THE BEESTON-COYTE HORTUS BOTANICUS GIPPOVICENSIS AND ITS PRINTED CATALOGUE

by JOHN BLATCHLY *and* JENNY JAMES

TODAY'S COYTES GARDEN is a lane paved with setts which dog-legs from Friars Street to Princes Street in Ipswich. It crosses the site of an 18th-century physick garden from which specimens were sent to help the first professor of Botany start something similar at Cambridge. If Tom Martin had not recorded the arms and crest of Beeston and the inscription below[1] on a stone at the entrance in Queens Street, we might never have known that the garden was not always Coyte's:[2]

HORTVS BOTANICVS
GVL: BEESTON M.D.
MDCCXXI

For eleven years until Dr William Beeston's death at Bentley, aged seventy-one, in 1732 the garden was presumably known by his name, only becoming Coyte's Garden under the terms of his will:[3] 'I desire my nephew, William Coyte the younger, eldest son of the Revd William Coyte of East Bergholt to live in my now mansion house in Ipswich aforesaid and replenish and keep up the Garden with the same number of species and physick plants it is now planted with.' Coyte also fell heir to two Ipswich manors, St Peter's and Weyland (Stoke Hall in St Mary at Stoke), for collecting the quit rents of which printed forms (no doubt of John Bagnall's printing) were used by Edward Bond, Bailiff.[4]

Interest in botany in the family extended to the brother-in-law of the founder, the Revd William Coyte, who held the livings of Bergholt, Hintlesham, Wenham and Sproughton, and who married William Beeston's sister Frances. It was he who wrote the epitaph on John Ray the Essex naturalist for his churchyard monument at Black Notley (later moved inside the church there). William Beeston was mentioned in a letter of 1722 which was quoted in an article[5] without naming the writer or recipient: 'Dr Beeston of Ipswich has been in town at Fairchild's, Chelsea, Hampton Court and Eltham. He is very curious and knowing in Plants, has a fine collection of Exotics which he gives to the new garden at Cambridge.' The first professor of botany at Cambridge was Richard Bradley, who wrote of his hopes to establish a Botanic Garden in the Preface to his *Survey of the Ancient Husbandry and Gardening*, 1725. The first adequate garden site at Cambridge was not acquired until 1762. Beeston must have been helping Bradley stock a makeshift garden at the outset.

William Coyte the younger, born in 1708, unlike his uncle William Beeston and son William Beeston Coyte, was a Bachelor of Medicine rather than M.D. His uncle's bequest imposed a heavy burden. The description David Elisha Davy gives of him does not encourage the belief that he would bear it well:

> [He] was a man of abilities and considerable skill in his profession, but his manners were eccentric and his habits not particularly popular. He had a large share of wit and humour, but it was coarse and vulgar, and altho' I do not know that he ever published anything, his squibs, both in prose and in verse, appeared in the newspapers of the day, and some of them are still preserved in the memories of those who lived nearer to his time.[6]

At some stage, certainly before his death, as the garden is not mentioned in his will in 1775,[7] William Coyte handed over the property to his son William Beeston Coyte. This William was

born 4 January 1740/1, his mother Elizabeth was a Cobbald of Layham. Like his father, his uncle Beeston and his brother James, he was at Ipswich School; thence he proceeded to Queens' College in May 1758, matriculating the following Easter. He took his M.B. and was ordained deacon in 1763, becoming curate successively at Bramford, Yarmouth and Halesworth, where he officiated at every marriage between September 1765 and May 1766. He was already there when the settlement was drawn up for his marriage to Sarah, daughter of Capt. Robert and Mary Rowning of Ipswich in November 1764.[8] Perhaps at his wife's suggestion, he never took priest's orders; they returned to Ipswich later in 1766, to medicine and the maintenance of the garden. Davy says of him, 'though he practised as a physician, [he] did not obtain any great share of practice. W.B. Coyte took great delight in this garden, and during his life kept it in the highest order; since his death, however, it has been done away with'. His wife Sarah died, aged thirty-six, at Great Yarmouth in 1776, and three years later William married Hester Ewer whose father Samuel was a soap boiler of Bishopsgate Street, London.

In 1785 William Beeston Coyte wrote a paper (*Medical Transactions*, ii, 30) dealing with his own very empirical cure for epilepsy:

> A crown piece having slipped down the throat of the patient, aged 46 (placed in his mouth during a fit, to prevent his tongue from being bitten), it was brought up in vomiting, without any pain, after it had lain in his stomach from March 12th 1771 to November 26th 1772. He is now perfectly well, and has no return of his fits, though he had them from his infancy.

The Revd James Woodforde later met the patient who showed him the self-same crown piece as is told in the *Diary* for 5 April 1786.

The same year it was reported[9] that 'there is now in most elegant and fragrant bloom at Dr Coyte's the *Aletris Zeylanica*, which Linnaeus, in his *Species Plantarum*, says he never saw'. Venn, giving an uncharacteristically minute detail without citing any authority, has: [Coyte] 'discovered *Athamanta Libanotis* in the Chalkpit Close at Hinton' [near Blythburgh].[10] Coyte was elected an associate member of the new Linnean Society in 1788 and became an occasional correspondent of the founder, James Edward Smith.[11] From his letters we learn that he made summer expeditions that year to North Wales and in 1794 to South Wales and Cornwall collecting plants, of which he offered specimens to Banks, Sibthorp and Smith, and that when he became a Fellow of the society that year he was already proof-reading his Ipswich *Hortus*. Smith sent Coyte some Indian seeds.

