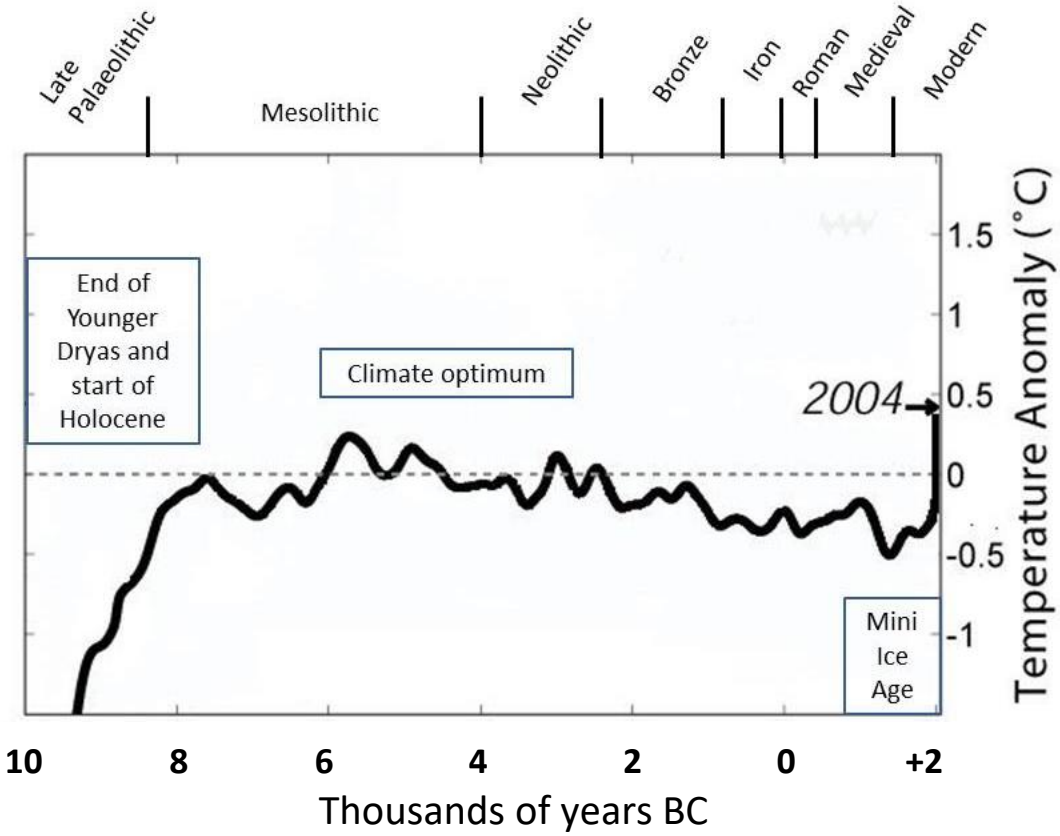
Prehistory of Gardens and Biodiversity in Britain

By Steve Head

What is a garden?

In his 1755 dictionary, Dr Samuel Johnson defined a garden as: "**A piece of ground, enclosed, and cultivated with extraordinary care, planted with herbs or fruit or food, or laid out for pleasure"**. The key word is "enclosed" - gardens have always been patches of land set aside from the rest of the town or country, to protect and nurture the specially managed plants and animals within. Through history, gardens have had two primary functions, food (and medicinal herb) production, and places of pleasure, primarily for the rich, and often used as a conspicuous show of wealth.

Climate and Human Occupation in Britain.



