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AUTHORS: Penelope Walker & Eva Crane

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CORRECTIONS P.234 para. 1: (1580) should be on the line below, after book title.

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PENELOPE WALKER AND EVA CRANE

THE HISTORY OF BEEKEEPING IN ENGLISH GARDENS

Gardens have always been a preferred place for keeping hives of bees, and the paper quotes descriptions of this practice written in England from the sixteenth century. In wet and windy regions, some beekeepers built special structures in stone, brick or cob (lean-to shelters, bee houses or recesses in walls) to provide extra protection for the straw skeps used. Some 870 structures of the twelfth to nineteenth centuries have been recorded in England, about eighty percent of which were in a garden or orchard. The number of hives kept by households of different social classes is discussed, as is the use of hives as an ornament in the garden. Nearly seventy plants that seventeenth-century English authors regarded as important for bees are given, and a list of sites in England with a wall with recesses or another structure for sheltering hives.

BEEKEEPING METHODS AND THE HIVES USED

Beekeeping in England changed rather little until the late nineteenth century when modern movable-frame hives were introduced. This paper deals with beekeeping from the twelfth to nineteenth centuries.

In England and the rest of Europe, the honeybee kept in hives is *Apis mellifera* L. The bees collect nectar and pollen from flowers. Nectar usually contains ten-to-forty percent of sugars, which provide energy, and pollen is the source of protein for rearing young bees. The bees convert surplus nectar into honey with such a high sugar content (around eighty percent) that it can be stored safely in the hive without fermentation.

Thus, the life pattern of a colony of bees is dependent on the flowers within its flight range, and most of the foraging is likely to be done within 3 kilometres of the hive. The closer the flowers are, the less flight energy the bees expend in reaching them, and bees kept in a garden benefit by finding some flowers in bloom near the hive during most of the year. Nevertheless, beekeepers get the bulk of their honey from nectar the bees have collected from plants in bloom over a large area: a heather moor, nowadays a field of rape, or in earlier times white clover in pastures. Trees in bloom can be prolific honey sources since each produces a large number of flowers per unit area of land; examples of such trees in England include hawthorn, sycamore and limes. Nectar and pollen from the flowers of fruit trees in spring are valuable to the colony, which needs them for brood rearing, but the nectar is not usually a source of stored honey for the beekeeper.

Honeybees may also forage on honeydew, a sweet excretion of aphids that pierce plant stems or leaves to reach the sap. In addition, bees sometimes collect sticky propolis

Woodside House, Woodside Hill, Gerrards Cross, Buckinghamshire SL9 9TB, UK.

Figure 1. The last known wicker skeps in England in the 1880s, at Upton Mill in north Herefordshire. A straw hackle once covered each skep, but the right-hand one had largely disintegrated, revealing the weaving of the skep. Photo: Alfred Watkins, no. 1654, Herefordshire Library and Information Services.

produced by certain plants and use it with beeswax for minor building work in the nest or hive such as sealing cracks.

In the ancient world — and until the eighteenth century — it was commonly believed that honey had a heavenly origin. In 1609, the Revd Charles Butler explained it thus in his beekeeping book:

> the greatest plentie of the purest *nectar* commeth from above: which almightie God doth miraculously destill out of the aire . . . the very quintessence of all the sweetnesse of the earth . . . drawne up, . . . and condensated by the nightly cold into this most sweete and soveraigne *nectar*: and then doth it descend unto the earth in a dew or smale drizling raine.[1]

The first person to state that nectar was secreted by flower nectaries was probably S. Vaillant in France in 1717; he called these structures *mielliers*.[2]

A hive is a substitute for the bees' natural nest space such as a tree cavity, which shelters the colony from the weather and has a flight entrance small enough for the bees to protect against their enemies. In Western Europe, early hives were skeps — baskets inverted on to a flat surface — made first of woven wicker and later of coiled straw (Figures 1, 2 and 11). Modern hives were introduced in England in 1860, but in a few places wicker skeps were used until the late 1880s, and straw skeps even after 1950.