Coyte had a fine library but a very modest bookplate – his arms[12] stuck above the name on a separate piece of paper (Fig. 89). An example has been recorded in what must have been his copy of Robert Morison's *Plantarum Umbelliferarum*, Oxonii 1672. His letters to Smith underline how he felt the dearth of like-minded enthusiasts in provincial Ipswich, particularly after the death of his colleague Nicholas Gwynn of Tacket Street. Reporting the loss of his friend, he

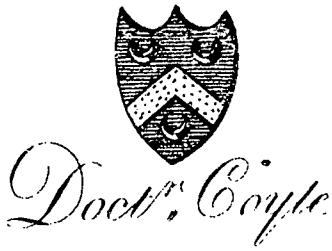

FIG. 89 – William Beeston Coyte's armorial spade shield bookplate.

pleaded with Smith to bring his wife to visit him and his wife in Ipswich. Perhaps joining the volunteers the same year provided a little diversion, but attendant risks: 'for I am now become a horse soldier in the ranks and know not how long my head may be on my shoulders'. Four years later he complained 'Alas I may as well live in a desert island *here* as to Botany by communication or friendly emulation'.

COYTE'S POEMS

Another fortuitous survival shows him to have been something of a poetaster: his manuscript collection of satirical poetry,[13] not a youthful work, contains some ten pieces, one of which hints at Davy's other record of him: 'Dr W.B. Coyte, for many years of his life, suffered greatly from the gout, and particularly in his latter days'. Many of his writings are rather melancholy, but he has a nice humorous style in others. The volume includes:

1. A Fragment of an Epic Poem sent to Dr Priestley on the Morning succeeding an Evening's Loss of a Game of Chess.[14]
2. An Epistle to John Wood Esq., Fidler and Dancing master at Ipswich. After a Fit of the Gout.[15]

The Gout, to All a sad Disaster,
But most, to you, a Dancing-Master,
Who cannot move, Who cannot go?
Or Trip it, with yr Gouty Toe?

But since a Remedy is known
For all things, save Death alone:
If the hard Ground yr tender Feet can't bear,
Stand on your Head, & lift 'em up in the Air.
And do the Minuet Step, & Rigadoon it there.

3. A Copy of Verses on *Something* – the 7th Satire of Juvenal.
4. On Chloe, Bathing.
5. Verses on the Death of Dr Coyte M.D. Written by Himself. *Lugubre Canamus.*
6. On Christ's Birth-Day and [translated] *In Christi natalem.*
7. Pope's *Messias* A Sacred Poem Translated into Latin verse.
8. A Copy of Verses Occasioned by Reading the following lines in the Title-Page of a Book called *Diseases of the Brain:*

The Health of Man, more on his Head depends
Than Child on Parents, or a Poor Man Friends.

The Head's the Realm, where Melancholy Reigns,
Troubling the Crimson River of the Veins,
Sad Source of future Ills; – imaginery Pains.

9. The *Ipswich Journal* 1766 Burlesqued.
10. [Prose] An Authentick Account of the Ancient Town of Bury St Edmund's.

One anecdote of Coyte in his old age was preserved by Thomas Green, author of the *Diary of a Lover of Literature*:[16] 'Old Dr Coyte, stumbling on his own door and Hazell [a lawyer] asking him why he did not mend his pavement, he exclaimed 'Paviat qui pavet' – a most felicitous

reply.'[17] It is most surprising that Coyte had the energy to work on an even bigger project than the *Hortus* in the last decade of his life. The first volume (of two) of his *Index Plantarum*,[18] appearing over a London imprint in 1807 contained only Classes I to XVI and ran to 447 pages. This was intended as his real *magnum opus*, but as it has no local interest, it need not concern us further. In a letter dated 5 January 1807 accompanying a presentation copy to his friend Smith, Coyte gave an undertaking which he failed to honour. 'Should I sojourn before you, my MSS & any Part of my Botanic Library shall be yours, if you have it not in your own: *so far settled.*' Smith wrote in the margin 'This proved, on enquiry after his death, to be altogether fallacious'.[19] Coyte did not live long enough to see the second volume through the press. His obituary was short: 'Saturday last [3 March 1810], after a long affliction, William Beeston Coyte, of this Town, M.D., F.L.S.' (*I.J.* 10 March 1810). His will exists in transcript[20] and includes a bequest to his daughter Hester Maria King of five shares in the Ipswich Universal Tontine. On 18 June following his books and plants were auctioned in a sale by John Sparrow: 'the truly valuable and extensive Library, Greenhouse and Hothouse Plants and Shrubs of Dr Coyte dec. at his late dwelling house, Queen's Street' (*I.J.*, 9 June 1810, p. 2 col. 5) and nothing was done with the site for at least fourteen years when another advertisement announced (*I.J.*, 10 May 1824, p. 3 col. 6) the 'Sale of mansion and Botanical garden by King and Garrod at the Bear and Crown. One acre 18 rods [1.1 acres] without the mansion and offices. Nearly 1000 feet of enclosing brick walls, three sides on street frontages'. This defines the outline on Pennington's map of 1778. On Robert Burcham Clamp's fine manuscript map[21] of St Nicholas parish made in 1827 it is shown as a blank area. Hester, Coyte's widow, died in her eighty-first year at West Wycombe on 21 July 1820, but Coyte and both his wives lie in the family vault at St Nicholas. William's funeral was conducted by his younger brother James, minister there from 1785 to 1812.