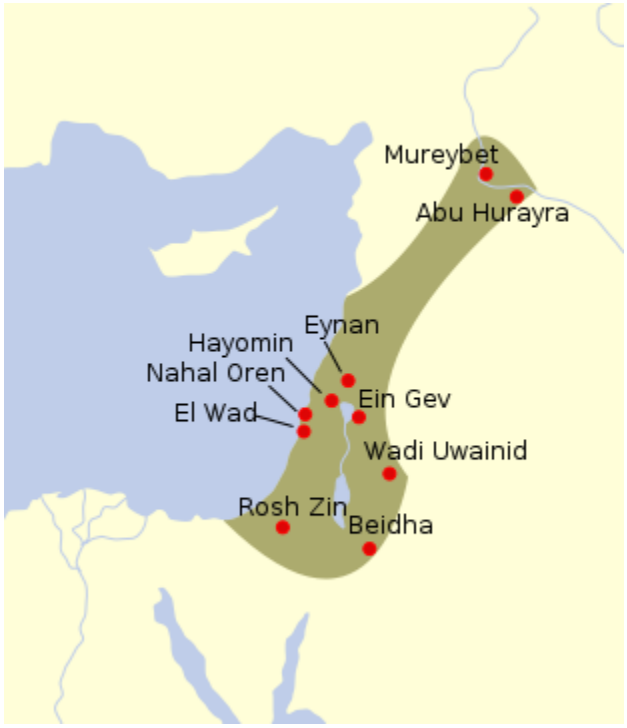
Adapted and simplified from composite graph by Robert A. Rohde available at www.globalwarmingart.com/wiki/File:Holocene_Temperature_Variations_Rev_png

Britain was probably uninhabitable at the height of the last Ice Age, around 24 - 20,000 years ago, although people survived elsewhere in Europe and Asia. The gradual warming which began about 20,000 BC was interrupted by two brief cold spells, the last one called the "Younger Dryas" from about 10,800 BC, which took Britain back to near glacial conditions, ending with permanent warming about 9,500 BC. The first people to return to Britain were

the late Palaeolithic hunter-gatherers associated with Cresswell Crags in Derbyshire, about 11,000 to 9,500 BC and considered an offshoot of the southern European Magdelanian culture, famous for its cave art. After the end of the Younger Dryas, human occupation is termed Mesolithic, a nomadic or seasonally settled hunter-gatherer society adapted to temperatures similar to today. The Mesolithic gave way to the Neolithic period about 4,000 BC, characterised by the beginnings of cultivation. The later arrival of metal working, together with distinctive pottery and changes in funerary practices, brought in the Bronze Age in about 2,500 BC and the Iron Age about 800 BC. These labels are more convenient than real, and dates are specific to Britain. As we will see, cultural stages took very different time scales elsewhere in Eurasia.

The beginnings of gardening

Agriculture and gardening could not start until people ceased to be Mesolithic nomadic hunter-gatherers, and began to settle, create permanent houses, and learn to exploit the resources around them sustainably. The Mesolithic period between the last Ice Age and the beginning of agriculture started as early as 20,000 BC in the Near East, culminating with the Natufian culture. Late Natufian people, living near the coast of the Eastern Mediterranean in what is now Syria and Jordan, lived through the cool Younger Dryas until about 9,800 BC.



Area of Natufian culture in the Levant
From Wikimedia Commons

Natufian people developed a settled way of life, coupling hunting for gazelle with consumption of wild cereals[1]. There is some evidence they may have selected and cultivated rye. Their settled lifestyle appears to have led directly on to the earliest farming communities of the early Neolithic in the same area, about 8,200 BC after the final post-glacial warming. These early farmers cultivated barley and wild oats, adding einkorn and spelt wheat. The dry near-eastern origins of wheat, barley and oats account for the need today for well-drained and sunny fields for these crops. Neolithic people domesticated sheep and goats, and later cattle and pigs. Without ploughs[2] (invented in the mid to later Neolithic), hoe-cultivated cropped fields were small,

[1] Barker, G. 2006. The Agricultural Revolution in Prehistory. Oxford University Press
[2] Thomas, J. S. Understanding the Neolithic. London: Routledge, 1999

about 0.2 to 0.5 hectares[3], and close to the scattered settlements, much more like our idea of large gardens and allotment than huge modern fields.

