia lathyris* (caper spurge). The plant was used as a violent purgative and is mentioned by the fourteenth century English writer, Geoffrey Chaucer. Chaucer gives us probably the earliest list in England of plants grown in the gardens of the poorer medieval folk. These gardens were often little more than fenced-in yards. Chaucer refers to a bed of worts (*Brassica oleracea* var. *acephala*), used as a pot herb and grown all the year round, and a herb patch for medicinal uses. The following herbs noted as laxatives by Chaucer include, in addition to caper spurge, centaury (*Centaureum*), fumitory (*Fumaria*), hellebore (*Helleborus* spp.), black-thorn (*Prunus spinosa*) and ground ivy (*Glechoma hederacea*) (Chaucer transl. Coghill 1951, p. 236). All are plants with medicinal properties and all can be collected from the wild. No doubt the poor uprooted these wild plants to grow in their own cultivated patches.

Native wild plants were often planted in gardens for medicinal use and *Matricaria recutita* (wild chamomile) from Chester (23) may be one of these. Its seed was found in a mid thirteenth century cesspit with *Allium porrum* (leek) seed, *Foeniculum vulgare* (fennel), *Papaver somniferum* (opium poppy) and a variety of fruit. *Allium cepa/porrum* (onion/leek) epidermis was also recorded at Chester and at Winchester (10), also from human ordure. Another cesspit from Chester (50), of late thirteenth to early fourteenth century age, produced stones intermediate between those of sloe and bullace which again might be taken to indicate hybridisation (Wilson, 1975). Similar stones are recorded from Elgin from fourteenth and fifteenth century contexts (Fraser, 1981).

Records for *Rosa* spp. could be of wild roses, which were grown in early medieval gardens, *Rosa x alba* L. (white rose) or *R. gallica* L. (French rose) grown originally for medicine.

New fruits were coming into cultivation. From Chester (23) the earliest identification of *Ribes uva-crispa* (gooseberry) comes from the same period as its earliest cultivation in London (Harvey 1981, p. 82). A twelfth century record of *Prunus persica* (peach) from York (25) is of particular interest. If locally grown it is probably the earliest medieval record. Harvey's earliest reference is to a thirteenth century sale of plants in London (1981, p. 82). The records of *Juglans regia* (walnut) from Reading Abbey (8) from the twelfth century onwards, could be of locally grown nuts. Walnuts from the Earl of Lincoln's London garden were for sale in 1295 (Harvey 1981, p. 123). Records of *Buxus sempervirens* (box) from Reading (8) and Winchester (10) are of particular interest as its medieval use has not been documented before 1500 A.D. in Britain (Harvey, 1981, p. 125).

From the twelfth/thirteenth centuries onwards we have evidence of garden and orchard plants from Scotland. Aberdeen (14a), Elgin (14b) and Perth (14c) were investigated by Fraser (1981) and Perth (42) by Robinson (1987). *Brassica rapa* (wild turnip, turnip-rape, turnip) was recorded from each town. Robinson suggests that seeds from Perth (42) may be of ssp. *oleifera* (turnip-rape) and notes that the plant has been cultivated for the oil content of its seeds from the thirteenth century in Europe, but observes that the turnip may also have been grown for food. *Brassica* cf *oleracea* (cf colewort, cabbage) was also identified from Perth. *Atropa bella-donna* (deadly nightshade) from Perth (42) and from fifteenth century Elgin (14b), suggests medicinal use as does *Hyoscyamus niger* (henbane) from Perth (14c, 42). Most of the fruit recorded could equally well be from wild sources ; however two pips of *Malus sylvestris* from Perth (14c) are referred, on size, to a cultivar.

The three towns concerned, all on the east coast of Scotland, were trading with countries to the south including England by the twelfth century. Seeds of *Papaver somniferum* (opium poppy) were recorded from Perth and Elgin but were they grown there ? Peas, beans, onions and garlic were all imported in the thirteenth century (Duncan, 1975). Walnuts recorded from Perth and Aberdeen would also probably have been imported.