THE GARDEN

The garden, as we see from Pennington's wonderfully detailed engraved map of 1778 (Fig. 90), was approached by a narrow entrance widening into a tree lined path. The gate (with Beeston's stone announcing it) was half way between today's traffic lights and the Music Centre in Queen Street, and the path led westward past the house into the rectangular garden with its wide and winding paths and two small buildings. At the western boundary (Princes Street was then Thursbys Lane) there were, if we are to take Pennington literally, six large trees. There was a strip of land to the north of the main garden which could be interpreted as a nursery area with fourteen small beds and six more large trees. If we are to believe that Coyte was growing all of the plants he lists in the 1796 catalogue, space would have been needed for 2,000 species of hardy herbaceous plants and 120 species of hardy trees and shrubs. What is chiefly surprising therefore is that space is apparently wasted in the middle of the plot where the path widens to half the total width of the garden.

We can match the dimensions given in the sale particulars (*I.J.*, 10 May 1824, p.3 col. 6) with measurements and calculations from the map. The whole estate measured approximately 320 by 180 feet giving 51,200 square feet, the actual garden area to the west being 180 by 190 feet giving 34,200 square feet, which corresponds well with the one acre eighteen rods advertised for sale in 1824. The '1000 feet of enclosing brick wall' is somewhat less than the circumference of the whole site, but if we exclude the walls of the house and other buildings fronting onto Queen Street and Boat Lane, the wall mentioned must be the walls of the main walled garden and of the separate 'nursery' area to the north.

Study of the published catalogue *Hortus Botanicus Gippovicensis*[22] prompts us to examine the map for indications of both greenhouses and hothouses. If we assume that the more complex shaped buildings to the north of the Queen Street entrance are the 'mansion' house and

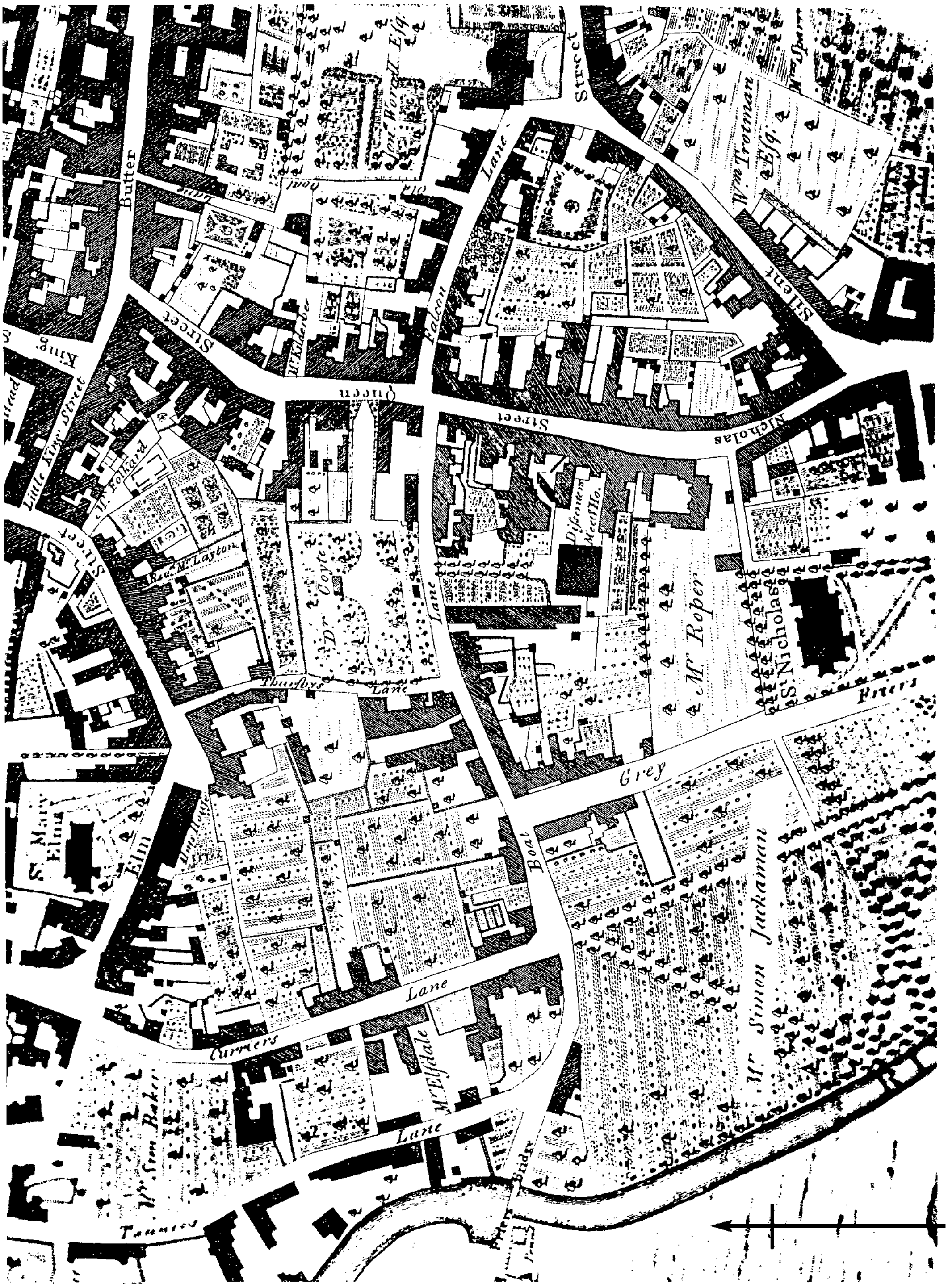

FIG. 90 – Detail from Joseph Pennington's engraved map of Ipswich, 1778, showing the situation of Coyte's garden.