English skep beekeepers practised 'swarm beekeeping', and swarms were watched for and captured. Each swarm was then hived in an empty skep where it might develop into a honey-producing colony. A beekeeper with four stock hives in the spring might have up to twelve hives of bees after the swarming season in May or June. At the end of

Figure 2. Carl August Grossmann, engraving of a coiled-straw skep and bees in association with flowers and garden tools, *c.*1770; from *Sammlung K. A. Forster: Die Biene* (Küsnacht-Zurich: K. A. Forster, 1975), pl. 32.

summer the bees in the heaviest skeps (i.e. those containing the most honey) were killed, and all the honey was harvested. The same was done with the lightest skeps because they would have insufficient honey to keep the colony alive over the winter. The medium-weight skeps were overwintered, all the honey in them being left for the colonies, and the colonies served as stock for the next year.

THE GARDEN AS A PLACE FOR HIVES OF BEES

The interaction between beekeeping and gardening dates at least from Roman times. According to Virgil (70–19 BC), 'the bees are to be in a shady corner out of the wind, where sheep, goats and cattle cannot penetrate. . . . Yet water is present, and in it are stones and wood to help the bees to dry themselves'.[3] H. Malcolm Fraser commented, 'One place, and one place only, can be meant — the bees' own corner of the house garden'.[4]

Early English authors copied from Roman writings and added their own practical experience. The first printed English book to mention beekeeping was probably John Fitzherbert's *Book of Husbandry* (1523).[5] In the 1534 edition, the section on bees states early on, 'It is convenient, that the hyve be set in a garden, or an orchyarde, where as they

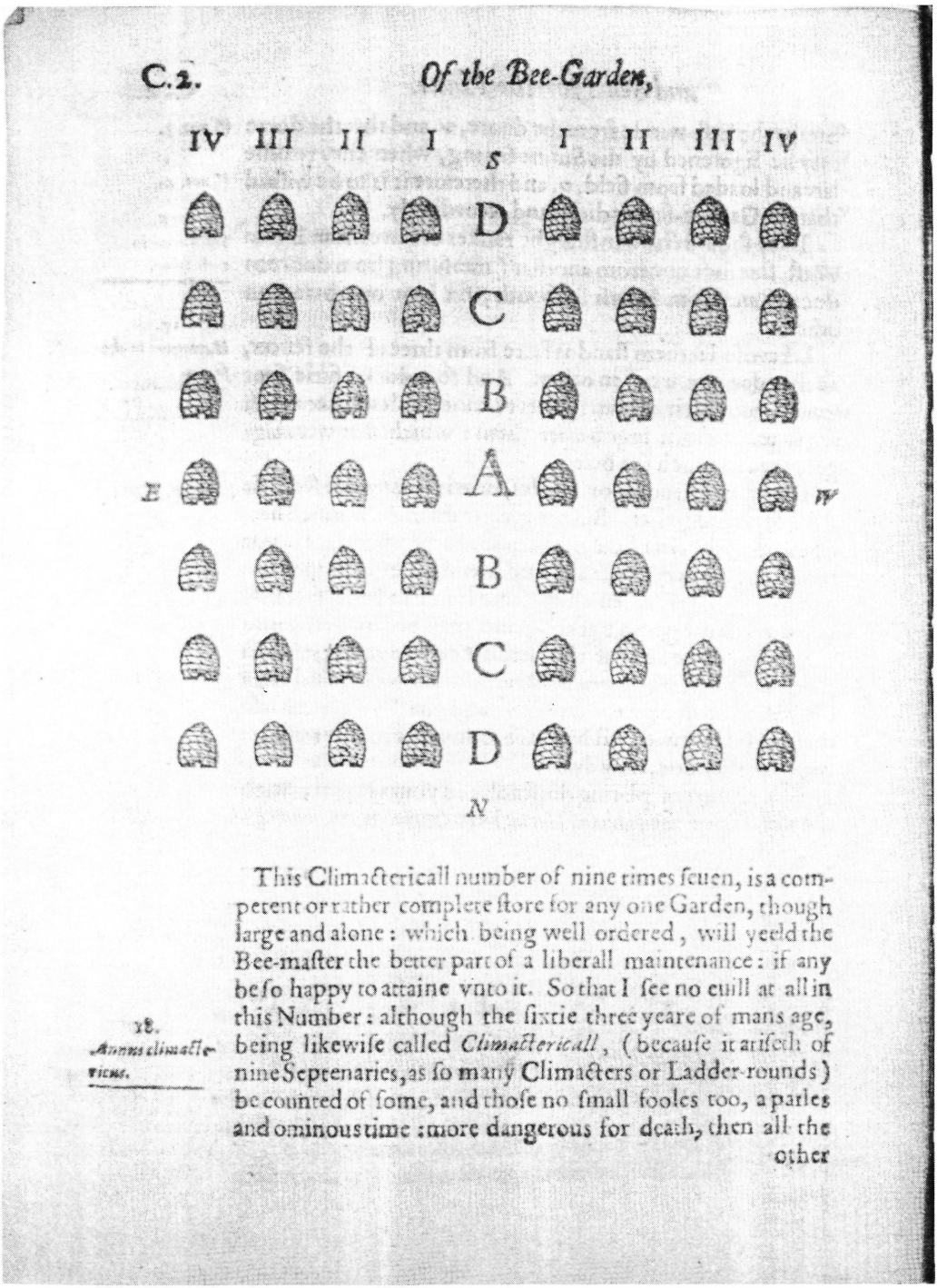
maye be kepte from the north wynde, and the mouth of the hyve towarde the sonne'. Thomas Hill's *A Profitable Instruction of the Perfect Ordering of Bees* (1568) included a chapter on 'Where the hives of Bees ought especially to be placed' that contained advice given by several Roman writers.[6] For example, 'Palladius . . . teacheth, that the fittest place for bees, is that which is in a Garden' near the house, sheltered from winds and inaccessible to thieves and farm animals, and Varro wrote similarly. Also, 'Virgil willeth bushy trees to be planted and stand right before their hives', including trees, which 'giveth out much hony' and 'plants and hearbes to grow neare hand, as the Rosemary (1580), . . . the Violets . . .'. Thomas Tusser's *Five Hundred Poiñtes of Good Husbandrie*, written in verse, included the following: 'Set hive on a plank, (not too low by the ground)/ where herbe with flowers may compas it round'.[7]