#### 14th to 15th centuries - Late Medieval

From Hull (49) a mainly fourteenth and fifteenth century assemblage of garden plants and garden weeds was identified by Williams (1977) who suggests that the following species were cultivated ; *Apium graveolens* (celery), *Daucus carota* (carrot), *Beta vulgaris* (beet), various species of *Brassica*, some similar to reference material of modern cultivars and, from sixteenth century

levels, *Pastinaca sativa* (parsnip). Other possible cultivated species are the oraches (*Atriplex* spp.). The presence of the root crops, beet, carrot and parsnip, is particularly interesting as these have only rarely been found in earlier medieval contexts. This may be because prior to 1300, Harvey (1984) has concluded that root crops were little used and even after that date mainly in the wealthier households. Herbs and possible drug plants listed by Williams include *Agrimonia eupatoria* (agrimony), *Coriandrum sativum* (coriander), *Papaver somniferum* (opium poppy), *Verbena officinalis* (vervain) and *Malva sylvestris* (common mallow). Perhaps the most interesting species found is *Calendula officinalis* (pot marigold) which, in view of the other herbs and vegetables present, is thought to have had a culinary use. A few macroscopic fossils of *Rosa* sp. (rose) may be from wild or cultivated plants. *Primula veris* (cowslip) has medicinal uses and was formerly cultivated for these. Re-examination of these Hull plant remains has shown that *Lobularia maritima* (sweet alison) and *Myrrhis odorata* (sweet cicely) were incorrectly identified (A.R. Hall pers. comm.) and have been omitted.

Fifteenth century drains from a Dominican Priory in Oxford (43) have also produced a species of *Calendula* (marigold). Robinson (1985) states that it is equally probable that it was grown for its flowers or as a pot or medicinal herb. He notes other species that would be appropriate in a physic garden: *Papaver somniferum* (opium poppy), *Chelidonium majus* (greater celandine) and *Hyoscyamus niger* (henbane) but adds that «suitable habitats for all three would be expected in a medieval town». The first identification of *Fragaria vesca* var. *semperflorens* (alpine-type strawberry) is of note. *Buxus* (box) suggests ornamental gardens. *Prunus dulcis* (almond) was also found; Robinson is uncertain as to whether the fruit stone fragments are from imported or locally grown fruit. Friar Daniel includes the almond in a long list of plants grown mainly in his London garden around 1375 (Harvey, 1981, p. 168-180).

A drain containing fourteenth/fifteenth century sewage in Plymouth (12) also produced almond and Dennell (1970) points out that in the fourteenth century Plymouth traded with France and the Mediterranean region and suggests that almond was imported. Stones of *Prunus domestica* ssp. *italica* (greengage) were also found.

Possible indications of the development of more formal gardens of the sixteenth century are the presence of box leaves at Oxford and its pollen at Cowick (27), a moated manor; both sites are outside the plant's restricted present range.

The numerous records of pips of *Vitis vinifera* (grape) have been omitted as grapes were generally grown in vineyards or imported as dried fruit. At Reading Abbey, however, vine wood was found in a pre-Reformation context (Carruthers forth. a) and suggests a vine within the Abbey gardens; there is documentary evidence to support this.

TABLE 3. — PLANTS GROWN IN GARDENS C. 1350 FROM MASTER JOHN GARDENER'S LIST (HARVEY, 1981, 1984).

*Pot herbs and salad plants :*

* <i>Apium graveolens</i> (Smallage)	<i>Lepidium sativum</i> (Garden Cress)
* <i>Atriplex hortensis</i> and spp. (Garden Orache, oraches)	<i>Nasturtium officinale</i> (Watercress)
* <i>Borago officinalis</i> (Borage)	* <i>Nepeta cataria</i> (Nepp, Catmint)
<i>Chrysanthemum vulgare</i> (Tansy)	<i>Picris echioides</i> (Bristly Oxtongue)
* <i>Foeniculum vulgare</i> (Fennel)	<i>Raphanus sativus</i> (Radish)
<i>Lactuca sativa</i> (Lettuce)	<i>Senecio vulgaris</i> (Groundsel)
	* <i>Smyrniolum olusatrum</i> (Alexanders)