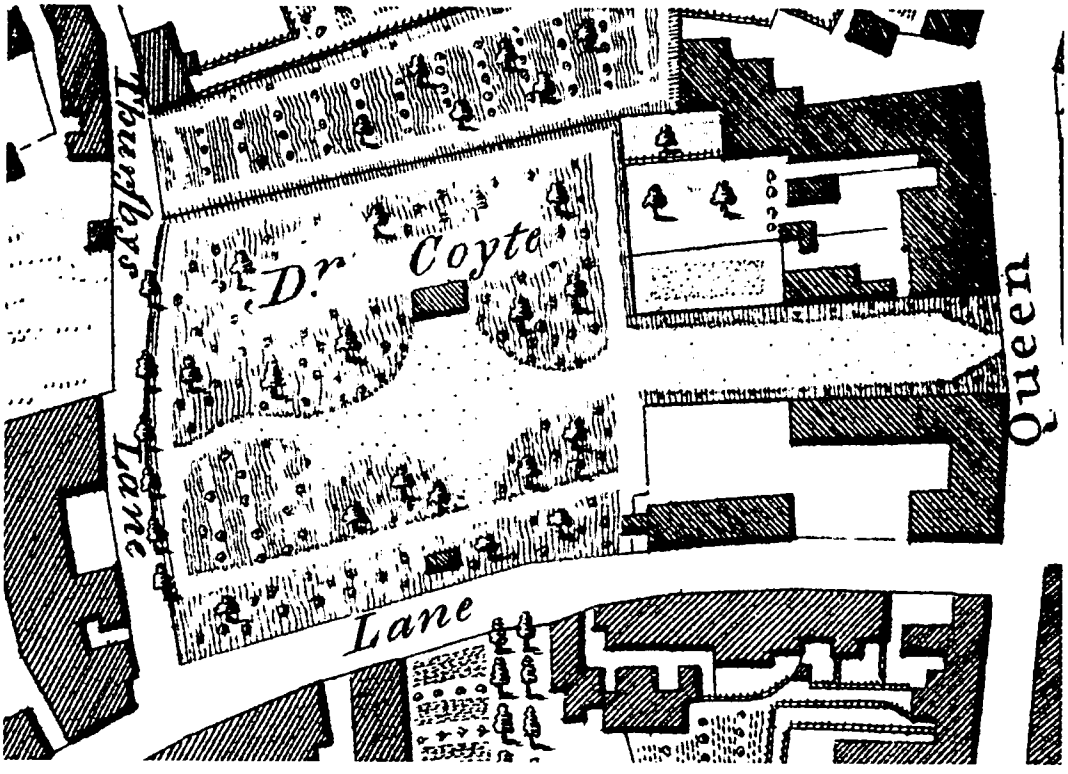

FIG. 91 – Detail from Pennington showing the layout of the garden.

domestic area including stables, etc., then the regular buildings to the south could be glasshouses with a small porch or stove house opening directly into the garden (Fig. 91). The area covered by the hatching can be estimated at approximately 2,400 square feet, ample capacity for the 627 non-hardy plant species listed, and it has sections facing south, west and north giving a range of aspects for the requirements of different plants.

The listing of a range of aquatic plants in the catalogue suggests that there would have at least been a garden pond, but there is none of the shading used elsewhere on the map by Pennington to show water (*cf.* the pond in Christ Church park).

THE CATALOGUE
HORTUS BOTANICUS GIPPOVICENSIS

Before 1794 Coyte began preparation of the work for which he is best remembered. The title page (Fig. 92) – with no author's name – precedes the half-title and is set in the characteristically modest-sized types favoured by George Jermyn, printer and bookseller in the Buttermarket, Ipswich. The tailpiece above the imprint has 'Ipswich:' in Black letter displayed on a wooded bank in the style Thomas Bewick had recently made popular. Coyte wasted little space in preliminaries. The reverse title has a signed Latin *salvete* which translates: 'Kind Reader, accept this work – accept in friendship – read it with a quiet mind – correct it kindly – Farewell.' A quotation from Seneca follows which translates 'Much work remains, much will remain'.

After explanations of the symbols and abbreviations used for British plants, Stove, Greenhouse, Hardy, Annual, Biennial, Perennial and Shrub, pages 3 to 140 are filled with lists of the

twenty-four classes of plant which were presumably grown in the garden. The only continuous prose comes at the end: three pages titled 'An Investigation of the Natural Produce of Some of the Grass Lands in High Suffolk' (*see* Field Experiments below).

Detailed study of the catalogue leads us to ask several questions. Was its purpose simply a physick garden, as established by his great uncle, with medicinal herbs for his own medical practice, and to supply other local practitioners? Was it a list of the plants that he actually was growing, in the year of listing, thus a sort of sale catalogue? Was it a summary list, of all the plants that had ever been grown in the garden since its establishment three-quarters of a century before? Was it a list, taken from contemporary floras, of plants that he might hope to grow? Did the garden have a domestic purpose also, supplying fruit, vegetables and decorative plants for the house and kitchens? What was the origin of the plants that he, his father and great uncle had grown?