Butler wrote the most important English book on skep beekeeping, namely *The Feminine Monarchie, or a Treatise Concerning Bees and the Due Ordering of Them* (Oxford, 1609). In Chapter 2 he recommended that, in addition to flowers, the garden should be 'conveniently beset with trees & bushes fit to receive the swarmes, as plumtrees, cheritrees, apletrees, filberds, hazels, thornes, roses, &c.' Butler was insistent that hives should be 'nigh your home, that the Bees may be in sight & hearing; because of swarming, fighting, or other sodaine happe, wherein they may need your presente helpe'.[8] This probably applied only where the curtilage was small. Where it was larger, the part nearest the house was often a pleasure garden, with a vegetable garden and an orchard further away. Evidence presented here shows that hives might be placed in any of these areas, and perhaps bees in hives out of sight of the house were watched over by gardeners. Butler said, 'While the stalls [hives] are few, your Garden of Hearbs and Flowers will serve. . . . But when they are growne to a sufficient number, they require a square greene plot fitted for the purpose'.[9] He proposed the '. . . Climactericall number of nine times seuen [seven]' hives, although his illustration shows only fifty-six (Figure 3).

From the late sixteenth century, some English authors assumed that country*women* would care for both the garden and the bees. In 1580, Tusser addressed his beekeeping instructions to 'good conie', 'conie' being then a term of endearment for a woman.[10] In 1623, William Lawson's *The Country Housewifes Garden* included a chapter on 'The Husbandry of Bees', in which he said: 'I will not account her any of my good Housewives, that wanteth either Bees or skilfulnesse about them. . . . You must have an house made along, a sure dry wall in your Garden, neere, or in your Orchard: for Bees love Flowers and wood with their hearts' (Figure 7).[11] John Levett's *The Ordering of Bees* . . . (1634) also regarded women as the usual country beekeepers;[12] and the frontispiece to Nathaniel Bailey's *Dictionarium Domesticum* (1736) showed a farmer's wife 'furnishing the house with the most common necessaries of life' (Figure 4) — her skeps are just outside the kitchen door, but no garden plants are visible.