*Principal sweet herbs and condiments :*

* <i>Anethum graveolens</i> (Dill)	<i>Lepidium latifolium</i> (Dittander)
* <i>Brassica nigra</i> (Black Mustard)	* <i>Mentha</i> spp. (Mints)
<i>Calamintha</i> spp. (Calamints)	<i>Oxalis acetosella</i> (Wood Sorrel)
* <i>Coriandrum sativum</i> (Coriander)	<i>Salvia officinale</i> (Sage)
<i>Hyssopus officinale</i> (Hyssop)	* <i>Satureja hortensis</i> (Summer Savory)
<i>Lavendula x intermedia</i> (Garden Lavender)	<i>Sinapis alba</i> (White Mustard)
	<i>Thymus</i> spp. (Thymes)

*Largely if not mainly grown for ornament :*

<i>Althaea rosea</i> (Hollyhock)	<i>Paeonia</i> spp. (Peony)
<i>Lilium</i> spp. (Lilies)	* <i>Primula veris</i> (Cowslip)
<i>Narcissus pseudonarcissus</i> (Daffodil)	<i>P. vulgaris</i> (Primrose)
<i>Nuphar lutea</i> (Yellow Water-lily)	<i>Rosa</i> spp. (Roses)
<i>Nymphaea alba</i> (White Water-lily)	<i>Viola</i> spp. (Violets)

## DISCUSSION

As will be noted from the preceding comments, it is not usually easy to distinguish between species now only considered as wild plants which were collected and those likely to have been cultivated in the Medieval period. Neither is it clear which fruit and nuts were imported and which may have grown in Britain. To ascertain which species were grown we need to consult written sources. Green (1984) has discussed possible documentary sources for southern England in particular. Most of the plants in Table 2 have appeared in medieval garden lists by Gardener (c. 1350) and Daniel (1375); both lists are given by Harvey (1981, p. 168-180). The principal species grown in the medieval garden as given by Harvey (1984) are listed in Table 3. Other plants of economic importance are given in Table 4.

A few plants were unexpectedly late in arriving in Britain. One of these is *Apium graveolens* var. *dulce* (cultivated celery). The seeds are

TABLE 4. — EARLY RECORDS FROM OTHER WRITTEN SOURCES  
(HARVEY 1981, 1984)

*Pot herbs :*

1211	Allium cepa (Onion)	1190	* Brassica oleracea
1362	A. fistulosum (Welsh Onion)		var. acephala (Colewort)
1211	* A. porrum (Leek)	1322	Petroselinum crispum (Parsley)
1240	A. sativum (Garlic)	1325	* Pisum sativum (Green Pea)
1375	A. schoenoprasum (Chives)	1211	Vicia faba (Broad Bean)

*Rootcrops :*

1270	Brassica rapa	1375	* Pastinaca sativa (Parsnip)
	ssp. rapa (Turnip)	1322	Sium sisarum (Skirret)
1375	* Daucus carota (Carrot)		

*Other garden plants :*

1322	Cucumis sativus (Cucumber)	1240	* Morus nigra (Black Mulberry)
1278	Cydonia oblonga (Quince)	1375	* Prunus dulcis (Almond)
1295	* Juglans regia (Walnut)	1278	* P. persica (Peach)
1322	Lagenaria vulgaris (Gourd)	1382	* Ribes uva-crispa (Gooseberry)
1270	* Mespilus germanica (Medlar)	1340	Rosmarinus officinale (Rosemary)

An \* indicates an earlier macrofossil record.

unfortunately indistinguishable from those of smallage or wild celery. It was probably not generally grown until the late Medieval period in Britain (Harvey, 1981, p. 121). As can be seen from the names with an asterisk, some plants have macrofossil records earlier than the dates listed. This denotes one aspect of the valuable contribution of archaeobotany to garden history which will become even more important as Saxon sites are more confidently dated.

The hiatus between the end of the Roman occupation and the Middle Saxon period raises an interesting question. Did gardens of herbs still exist in the unsettled fifth and sixth centuries or were medicinal plants gathered from the wild? That is a question which we may be able to answer in the future. For the present it will be apparent that by the fourteenth century most of the species so far recovered from Roman contexts were being grown, or collected, in Medieval Britain. Detailed consideration of the data raises many questions, for instance: How quickly did newly imported species become widely grown? Were the same flavouring and medicinal herbs used all over Britain? These more detailed questions await further work and the compilation of more data.