A SURVEY OF NUMBERS OF PLANTS GROWN

Some insight may be gained from a survey of one family – *Liliaceae*. Coyte used Linnaeus's system of classification where the genera are grouped according to the numbers of stamens and styles. The members of the *Liliaceae* are found under *Hexandria* – six stamens, *Monogynia* – one style. This also includes genera which are now in families other than *Liliaceae*, e.g. *Narcissus, Amaryllis, Bromelia* (pineapple), *Tradescantia, Dracaena*, and *Yucca*. There are 200 genera and 2,500 species of *Liliaceae* now known in the wild world-wide. The Royal Horticultural Society Gardeners' *Encyclopedia of Plants and Flowers* (1989) gives eighty-five genera and a large number of species and varieties. Of the twenty-two genera and 112 species which Coyte mentions, fifty-five species are in the *Encyclopedia* under the same or similar names. Parallels can also be drawn with wild flowers: of the seventy species of wild European *Liliaceae* listed in *The Illustrated Flora of Britain and Northern Europe* by Blamey and Grey-Wilson, thirty-three are listed by Coyte. In addition Coyte lists only a selection of the plants named by Linnaeus in the 12th edition of his *Systematis Naturae* (1772). So it is clear that he is growing only a selection of the plants that might have been available.

PURPOSE OF THE CATALOGUE

Study of the uses of the plants listed might help us to understand the purpose of the catalogue. The list includes a remarkably wide range of useful plants from Britain, Europe and other parts of the world.

Culinary and medicinal herbs

Many of the plants listed are aromatic, originating in the wild in warm dry habitats. Their use for flavouring food dates back to classical times at least. Coyte's garden contained all those herbs still familiar in a modern kitchen garden, such as *Apium petroselinum* (now *Petroselinum crispum,* parsley), *Mentha piperita* (peppermint), *Salvia officinalis* (sage), *Rosmarinus officinalis* (rosemary), *Clinopodium vulgare* (basil), *Coriandrum sativum* (coriander), *Origanum sp.* (marjoram) and *Thymus sp.* (thyme), as well as some of the more exotic imported spices, *Myrtus pimenta* (allspice), *Amomum zingiber* (ginger) and *Piper polstachion* (pepper) all of which were in the hothouse. He lists twenty species of *Allium*, two of which, *A. ursinium* (wild garlic) and *A. vineale* (crow garlic), are British and could have been found wild locally; others, such as onion, chives, leek and shallot, are grown as hardy herbs or vegetables and are of foreign temperate origin.

Several of the culinary herbs already mentioned also have medicinal properties. A very wide range of interesting species is listed; extracts of many of these are still used in herbal remedies and some of them have been adapted for use as homeopathic remedies; some are toxic except in small quantities and others are illegal. As a doctor Coyte would have used a range of sources

for his medicines including his own physick garden. His range of plants includes *Strychnos nux-vomica* (poison nut), *Atropa belladonna* (deadly nightshade), *Digitalis purpurea* (foxglove) and *Cannabis sativa* (hemp), all toxic or illegal, but useful when used medicinally. Other herbs listed with traditional and modern uses include *Panax quinquefolium* (ginseng), *Arnica montana* (arnica), *Anthemis nobilis* (chamomile), *Calendula officinalis* (marigold), *Euphrasia officinalis* (eyebright), *Inula helenium* (elecampane) and many others. Interestingly, he lists six species of *Aletris*, two of which he calls 'Guinea and Ceylon Aloe'. He also lists twelve species of *Aloe*, but not *Aloe vera*, used now, and probably then, as a herbal remedy. In the account of his grassland investigation he comments on the uses of *Potentilla tormentilla* (tormentil) as being of 'considerable importance in rural economy and medicine' and gives details of the treatment of roots for leather tanning and the use of extracts as a 'strong and almost flavourless astringent'.

Vegetables

A wide range of native and introduced vegetable plants is listed. In the open garden, two species of *Asparagus*, *Lactuca sativa* (lettuce), *Raphanus sativus* (radish), *Cochlearia armoracia* (horse radish), *Spinacia oleracea* (spinach), several *Brassica* sp. (cabbage, turnip, and rape), *Solanum tuberosum* (potato), *Pastinaca sativa* (parsnip), *Daucus carota* (carrot), are among those listed. In the greenhouses, *Capsicum annuum*, (presumably the sweet pepper) and *Solanum melongena* (aubergine) are listed.

Trees, climbers and fruit trees

Correlating Coyte's plant list with Pennington's map allows us to imagine something of the appearance of the garden. There are thirty-one large trees marked on the plan and 129 smaller symbols which could be purely conventional signs, or could represent smaller fruit trees and shrubs. The plant list includes at least 120 species of hardy trees and shrubs, so if all the species are represented there could be only single specimens of most, but more than one of a select few. One could envisage that the pair of trees next to the house might be good specimen trees such as *Pinus cedrus* (cedar of Lebanon), *Juglans regia* (walnut) or *Fagus sylvatica* (beech). The trees on the boundary with Thursby's Lane might be *Tilia europaea* (lime) or *Platanus sp.* (plane). Other trees listed such as oak, willow, hazel, ash, sixteen species of rose and a range of conifers, could have been distributed through the different sections of the garden.

The wall would surely have been used to support plants, especially the sections facing south, east and west. The record includes five species of *Lonicera* (honeysuckle), eight species of *Clematis*, one hardy species of *Passiflora* (passion flower), two species of *Hedera* (ivy), one hardy species of *Jasminum*, and two species of *Vitis* (vine). In addition a wide range of fruit trees is listed, fig, apple, pear, almond, nectarine, cherry and apricot, some of which might have been trained as cordons or espaliers against the sunny walls as well as being distributed through the garden.

Cereals

His listing of cereals such as *Triticum aestivum* (wheat), *Avena sativa* (oats) and *Zea mays* (Indian corn or maize) could be linked with his field experiments on grasses, described later.

Attractive plants

Other species listed are exotic and highly attractive in appearance including the *Aletris zeylanica* 'in elegant and fragrant bloom' (*I.J.*, 16 July 1785). He lists eight species of *Lilium*, and many species of rose, orchid, chrysanthemum and pelargonium, most of which would be familiar to the modern gardener.