John Worlidge's *Systema Agriculturæ* . . . (1669) contained monthly hints for the beekeeper.[13] Its frontispiece shows the layout of a gentleman's 'Rustick Seat' with 'hard by the House, you see/ The *Apiary* for th'industrious *Bee*' (Figure 5). This is a square plot in which fifteen hives are visible. Plants recommended for bees by Butler, Worlidge and Richard Remnant, *A Discourse or Historie of Bees* . . . (1637), are listed in Appendix A, and are also discussed below.

John Gedde's *A New Discovery of an Excellent Method of Bee-houses and Colonies* . . . (1675), 'approved by the Royal Society' in London, described his 'new discovery' (a method of keeping bees), but his only statement relevant to gardens was, 'Of all your


C. 2. *Of the Bee-Garden,*

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This Climacterical number of nine times ſeuen, is a competent or rather complete ſtore for any one Garden, though large and alone: which being well ordered, will yeeld the Bee-maſter the better part of a liberall maintenance: if any be ſo happy to attaine vnto it. So that I ſee no euill at all in this Number: although the ſixtie three yeare of mans age, being likewiſe called *Climacterical*, (becauſe it ariſeth of nine Septenaries, as ſo many Climacters or Ladder-rounds) be counted of ſome, and thoſe no ſmall fooles too, a parles and ominous time: more dangerous for death, then all the other

63. *Annus climacte-ricus.*

Figure 3. Arrangement of a large number of hives; from Charles Butler, *The Feminine Monarchie, or a Treatise Concerning Bees and the Due Ordering of Them* (London, 1623 edn), ch. 2 ('Of the Bee-Garden').

Figure 4. Nathaniel Bailey, *Dictionarium Domesticum* (London: Hitch, Davies & Austen, 1736), frontispiece.

Gardens, Commons, and Inclosures, that which you would bestow most pains upon, in Planting and Hedging, is the fittest place for building of your Bee-House [hive] in, for Bees get their most Profitable Food of Trees'.[14] Books published in the eighteenth and early nineteenth centuries said less about the garden in relation to bees, possibly because different new hives and methods of keeping bees were then of more interest.[15] In 1860, the first hive to embody the principle of Lorenzo Lorraine Langstroth's 1851 movable frames was introduced in England by T. W. Woodbury in Devon,[16] and thus modern beekeeping

Figure 5. J[ohn] W[orlidge], *Systema Agriculturæ . . .* (London: S. Speed, 1669), frontispiece, with hives in a small enclosure adjacent to the gardens (bottom right).

began. Figure 6 shows a cottage garden in 1886 with an early movable-frame hive as well as three straw skeps in a wooden shelter. The new type of hive enabled larger colonies to be developed that could give increased honey yields, so the availability of nectar-producing plants became even more important.

HIVE STANDS AND STRUCTURES FOR PROTECTING HIVES

Most skeps were kept in the open. They might be protected from rain by a straw hackle (Figure 1) or, for instance, by a discarded cream pan. Skeps were raised off the ground on individual wooden or stone stands, or several might be put on a wooden bench (Figure 4). Butler referred to the stand as a 'stoole':

Figure 6. 'The Cottager and his Bees'; from F. G. Jenyns, *A Book about Bees . . .* (London: Wells, Gardner, Darton & Co., 1886), 46.

> The single stooles . . . are best. And yet it is not amisse to set most of your swarmes upon benches. . . . I preferre single stooles set two foot apart, though they bee laid flat on the ground: but it is better to reare them with foure legges, though little and short. If they be twelve or thirteene inches, three or foure inches may bee forced into the ground for their surer standing. The best stooles are wood: those of stone are too hot in hot weather, and (which is worse) too cold in cold.[17]