## ACKNOWLEDGEMENTS

I wish to thank the following colleagues who have generously contributed unpublished records : B. Biddle, G. Campbell, W. Carruthers, M.J. Fraser, F. Green and the Trust for Wessex Archaeology, J.R.A. Greig, A.R. Hall, L. Moffett, E. Pearson, P.M. Murphy and English Heritage. J.R.A. Greig, A.R. Hall and J. H. Dickson kindly commented on the manuscript.

Camilla DICKSON  
Botany Department  
The University of Glasgow  
GLASGOW G12 8QQ  
Scotland, UK

## REFERENCES

- ALLISON, J., 1947, *Buxus sempervirens in a Late Roman Burial in Berkshire*, in *New Phytologist*, 46, p. 122.
- APICIUS, Edited and translated by VEHLING, J.D., 1977, *Cookery and Dining in Imperial Rome*, Dover, New York, 301 p.
- AYERS, B., and MURPHY, P., 1983, *A Waterfront Excavation at Whitefriars Street Car Park, Norwich, 1979*, in *East Anglian Archaeology*, 17, p. 1-59.
- BIDDLE, B., Forthcoming, *Plant Remains from Southampton*.
- BLACKBURN, K.B., 1970, *Report of Wood Samples from the Well in the HQB, 1933*, in *Excavations at Chesterholm Vindolanda 1966-1969*, (BIRLEY, R.), *Archaeologia Aeliana*, 48, p. 145.
- BOON, G.C., (ed.), 1978, *A Comparative List of Plant Remains from Caerwent*, in *Monographs and Collections Relating to Excavations Financed by the Department of the Environment in Wales*, Cambrian Archaeological Association, Cardiff, p. 113-119.
- CAMPBELL, G., Forthcoming, *The Archaeobotanical Evidence from Stanwick Roman Villa and Other Late Iron Age and Roman Sites within the Raunds Area*, in *Excavations at Stanwick* (NEAL, D.S.), English Heritage Monograph.
- CARR, R.D., TESTER, A. and MURPHY, P., 1988, *The Middle-Saxon Settlement at Staunch Meadow, Brandon*, in *Antiquity*, 62, 235, p. 371-377.
- CARRUTHERS, W.J., 1991, *The Plant Remains*, in Chapter 2, *The Abbots Worthy Settlement*, in *Archaeology and the M 3* (FASHAM, P.J. and WHINNEY, R.J.B.), Hampshire Field Club, Monograph, 7, p. 67-75.
- CARRUTHERS, W.J., Forthcoming a, *Reading Waterfronts, the Plant Remains*, in *Excavations on the Reading Waterfront Sites 1979-88*, (HAWKES, J.W. and FASHAM, P.J.).
- CARRUTHERS, W.J., Forthcoming b, *The Plant Remains*, in *Excavations in the Town Centre of Trowbridge, Wiltshire 1977 and 1986-88*, (DAVIES, S.M. and GRAHAM, A.H.).
- CARRUTHERS, W.J., Forthcoming c, *Fishbourne Roman Palace, West Sussex: Carbonised Plant Macrofossils from Garden Features*.
- CARRUTHERS, W.J., HALL, A.R., JONES, A.W.G., KENWARD, H., PHIPPS, J., and TOMLINSON, P., Forthcoming d, *Preliminary Environmental Analyses of Samples from the Latrine Pit F 5093 at the Brooks*, Winchester.
- CHAUCER, G., 1951, *The Canterbury Tales*, Translated into Modern English by Nevill COGHILL, Penguin, Harmondsworth.
- CLAPHAM, A.R., TUTIN, T.G. and MOORE, D.M., 1987, *Flora of the British Isles*, 3rd ed., Cambridge University Press.