HORTUS BOTANICUS GIPPOVICENSIS;

OR,

A SYSTEMATICAL ENUMERATION OF THE

PLANTS

CULTIVATED IN

DR. COYTE'S BOTANIC GARDEN AT IPSWICH,

IN THE COUNTY OF SUFFOLK;

ALSO,

Their Eſſential Generic Characters—Engliſh Names—The Natives of Britain particularized—The Exotics where beſt preſerved, and their Duration;

WITH

OCCASIONAL BOTANICAL OBSERVATIONS.

TO WHICH IS ADDED,

AN INVESTIGATION OF THE NATURAL PRODUCE OF SOME GRASS-LANDS IN HIGH SUFFOLK.

PRINTED BY C. JERMYN, BOOKSELLER;

SOLD BY B. AND J. WHITE, FLEET-STREET; J. AND F. RIVINGTON, ST. PAUL'S CHURCH-YARD; AND J. EDWARDS, PALL-MALL, LONDON.

M DCC XCVI.

FIG. 92 – Title page of *Hortus Botanicus Gippovicensis,* 1796.

TYPES OF HABITATS

From the range of species listed it is possible to speculate as to the range of habitats that Coyte would need to have provided, if indeed he was actually growing the plants listed.

There are a large number of water plants ranging from bog plants growing at pond and river margins such as *Mentha aquatica* (water mint) and *Veronica beccabunga* (brooklime), to plants with floating leaves such as the water lilies *Nymphaea alba* and *N. lutea* and the water crowfoots *Ranunculus aquatilis* and *R. hederaceus*. An area of fresh water, which would have been essential for these plants, cannot be identified with certainty on Pennington's 1778 map of the garden, but could have been constructed by 1796. In addition a suitable acidic boggy area would have been needed for the three species of hardy insectivorous plants, *Drosera rotundifolia* and *D. longifolia* (sundew) and *Pinguicula vulgaris* (butterwort).

Although the soil in the garden would probably be alluvial given its proximity to the River Gipping, it would not have been too difficult to create the alkaline soil needed on the one hand by the calcareous *Clematis vitalba* (traveller's joy) and *Poterium sanguisorba* (salad burnet) and on the other by the acid requiring *Erica* (heather) of which he lists twenty-four species, some hardy and others needing the greenhouse.

It is more difficult to envisage the provision of the tidal salt marsh and rocky sea shore conditions that would have been required by the eight species of the seaweed *Fucus* (e.g. bladder wrack) and the two species of *Ulva* (laver bread) and the *Salicornia fruticosa* (samphire) which he lists. Other plants which would have required conditions which would need to be carefully maintained are the saprophytic Fungi where among others he lists seven species of *Agaricus* and three species of *Boletus,* the forty-nine species of moss, and the ten species of liverwort. Additionally, club mosses, of which he lists several genera including eight species of *Lycopodium,* have a limited habitat range of damp, acid conditions at altitude, difficult to reproduce in flat, dry East Anglia.

The semi-hardy and non-hardy plants of tropical and subtropical origin which he lists are clearly catered for, as for each one Coyte lists G for greenhouse and S for stove presumably implying a hothouse. We must assume that he used these as we do, the greenhouse for semi-hardy plants such as *Agapanthus umbellatus* (African blue lily) which could be grown there throughout the year, or moved in for frost protection in the winter months. The hothouse would probably contain permanently growing tropical plants such as the *Aloe* species, *Bromelia ananas* (pineapple), *Amomum sp.* (ginger) and succulents including several species of the genera *Agave, Stapelia,* and *Crassula*. He lists 308 species as requiring greenhouse conditions and 319 for the heated greenhouse. These range in size from the sixty species of trees and shrubs such as *Olea sp.* (olive), *Piper sp.* (pepper), *Arundo bambos* (bamboo), *Mangifera indica* (mango), *Hibiscus sp., Ficus* (fig,) and *Mimosa sp.*, to small herbs such as non-hardy species of *Origanum*. The possible glasshouse area mentioned earlier would have been able to cope with several specimens of a selection of the species represented.

THE ORIGINS OF THE PLANTS

The 18th century was a time of a huge surge of interest in plants, their collection at home and abroad, their classification and cultivation. The tradition of the physick garden of herbalists such as Nicholas Culpepper (1616–54) grew into a much broader interest in Botany. The foreign travels of botanists such as Joseph Banks with Captain Cook (1768–71), gave access to a wealth of new and exotic species. Scientific studies of plant and flower structure started in England by the Essex botanist John Ray (1627–1705), known to the Revd William Coyte, culminated in Linnaeus's system of classification in *Systema Naturae* published in successive editions between 1735 and his death in 1778.

It is not surprising therefore that Dr William Beeston was himself also apparently collecting a wider range of plants than those needed for the physic garden. It was reported[5] that Dr

Beeston of Ipswich had visited, among other places in 'town', 'Fairchilds [and] Chelsea', in 1722. Thomas Fairchild was a well known nurseryman and florist with his City Gardens at Hoxton, in North London. He may well have been supplying Dr Beeston with plants and in addition his scientific approach to plant breeding and classification may have played a part in a Beeston family tradition of recording and enquiry, culminating in production of the *Hortus Botanicus* by William Beeston Coyte. The reference to Chelsea could be to Newhall's coffee house, the venue for meetings of a society of gardeners residing in London, to which Fairchild belonged. The same letter tells us that Beeston is himself passing on 'exotics to the new garden at Cambridge'. Coyte wrote to J.E. Smith[11] at the Linnean Society in March 1789: 'I am eagerly pursuing my inclination for a large collection and every requisition gives me much pleasure'.