It was in these ancient small enclosures in the Near East that the beginnings of the association of wildlife with settled habitats and gardens began. To put this in context, the last land-bridge between Lincolnshire and north Germany was flooded by rising sea levels in about 5,800 BC, separating Britain from the continent of Europe, and isolating our native flora[4]. Globally, the development of garden or small-field ecology therefore predates the isolated stage of British wildlife by some 2,400 years. Classic British conservation habitats like diverse grassland[5] and coppice managed woodlands[6] were established (on a small scale) in the early Neolithic after 4000 BC, nearly 5,000 years after the first gardens. Large-scale development of these habitats needed the rise in the British population from between 2,750 and 5,500 in the late Mesolithic, to 100,000 in the early Neolithic, about 1,500,000 at the end of the Iron Age[7] and 2.75 to 4 million at the height of the Roman period[8]. These population estimates are however very imprecise.

The Neolithic way of life rapidly expanded, with Jericho, the world's first "town" established at the end of the Natufian period, then spreading to the fertile crescent of the Tigris and Euphrates rivers in modern Iran and Iraq. Gradually, the farming revolution spread across Europe from east to west, bringing settlements, crops and domestic animals, pottery and new rituals. By about 5,000 BC, people of the linear-band culture in central Europe seem to have had small permanent hedged fields, with weed patterns suggesting quite intensive garden-like cultivation[9]. The Neolithic way of life reached Britain by about 4,000 BC[10], being brought by settlers, or by Mesolithic inhabitants picking up the new techniques, or by combinations of both.

In Neolithic England and Wales, emmer, naked wheat and barley were the main crops, and cereal farming was very important. The less favourable climate of Scotland is probably the reason why only the more tolerant barley was commonly grown. However charred remains of fruits like crab apple, blackberry, sloe, hazel and hawthorn are commonly found by archaeologists, so foraged food was still important. The common weed *Chenopodium album* (fat hen) was another foraged or possibly garden-scale cultivated food plant used for its seeds or as spinach. No less than 54,518 seeds of this plant were found in a pot from the Neolithic (around 3600 BC) lakeshore settlement of Niederwil, Switzerland[11].

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[3] Taylor, C. 1982. Fields in the English Landscape. Dent: Archaeology in the Field Series.
[4] Reed, M. 1990. The Landscape of Britain. Routledge.
[5] Rackham, O. 1986 The History of the Countryside. J.M. Dent
[6] Malone, C. 2001 Neolithic Britain and Ireland. Tempus Publishing
[7] Prior, F. 2004 Britain BC. Life in Britain and Ireland before the Romans. London: Harper Perennial
[8] Salway, P. 1993 A History of Roman Britain. Oxford University Press
[9] Bogaard, A. 2004 Neolithic Farming in Central Europe Routledge
[10] Whittle A, Healy F, Bayliss A (2011) Gathering time: dating the early Neolithic enclosures of southern Britain and Ireland. Oxbow Books, Oxford
[11] Crop growing and gathering in the northern German Neolithic: a review supplemented by new results

The later arrival of metal working, together with distinctive pottery and changes in funerary practices, brought in the Bronze Age in about 2,500 BC and the Iron Age about 800 BC

Neolithic hitch-hikers: Arable Weed Archaeophytes

We define "native species" in Britain as those we believe arrived without human help before the island became separated from continental Europe about 5,800 BC. The rest are termed "non-native" and generally held in low respect by botanists and conservationists. The reality of this distinction is discussed in our web page Gardens: Native and non-native species.

There is a special group of non-native species termed "archaeophytes" (ancient-plants) which are approved of by conservationists, not least because many are in great danger of extinction. These are plants, established in the wild, which arrived before about 1500 AD, as evidenced from historical records and especially archaeological excavations.

Of 157 species of archaeophyte identified in Britain, 44 (28%) had arrived by the Iron Age[12]. The majority were "arable weeds" bare-ground loving plants that benefitted from the annual cropping cycle and which cannot compete in established grassland. These plants have been adopted into our flora, and many like cornflower, corn marigold and poppies are extremely popular and attractive plants often grown as garden annuals.