- CONOLLY, A.P., 1971, *App. 1. The Organic Remains from the Well*, in *The Roman Villa at Denton, Lincolnshire, part 2*, (GREENFIELD, E., ed.), *Lincolnshire History and Archaeology*, 1, 6, p. 44-50.
- CUNLIFFE, B., 1971, *Excavations at Fishbourne 1961-1969, 1. The Site* (Research Reprint of the Society of Antiquaries of London, 26), London.
- CUNLIFFE, B., 1981, *Roman Gardens in Britain: A Review of the Evidence*, in *Ancient Roman Gardens* (MACDOUGALL, E.B. and JASHEMSKI, W.F., eds.), *Dumbarton Oaks, Harvard University*, p. 95-108.
- DAVIES, R.W., 1970, *Some Roman Medicine*, in *Medical History*, 14, 1, p. 101-106.
- DENNEL, R.W., 1970, *Seeds from a Medieval Sewer in Woolster Street, Plymouth*, in *Economic Botany*, 24, p. 151-154.
- DICKSON, C., 1989, *The Roman Army Diet in Britain and Germany*, in *Archäobotanik* (KORBER-GROHNE, U. and KUSTER, H., eds.), *Dissertationes Botanicae*, 133, p. 135-154.
- DICKSON, J.H. and C., Forthcoming, *Ancient and Modern Occurrences of Common Fig (*Ficus carica* L.) in the British Isles*.
- DIMBLEBY, G., 1978, *Plants and Archaeology*, 2nd edition, London.
- DONALDSON, A., 1979, *Plant Life and Plant Use in three Saxo-Norman Tenements in Durham City, in Three Saxo-Norman Tenements in Durham City* (CARVER, M.O.H.), in *Medieval Archaeology*, 23, p. 55-60.
- DUNCAN, A.M.M., 1975, *Scotland: The Making of the Kingdom. The Edinburgh History of Scotland. Volume 1. Oliver and Boyd, Edinburgh*.
- FRASER, M.J., 1981, *A Study of the Botanical Material from three Medieval Scottish Sites*, (unpublished M.Sc. Thesis) University of Glasgow.
- GAGE, J., 1840, *A Letter from John Gage, Esq., F.R.S., Director, to Hudson Gurney, Esq. F.R.S., V.P. etc., Containing an Account of further Discoveries of Roman Sepulchral Relics at the Bartlow Hills*, in *Archaeologia*, 28, p. 1-6.
- GODWIN, H., 1957, *Plant Remains from a Well at Low Ham, Somerset*, in *Dorset Notes and Queries*, 27, p. 157.
- GODWIN, H. and BACHEM, K., 1959, *App. 3. Plant Material*, in *Excavations in Hungate, York* (RICHARDSON, K.M.), in *The Archaeological Journal*, 116, p. 109-113.
- GRACIE, H.S., 1970, *Frocester Court Roman Villa, Gloucestershire: First Report*, in *Transactions Bristol and Gloucester Archaeological Society*, 89, p. 5-10.
- GRAY, H.St.G., 1918, *Leaden Coffin found at Cann, near Shaftesbury*, in *Proceedings Dorset Natural History and Archaeological Society*, 38, p. 68-73.
- GREEN, F.J., 1979a, *The Plant Remains*, in *Excavations at 1 Westgate Street, Gloucester*, (HEIGHWAY, C., GARROD, A.P. and VINCE, A.G.), *Medieval Archaeology*, 23, p. 186-190.
- GREEN, F.J., 1979b, *Medieval Plant Remains; Methods and Results of Archaeobotanical Analyses from Excavations in Southern England with Especial Reference to Winchester and Urban Settlements of the 10th-15th Centuries* (unpublished Master of Philosophy Thesis), University of Southampton.
- GREEN, F.J., 1984, *The Archaeological and Documentary Evidence for Plants from the Medieval Period in England*, in *Plants and Ancient Man* (VAN ZEIST, W. and CASPARIE, W.A., eds.), *Balkema, Rotterdam*, p. 99-114.
- GREEN, F.J., Forthcoming, *Cereals and Plant Foods: a Reassessment of the Saxon Economic Evidence from Wessex*.
- GREIG, J.R.A., 1980, *Seeds from the Well*, in *Rudston Roman Villa* (STEAD, I.M.), in *Yorkshire Archaeological Society*, p. 169-171.