Further information about plant enthusiasts comes from Richard Hammond of Coddenham in 1733 who recorded a list of eighty-four varieties of carnation. There are records of Florists' Feasts for carnations (and other types of flowers) in and around Ipswich between 1720 and 1745 and indeed one in Coddenham in 1734, where specimens could have changed hands (Blatchly 1995). It is evident therefore that plant specimens changed hands through plant lists and personal contacts as they do now.

Coyte's letters to J.E. Smith from 1788 onwards tell us of his receipt of seeds of *Scorzonera hispanica* (viper's grass) from Mrs Hasell, wife of an eminent Ipswich lawyer, and of plants from B[otany] Bay, presumably from Joseph Banks whom he frequently mentions in his letters to Smith. He records that he also exchanged plants and seeds with Smith and Sowerby, as well as two local people, Dr Gwynn and Nathaniel Lee Acton of Bramford Hall.

But Coyte also obtained specimens from the wild in Suffolk. Again in 1788 he told Smith that he had been searching local woods. He could have collected the exotic snakes head fritillary (*Fritillaria meleagris*) listed by Simpson (1982) from a number of local sites, as well as other plants which still grow in a few Suffolk locations such as *Convollaria majalis* (lily of the valley), *Convollaria* (now *Polygonatum*) *multiflorum* (Solomon's seal), *Ornithogallum umbellatum* (star of Bethlehem), *Hyacinthus* (now *Endymion* or *Scilla*) *non-scripta* (bluebell) and *Colchicum autumnale* (meadow saffron). Coyte also wrote about a visit to North Wales with Dr Gwynn, where they collected several species of Saxifrage including *Saxifraga nivalis* (Arctic saxifrage) and to Glamorgan and Land's End where he found a range of plants which he later lists in his *Hortus* such as *Asplenium marinum* (sea maidenhair). One which he found but did not list, *Pinguicula villosa* (villous butterwort) is of interest as today it is only found in Scandinavia, another example, perhaps, of his optimistic identification.

DID COYTE GROW ALL OF THESE PLANTS?

Although there appears to have been space in the one-acre garden and glasshouses for the number of plants which Coyte lists, it is unlikely that he grew all of them, due to limitations of habitat. It is difficult to envisage the provision of the estuarine and seashore conditions needed for the seaweeds and salt marsh plants. Similar reservations could apply to the club mosses. Although a pond cannot be identified on the map, it would have been a common feature in many gardens, easily constructed, and it would be surprising if he were not growing many of the aquatic plants listed.

However, it has been common practice at least since the time of Linnaeus to preserve pressed and dried plant specimens. Indeed some of Linnaeus's specimens can be seen at the Linnean Society in London. We might speculate that the seaweeds, for example, could have been part of a separate herbarium collection and therefore deemed by Coyte to be legitimately included in his catalogue.

We should be cautious before casting doubt on the accuracy of Coyte's work on plants in general, but there is clear ambiguity about the identification of the specimen of *Athamanta*

libanotis (spignel) which he is reported to have found at Hinton.[9] In both the Latin name and the habitat he is in conflict with modern floras and with his local predecessor, John Ray.

FIELD EXPERIMENTS

In September 1795 Coyte reported on some experiments that he had carried out with plats (turf), from Tannington Green in High Suffolk, which he grew in his garden, observing the sequence of emergence of grasses and other herbaceous plants during April and May. He wished to analyse the content of the grass feed on dairy farms in relation to the quality of butter produced. He lists twelve species of grass, one rush, one sedge and eleven species of broad leaf plants. This represents the range of variation that we might expect in a stretch of unimproved grassland today, such as is found only in a few conservation areas in Suffolk but remains more widely in hay meadows in upland areas in Wales, Cumbria, Yorkshire and Scotland. He comments on the species of grass and recommends many which are now selectively sown, such as *Lolium perenne* (rye grass) for improved grassland, *Alopecurus pratensis* (meadow foxtail) for damp meadows, three species of *Poa* (meadow grass), and *Anthoxanthum odoratum* (sweet vernal grass) for hay meadows. He also suggests that some of the broad leaf plants such as buttercup might be a nuisance as 'cattle will not readily eat it', that 'butter made in the spring receives an unpleasant taste from it', and that it 'should be rooted out as much as possible'. It is not surprising however that he strongly recommends Dutch clover as 'one of our most valuable British plants' and another legume, bird's foot trefoil, both as valuable cattle feed. He does not mention their role in crop rotation as natural fertilisers. He is surprisingly enthusiastic about the common dandelion as a component of fodder grass: 'a mild cool lenient diuretic has often removed diseases of cattle, much better and much safer than the medicines we have from the farrier'. He gives data for his survey as a 'Proportionate Table'. We could speculate that this would be based on numbers of individual plants rather than the more modern approach of percentage cover of a species. The commonest species is *Poa annua* (Suffolk annual poa) at 50/231 – 21%, closely followed by *Bellis perennis* (daisy) at 40/231 – 17.3%. The grasses, rush and sedge total 133/231 – 57.5%, leaving 42.5% of broad leaf herbaceous plants or 'weeds'. Proportions such as this would not be thought economical in terms of modern farming methods.

IN CONCLUSION

Coyte's fascinating printed list probably represents a classified catalogue of the plants which Coyte and his antecedents grew. If he has embellished the truth or made a few mistakes, this should not detract from a remarkable record of plant cultivation in 18th-century Ipswich.