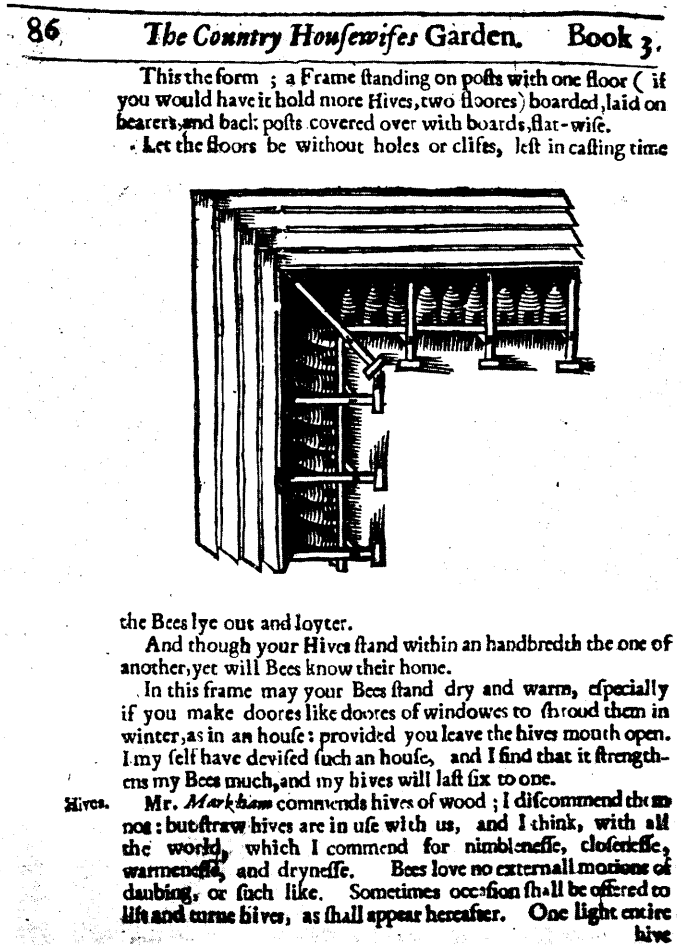
The 1718 will of a Hampshire yeoman mentioned 'a stock of bees, beehives and stools or checks belonging to the same'.[18] Also, it is recorded that beehives were placed on individual stone stands in a large ground-level alcove in a garden wall in Mickleton, Co. Durham, and that, *c.*1800, the owner paid tithes in 'bee swarms'.[19]

The stand was usually circular, sometimes with a projecting lip as an alighting area for the bees, and it rested on a central stone support or three or four 'legs'. Some of these stone stands, with or without supports, have been found in gardens, including several in Cumbria.[20] In 1953, there were still skeps on specially cut stone bases at Bee Stones Farm, Farndale, North Yorkshire. But wooden skep stands were often preferred, for Butler's reason quoted above, and wooden skep bases have been found in some of the wall recesses for hives, as discussed below (Figure 11).

Some beekeepers, especially in certain parts of the country, built a structure to protect their skeps from the weather: a bee shelter, or a wall with recesses (bee boles), or a bee house. Lawson wrote: 'Some (as that Honourable Lady at Hacknes, . . .) use to make seats for them in the Stone-wall of their Orchard, or Garden, which is good, but wood is better'.[21]

Since 1952, the International Bee Research Association has maintained a Register of surviving structures.[22] More structures have been found in England than elsewhere, and over 550 were recorded by 1981.[23] By December 1999 this number had increased to some 870, about eighty percent of which were in a garden or orchard. (For all the sites, see Appendix B.) Smaller numbers have been found in Wales, Scotland, Ireland and France.

Protective structures for hives are most common in Cumbria and Lancashire, Yorkshire, Devon and Cornwall, and north Kent. In these areas, beekeepers could get a honey harvest if the bees were kept alive by protecting the hives from rain and strong, cold winds. Hives were usually kept in the open in more benign areas, and bees would be



86 *The Country Housewifes* Garden. Book 3.

This the form ; a Frame ſtanding on poſts with one floor (if you would have it hold more Hives, two floores) boarded, laid on bearers, and back poſts covered over with boards, flat-wiſe.

Let the floors be without holes or cliſes, leſt in caſting time the Bees lye out and loyter.

And though your Hives ſtand within an handbredth the one of another, yet will Bees know their home.

In this frame may your Bees ſtand dry and warm, eſpecially if you make doores like doores of windowes to ſhroud them in winter, as in an houſe: provided you leave the hives mouth open. I my ſelf have deviſed ſuch an houſe, and I find that it ſtrengthens my Bees much, and my hives will laſt ſix to one.