Many arable weeds (also called cornfield flowers) are now threatened or even extinct in Britain, because of the efficiency of modern weed control and seed cleaning. The charity Plantlife has listed 46 species extinct or at risk[13]. We know the following plants from this list arrived very early:

Neolithic or Bronze Age arrivals		Iron Age arrivals	
Species	Status	Species	Status
Stinking chamomile	VU	Pheasant's-eye	EN
Rye brome	VU	Upright goosefoot	CE
Corn marigold	VU	Cat-mint	VU
Henbane	VU	Broad-fruited cornsalad	EN
Corn Gromwell	EN		
Prickly Poppy	VU		
Narrow-fruited cornsalad	EN		

Wiebke Kirleis, W, Klooß, S, Kroll, H. and Muller, J 2011. Veget Hist Archaeobot DOI 10.1007/s00334-011-0328-9

[12] Preston, C. 2005 Archaeophytes in Britain. In: Hill, M.O., Arnold, H.R., Broad, G.R., Burton, V. J., James, T.J., McLean, I.F.G., Preston, C.D., Rowland, F. & Roy, D.B. (2005) Biological Records Centre: Report 1999-2004 JNCC Report No. 370 pp 18-19

[13] Byfield, A.J. & Wilson, P. J. (2005). Important Arable Plant Areas: identifying priority sites for arable plant conservation in the United Kingdom.Plantlife International, Salisbury, UK

These species have been identified in British archaeological sites of corresponding periods[14] and are described by Plantlife as vulnerable (VU), endangered (EN) or critically endangered (CE).

It is very interesting that many of our British arable weeds may have originated in the first fields in the Levant, and tracked westward across Europe, "hitch-hiking" with cereal seeds during the spread of Neolithic culture. The following British arable weeds have been recorded in Neolithic or earlier archaeological sites in the Near East.[15]

Musk stalk's bill	*Erodium moschatum*
Dense flowered fumitory	*Fumaria densiflora*
Fine leaved fumitory	*Fumaria parviflora*
Corn cleavers	*Galium tricornutum*
Common poppy	*Papaver rhoeas*

Many more of our arable weed species may have originated in the Near East. Comparing the early (Neolithic to Iron Age) arable archaeophytes listed by Preston, Pearman and Hall with the modern flora of the Palestine area[16] reveals 20 potential species, while there must be more not yet discovered in archaeological digs.

There are now active projects to conserve and spread rare arable plants; one example of many is in the North Yorkshire National Park[17]. Arable plants offer a special opportunity for wildlife gardeners, since all these cornfield annuals require is a tilled bare plot, and they germinate and grow readily from seed. Many companies produce "cornfield flower" or "cornfield annual" mixes, and they are a good and colourful way to occupy a bare bed in the early stages of establishing slower growing perennials.

Late prehistory: Plants used in the Iron Age

The Iron Age period followed the Bronze Age, and in Britain is defined as ending with the Roman conquest. There was considerable international exchange between the British and Continental European Iron Age people within a broad Celtic culture. The increase in population and material wealth was probably linked to improved crop varieties[18], and there

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[14] Preston, C.D., Pearman, D.A. and Hall, A.R. 2004. Archaeophytes in Britain. Botanical Journal of the Linnean Society, **145**, 257–294

[15] Willcox, G. 2012. Searching for the origins of arable weeds in the Near East. Veget. Hist. Archeaobot. 21:163-167

[16] Unattributed list in Wikipedia of flora of Israel, Palestine, Jordan and the Golan heights http://en.wikipedia.org/wiki/List_of_native_plants_of_Flora_Palaestina_%28A-B%29

[17] http://www.northyorkmoors.org.uk/caring/our-work/cornfield-flower-project

[18] Julian Richards www.bbc.co.uk/history/ancient/british_prehistory/overview_british_prehistory_ironage_01.shtml

was increasing disparity in wealth between tribal chiefs, ordinary folk and slaves captured during frequent wars and struggles[19].

There is archaeological evidence of extensive importation of luxuries such as wine, and it is easy to imagine an increase in the rate of introduction of new plants. The table below shows a subset of the plants recorded from Iron Age archaeological excavations in Britain[20]. The listed plants are species reasonably likely to be found in a modern garden, and their native status is based on the Postcode Plants Database[21]. Species marked " * " may have been very early introductions from the Near East. The list cannot confirm active cultivation of the native species, but it is very likely that improved varieties were being selected and distributed. Many more plants may have been used medicinally - the opium poppy for example is recorded from the late Bronze Age onward, and is another Near Eastern archaeophyte.