ACKNOWLEDGEMENTS

The authors are grateful to Tony Copsey for making the *Hortus* available for study by reprinting it in a small facsimile edition in 1978, to Robert Malster for permission to photograph his copy of Pennington's map, 1778, and to Gina Douglas, librarian at the Linnean Society for allowing us to read Coyte's letters to Smith.

NOTES

1 Argent a bend between six bees volant Sable. Crest a hand holding a sword point upwards.
2 B.L., Stowe MS 881, f.51v.

3 Will, S.R.O.I., IC/AA1/161/98.
4 S.R.O.I., C/5/1/3/2/15, vouchers, Osmond's Charity.
5 'Worthies of Ipswich No. 26' by 'Rambler' [H.R. Lingwood] in *E.A.D.T.* for 1 Aug. 1934.
6 D.E. Davy's Suffolk Authors of the 18th century, B.L., Add. MS 19166, f. 73. In Poems by various Suffolk authors, B.L., Add. MS 19202, at ff. 108–116, Davy gathered 'Coytiana. Poems by William Coyte, M.D.', the work, always eccentric and sometimes vulgar, of WBC's father William, M.B. 'On an accident which befell Mr John Kirby' (author of the 1735 *Suffolk Traveller*) makes puns on the word 'interred'. The 'Epitaph on John Fosdike my Gardener' names one of those who worked in the garden, a member of the Tacket Street Independent Chapel congregation.
7 Will, S.R.O.I., IC/AA1/195/59.
8 Turner Collection, S.R.O.I., HA 45/2/50.
9 *I.J.*, 16 Jul. 1785. *Aletris zeylanica*, the Ceylon Aloe, was presumably blooming in the heated greenhouse. According to his *Hortus*, he grew six species of Aletris, two in a non-heated greenhouse and the others including *A. zeylanica* in one heated by a stove. He lists twelve species of the related genus *Aloe*, all of which were grown in the heated greenhouse, but interestingly does not include *Aloe vera* used now and probably then as a herbal remedy. All of these plants are tropical or subtropical in origin and in the attractive family, Liliaceae. It is possible that he was growing them for their exotic appearance and strongly perfumed flowers.
10 Coyte lists two *Athamanta* species for his garden, *A. libanotis* (Spignel) and *A. oreoselinum* (Mountain Spignel), he gives both as hardy native British plants. Venn's record of Coyte's claim to have found Spignel at Hinton is difficult to explain. John Ray (1670), with whose work Coyte should have been familiar, cites Spignel as *Meum vulgatis* in his *Catalogus Plantarum* and records sightings in Westmoreland and Merioneth. There is no record of Spignel in Simpson (1982) and in modern British Floras e.g. Blamey and Grey-Wilson (1989); the only Athamanta listed is *Athamanta cretensis* which is confined to the mountains of S. and C. Europe. However this species is said to be easily confused with the strongly aromatic *Meum athamanticum* (Spignel). This plant is, as Ray's observations indicate, confined to calcareous rough grassland, rocks and scree in the mountains of Wales, Scotland and northern England. It is just possible that Coyte did find this lime loving plant in one of the chalk pits which are still visible near Hinton Lodge. A recent visit failed to find the plant in the pit marked on OS Map Pathfinder 966 (444730).
11 Fifteen letters from Coyte to Smith listed in Dawson 1934, 27.
12 Azure a chevron Or between three crescents Argent.
13 S.R.O.I., HD 491/1.
14 The English discoverer of oxygen was no stranger to Suffolk, for in 1755 he succeeded John Meadows as minister to the Presbyterian church in Needham Market.
15 John Wood was the second of the name and following; his father (1718–1783) was of Gainsborough's Ipswich circle.
16 This anecdote does not appear in the published *Diary*, but is quoted in the article cited at note 5.
17 Let the fearful pave.
18 *Index Plantarum*, or, an alphabetical arrangement of all the genera and species of plants hitherto described . . . (J.White) 1807, p. iv +447.
19 Letter tipped into Smith's copy of Coyte's *Index Plantarum*, Vol. 1, now in the Linnean Society library.
20 Will made 13 June 1808 and proved 25 May 1810. Transcript in S.R.O.I., HA 45/3/11.
21 St Nicholas parish records, S.R.O.I., FB 94/A2/6.
22 Of Coyte's rare *Hortus* there are copies in S.R.O.I. and the library of the Linnean Society. A facsimile in a limited edition was privately printed in 1987.

REFERENCES

Blamey, M. and Grey-Wilson, C., 1989. *The Illustrated Flora of Britain and Northern Europe*. London.
Blatchly, J., 1995. 'Richard Hammond of Coddenham: Florist and Philosopher', *Proc. Suffolk Inst. Archeol.*, XXXVIII, 303–16.
Brickel, C. (ed.), 1989. *The Royal Horticultural Society Gardeners' Encyclopedia*. London.
Coyte, W.B., 1796. *Hortus Botanicus Gippovicensis*. Ipswich.
Dawson, N.R. (ed.), 1934. *Smith Papers*. London.
Hamilton, E., 1852 (Facsimile edition, 1981). *The Flora Homoeopathica*. London.
Hoffmann, D., 1992. *The New Holistic Herbal*. London.

Linnaeus, C.V., 1772. *Nomenclator Botanicus enumerans. Plantas Omnes in Systematis Naturae,* 12th edn. Stockholm.
Nordenskiold, E., 1928. *The History of Biology.* Stockholm.
Ray, J., 1670. *Catalogus plantarum Angliae.* London.
Simpson, F.W., 1982. *Simpson's Flora of Suffolk.* Ipswich.

Abbreviations

I.J.	*Ipswich Journal.*
S.R.O.I.	Suffolk Record Office, Ipswich Branch.