Hives. Mr. *Markham* commends hives of wood ; I diſcommend them not: but ſtraw hives are in uſe with us, and I think, with all the world, which I commend for nimbleneſſe, cloſeneſſe, warmeneſſe, and dryneſſe. Bees love no externall motions of daubing, or ſuch like. Sometimes occaſion ſhall be offered to lift and turne hives, as ſhall appear hereafter. One light entire hive

Figure 7. William Lawson, *The Country Housewifes Garden* (London: R. Jackson, 1618), ch. x, bk 3, p. 86, probably the first published depiction of an English bee shelter. In some editions the image is transposed laterally.

unlikely to survive at all in harsher upland areas. In a description of a typical old Devon farmhouse, the farmer's wife was said to keep her 'bee-butts' (hives) each in a 'bee bole' near the corner of the kitchen garden where she grew herbs. Alternatively, 'each skep stands on its own pedestal, which is in the form of a toadstool', and is protected by an inverted sheaf of straw (a hackle).[24]

Bee shelters

Lawson recommended the use of a wooden 'house', i.e. bee shelter, to protect several hives (Figure 7):

> a Frame standing on posts with one floor (if you would have it hold more Hives, two floores) boarded. . . . In this frame may your Bees stand dry and warm, especially if you make doores like doores of windowes to shroud them in winter, as in an house.[25]

Jacob Isaac, writing in 1803 for beekeepers in the West Country, described how to construct two types of 'shed' for hives, with doors.[26] A stone shelter with a wooden door was recorded in a farm garden near Dunnabridge Pound on Dartmoor, Devon.[27]

Figure 8. A bee shelter against a garden wall at Hesleyside, Watermillock, Ullswater in Cumbria. The shelter probably had a shelf for five skeps. IBRA Register, no. 1294. Photo: M. Brown, 1999.

A simple lean-to or freestanding bee shelter of wood may have been used quite widely (Figure 6), but few survive, and most bee shelters in the Register are of stone. More have been recorded in Cumbria than in any other county, at least thirty-five in gardens and two in orchards.[28] Many of the thirty-one bee shelters recorded in fifteen other counties are also in gardens.

The simplest type of stone shelter was built against a house or garden wall, often with a roof of large slates and a shelf for two or more skeps (Figure 8). A larger shelter, holding perhaps eight to twelve skeps, might have two shelves and even two compartments. An unusual, ornamented, free-standing structure, like a shelter but with twenty-eight compartments for individual skeps, was built of Caen stone in the sixteenth century at Minchinhampton Manor, Nailsworth, Gloucestershire. In 1968 it was moved and carefully rebuilt at the county College of Agriculture, Hartpury, where it still stands.[29]

Walls with recesses for hives

In some areas recesses for individual skeps (bee boles) were built in a stone, brick or cob wall, and this is the most common type of structure in the Register. For example, a stone wall at Lovington, Somerset, has eleven recesses (Figures 9 and 10); and a recess in a brick wall at Quebec House, Westerham, Kent, houses a skep on a wooden base (Figure 11).

The Register contains records for 759 walls with hive recesses in England, and the original location of most walls is known: sixty-four percent were in a garden, five percent in an orchard and ten percent in house walls — most of which face onto a garden. The beekeeping writers already mentioned recommended that hives should face south or south-east, Columella (*c.*AD 60), for example, stating that they should face 'the sun at midday in winter'.[30] In England as a whole, most walls with hive recesses face south, south-east or south-west (a total of seventy-four percent); a few face east (fourteen percent) or west (less than six percent), or in a northerly direction (north-west, north, north-east, six percent). However, there is some variation between different regions, almost certainly because of the directions of prevailing cold or rain-bearing winds.