Asparagus	Introduced	Juniper	Native
Apple	Native	Lentil	Introduced*
Beetroot	Native	Mint	Native
Bird cherry	Native	Parsnip/wild parsnip	Native
Blackberry	Native	Prunes	Introduced
Blackcurrant	Native	Raspberry	Introduced
Carrot/wild carrot	Native	Rose-hip	Native
Catnip	Introduced	Rowan	Native
Celery/wild celery	Native	Self heal	Native
Coriander	Introduced	Sloe	Native
Dill	Introduced	St John's wort	Native
Elderberry	Native	Turnip	Introduced
Fat hen	Native	Viburnum	Native
Field beans	Introduced*	Violet	Native
Florence fennel	Introduced	Watercress	Native
Garden sorrel	Native	Wild pea	Introduced*
Gooseberry	Native	Wild strawberry	Native
Hazelnuts	Native	Wormwood	Native
Horehound	Native		

Prehistoric gardens elsewhere

We must remember that although Britain was at a tribal level of culture in the Neolithic through to the Iron Age periods, other civilisations, such as the Egyptians, Persians and Greeks were markedly more advanced and we have clear records of their gardens.

[19] Champion T. 1995. Power, politics and status. pp 85-94 in The Celtic World. Miranda Green Ed Routledge

[20] Archaeological Botanical Food Finds in Britain, catalogued by Jennifer Baker from the Archaeobotanical Computer Database 2008. http://nvg.org.au/documents/other/archeological_food.pdf

[21] www.nhm.ac.uk/nature-online/life/plants-fungi/postcode-plants/checklist-british-plants.html