- GREIG, J.R.A., 1981, *The Investigation of a Medieval Barrel-latrine from Worcester*, in *Journal of Archaeological Science*, 8, 3, p. 265-282.
- GREIG, J., 1983, *Plant Foods in the Past: A Review of the Evidence from Northern Europe*, in *Journal of Plant Foods*, 5, p. 179-214.
- GREIG, J., 1988, *Plant Remains*, in *Excavations at Chester, 12 Watergate Street 1985; Roman Headquarters Building to Medieval Row* (WARD, S.), Chester, Chester City Council, p. 59-70.
- GREIG, J.R.A., 1991, *The British Isles*, in *Progress in Old World Palaeoethnobotany* (VAN ZEIST, W., WASYLIKOWA, K., and BEHRE, K.-E., eds.), Balkema, Rotterdam, p. 299-334.
- GREIG, J., forthcoming, *Plant Remains from Shrewsbury*.
- GRIEVE, M., 1976, *A Modern Herbal*, Penguin, Harmondsworth, 912 p.
- HALL, A., 1986, *The Fossil Evidence for Plants in Medieval Towns*, in *Biologist*, 33, 5, p. 262-267.
- HALL, A.R. and KENWARD, H.K., 1990, *Environmental Evidence from the Colonia: General Accident and Rougier Street, The Archaeology of York*, 14/6, London, Council for British Archaeology, p. 287-434, and Fiche 3.
- HARVEY, J., 1981, *Mediaeval Gardens*, Batsford, London, 199 p.
- HARVEY, J.H., 1984, *Vegetables in the Middle Ages*, in *Garden History*, 12, p. 89-99.
- HAYFIELD, C. and GREIG, G. (eds.), 1989, *Excavation and Salvage Work on a Moated Site at Cowick, South Humberside, 1976*, in *Yorkshire Archaeological Journal*, 61, p. 41-69.
- JONES, G.E.M., STRAKER, V. and DAVIS, A., 1991, (1) *Early Medieval Plant Use and Ecology in the City of London*, in *Aspects of Saxon and Norman London 2: Finds and Environmental Evidence*, (VINCE, A.G., ed.), *Transactions London and Middlesex Archaeological Society Special Paper*, 12, p. 347-385.
- KENWARD, H.K., HALL, A.R. and JONES, A.K.G., 1986, *Environmental Evidence from a Roman Well and Anglian Pits in the Legionary Fortress, The Archaeology of York*, 14/5, London, Council for British Archaeology, p. 242-271.
- KENWARD, H.K. and HALL, A.R., forthcoming, *Biological Evidence from Anglo-Scandinavian Deposits at 16-22 Coppergate, The Archaeology of York*, 14 (7), London, C.B.A.
- LAMBRICK, G. and ROBINSON, M., 1979, *Iron Age and Roman Settlements at Farmoor, Oxfordshire* (Council for British Archaeology Research Report, 32), London, p. 1-52.
- LAUNERT, E., 1981, *The Hamlyn Guide to Edible and Medicinal Plants of Britain and Northern Europe*, Hamlyn, London, 288 p.
- LYELL, H.H., 1911, *App. On the Vegetable Remains from Caerwent, 1909 and 1910*, in *Excavations at Caerwent, Monmouthshire* (ASHBY, T., HUDD, A.E. and KING, F.), in *Archaeologia*, 62, 2, p. 405-448.
- MOFFETT, L., 1988, *Gardening in Roman Alcester*, in *Circaea*, 5, 2, p. 73-78.
- MOFFETT, L., Unpublished, *Economic Activities at Rocester, Staffordshire, in the Roman, Saxon and Medieval Periods: the Evidence from Charred Plant Remains*, in *Ancient Monuments Laboratory Report*, 15/89.
- MURPHY, P.M., 1984, *Carbonised Fruit from Buildings, in Excavations at Lion Walk, Balkerne Lane, and Middleborough, Colchester, Essex* (CRUMMY, P.), in *Colchester Archaeological Report*, 3, p. 40.
- MURPHY, P., 1987, *Plant Macrofossil Evidence, in Excavations at St. Martin-at-Palace Plain, Norwich, 1981* (AYERS, B.), in *East Anglian Archaeology*, 37, p. 118-133.
- MURPHY, P., forthcoming, *Plant Macrofossils in Staunch Meadow, Brandon, Suffolk: Environmental and Economic Studies*.