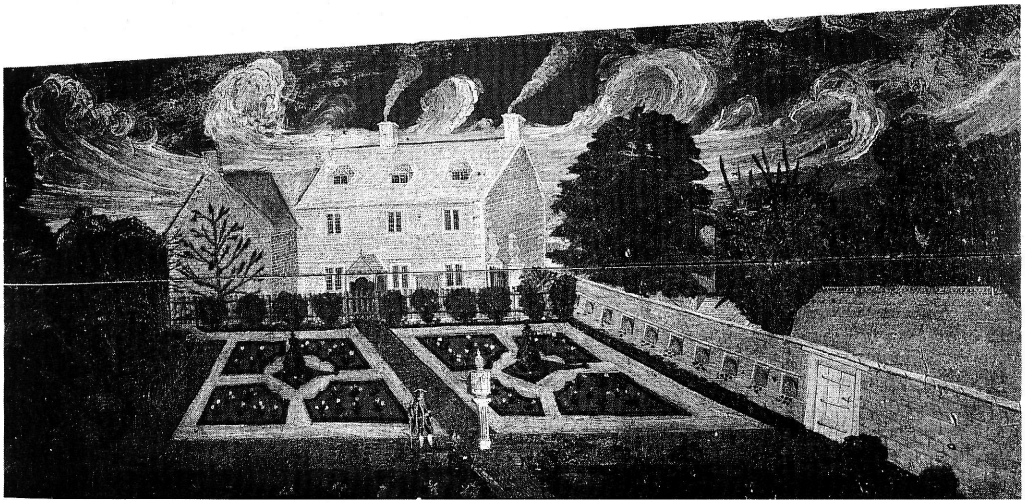


Figure 9. A painting on wooden panel of *c.*1700 showing the hive recesses, house and owner of Charity Farm, Lovington in Somerset. Photo: Harold C. Tilzey. Cf. Figure 10.

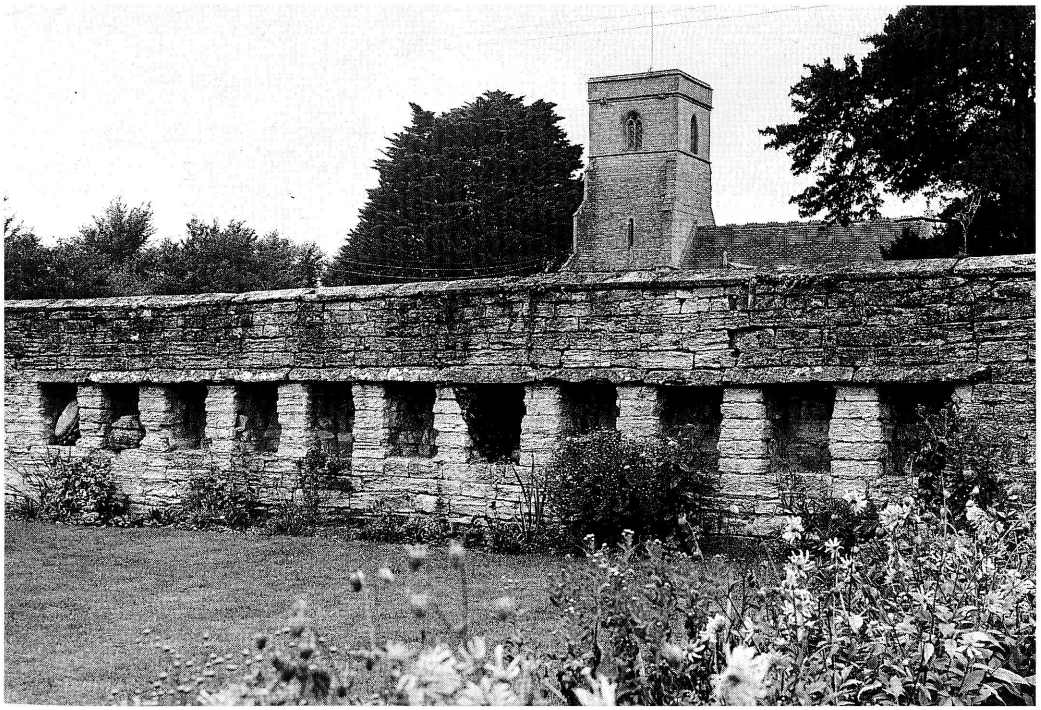


Figure 10. The hive recesses at Charity Farm, Lovington in Somerset, *c.*1953. IBRA Register, no. 131. Photo: Harold C. Tilzey. Cf. Figure 9.