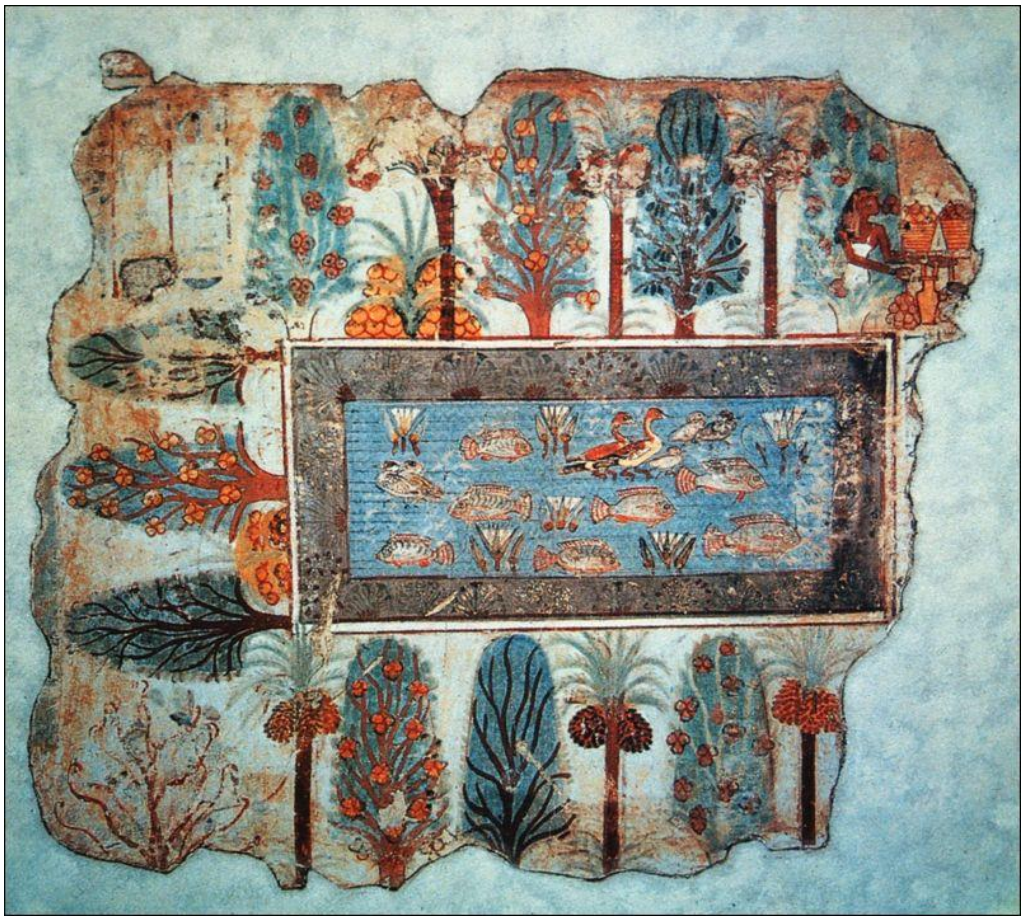

Photo MDID Collection Wikimedia Commons

The illustration above is a fresco wall painting from the tomb of Nebamun, now in the British Museum. Nebamun was a late 18th Dynasty (around 1350 BC) ‘scribe and grain accountant in the granary of divine offerings' in the Temple of Amun at Karnak (modern Luxor). He was therefore of reasonably high, but not the highest status.

The garden is remarkably recognisable, with a fish, bird and lotus filled pond, a path and wall, and a good variety of trees grown for fruit and shade. It is of course an idealised garden, and Nebamun’s own home may have been much less splendid.

The illustration left is a funerary model of a garden from Thebes, dating from the 11th dynasty, circa 2009-1998 B.C. Models like this were made to provide services for the deceased in their afterlife, and this probably is more representative of ordinary people’s gardens.

Photo by Keith Schengili-Roberts, Wikimedia Commons

There is little direct evidence of ancient Greek gardens, although what appear to be planting pits are known from classical temples, and planted orchards and olive groves were common, but treated more as contrived landscapes. There is

a fascinating but completely mythical reference in Book 7 of Homer's Odyssey to the garden of Alcinous:

> *"Outside the gate of the outer court there is a large garden of about four acres with a wall all round it. It is full of beautiful trees-pears, pomegranates, and the most delicious apples. There are luscious figs also, and olives in full growth. The fruits never rot nor fail all the year round, neither winter nor summer, for the air is so soft that a new crop ripens before the old has dropped. Pear grows on pear, apple on apple, and fig on fig, and so also with the grapes, for there is an excellent vineyard: on the level ground of a part of this, the grapes are being made into raisins; in another part they are being gathered; some are being trodden in the wine tubs, others further on have shed their blossom and are beginning to show fruit, others again are just changing colour. In the furthest part of the ground there are beautifully arranged beds of flowers that are in bloom all the year round. Two streams go through it, the one turned in ducts throughout the whole garden, while the other is carried under the ground of the outer court to the house itself, and the town's people draw water from it. Such, then, were the splendours with which the gods had endowed the house of King Alcinous."*[22]

The Hanging Gardens of Babylon appear to be entirely mythical, but were probably based on the hanging gardens created at Nineveh by Sennacherib king of Assyria (705–681 BC) for love of his wife. This immense garden was watered by a very sophisticate irrigation system raising water to the upper levels.

Even earlier than Sennacharib, the Assyrian King Ashurnasirpal II (883-859 BC) created a garden:

> *"I dug out a canal from the (river) Upper Zab, cutting through a mountain peak, and called it the Abundance Canal. I watered the meadows of the Tigris and planted orchards with all kinds of fruit trees in the vicinity. I planted seeds and plants that I had found in the countries through which I had marched and in the highlands which I had crossed: pines of different kinds, cypresses and junipers of different kinds, almonds, dates, ebony, rosewood, olive, oak, tamarisk, walnut, terebinth and ash, fir, pomegranate, pear, quince, fig, grapevine.... The canal water gushes from above into the garden; fragrance pervades the walkways, streams of water as numerous as the stars of heaven flow in the pleasure garden.... Like a squirrel I pick fruit in the garden of delights..."*[23]

The use of the word "I" above should not be taken to mean that King Ashurnasirpal II personally wielded a spade! Gardens of this scale could only be achieved by the most wealthy and powerful.

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[22] Translation by Samuel Butler

[23] Stephanie Dalley 2013, The mystery of the Hanging Gardens of Babylon. OUP p48 ISBN 978-0-966226-5