- MURPHY, P. and SCAIFE, R.G., 1991, *The Environmental Archaeology of Gardens*, in *Garden Archaeology*, (BROWN, A.E., ed.) (Council for British Archaeology Research Report, 78), London, p. 83-99.
- ODUM, S., 1965, *Germination of Ancient Seeds. Floristical Observations and Experiments with Archaeologically Dated Soil Samples*, in *Dansk Bot. Arkiv*, 24, 2, p. 1-68.
- PEARSON, E., forthcoming, *The Plant Remains from the Waterlogged Features at Wavendon Gate*.
- PEARSON, E. and ROBINSON, M., forthcoming, *Environmental Archaeology at Bancroft Roman Villa, Milton Keynes*.
- PERRING, F. and WALTERS, S.M., 1976, *Atlas of the British Flora*, 2nd Ed., B.S.B.I. Nelson.
- PLINY, A.D. 77, *Naturalis Historia*, Loeb ed. trans. W.H.S. Jones, Books 20-23, London, 1951.
- REID, C., 1901-1909, *Notes on the Plant-remains of Roman Silchester*, in articles: *Excavations on the Site of the Roman City at Silchester*, by W.H.ST.J. HOPE, *Archaeologia*, 1901, 57, 2, p. 252-256; 1903, 58, 2, p. 425-428; 1905, 59, 2, p. 367-368; 1906, 60, 1, p. 164; 1907, 60, 2, p. 449; 1908, 61, 1, p. 210.
- ROBINSON, D., 1987, *Botanical Remains*, in *Excavations in the Medieval Burgh of Perth 1979-1981* (HOLDSWORTH, P., ed.), *Society of Antiquaries of Scotland Monograph Series*, 5, p. 199-209.
- ROBINSON, M., 1985, *Plant and Invertebrate Remains from the Priory Drains*, in *Further Excavations on the Second Site of the Dominican Priory, Oxford* (LAMBRICK, G.), *Oxoniensia*, 50, p. 196-201.
- SIMMONDS, N.W. (ed.), 1976, *Evolution of Crop Plants*, Longman, London.
- STANT, M.Y. and METCALFE, C.R., 1977, *Seeds and Other Plant Debris*, in *Excavations at Chew Valley Lake, Somerset*, (RATZ, P.A. and GREENFIELD, E.), London, H.M.S.O., p. 372.
- TOMLINSON, P., 1985, *Use of Vegetative Remains in the Identification of Dyeplants from Waterlogged 9th-10th Century A.D. Deposits at York*, in *Journal of Archaeological Science*, 12, p. 269-283.
- TOMLINSON, P., 1987, *Plant Remains*, in *A Plank Tank from Nantwich* (MCNEIL, R. and ROBERTS, A.F., eds.), *Britannia*, 18, p. 211-296.
- TOMLINSON, P., 1991, *Vegetative Plant Remains from Waterlogged Deposits Identified at York*, in *New Light on Early Farming* (RENFREW, J.M., ed.), Edinburgh University Press, p. 109-119.
- UNDERDOWN, S., 1980, *The Plant Remains*, in *Excavations in Scale Lane/Lowgate 1974* (ARMSTRONG, P.), *East Riding Archaeologist*, p. 86-90.
- WILLCOX, G.H., 1977, *Exotic Plants from Roman Waterlogged Sites in London*, in *Journal of Archaeological Science*, 4, p. 269-282.
- WILLCOX, G.H., 1978, 2. *Seeds from the Late 2nd Century Pit F 28 (B 111 2a)*, p. 411-413, in *Southwark Excavations 1972-1974*, 2, X. (SLAEL, ed.), *London and Middlesex Archaeological Society and Surrey Archaeological Society*, 1, p. 411-413.
- WILLIAMS, D., 1977, *The Plant Macrofossils*, in *Excavations in Sewer Lane, Hull, 1974*, (ARMSTRONG, P.), *East Riding Archaeologist*, 3, p. 18-32.
- WILLIS, R., 1848, *Description of the Ancient Plan of the Monastery of St. Gall in the Ninth Century*, in *The Archaeological Journal*, 5, p. 85-117.
- WILSON, D.G. 1975, *Plant Foods and Poisons from Medieval Chester*, in *Goldsmith House Site, Goss Street, Chester, 1972* (WARD, T.), in *Journal Chester Archaeological Society*, 58, p. 53-67.
- ZEEPvat, R.J., 1991, *Roman Gardens in Britain*, in *Garden Archaeology* (BROWN, A.E., ed.) (Council for British Archaeology Research Report, 78), London, p. 53-59.