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# The Geography of Beer in Europe from 1000 BC to AD 1000

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# The Geography of Beer

Regions, Environment, and Societies

 Springer

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# The Geography of Beer in Europe from 1000 BC to AD 1000

Max Nelson

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## Abstract

Today there is a great proliferation of beer styles, most of which were developed in Europe in the modern era, but some evidence exists for a simpler geography of beer in ancient Europe. Barley was the common cereal used by beer-makers (those outside of southern Italy and Greece), while wheat was also used in much of western Europe as a secondary cereal while millet instead was used in the east. Although many types of plant additives were no doubt used in beer, two main ones became popular: sweet gale, first attested in the region of the Rhine estuary around the first century BC, and hops, first widely popularized in the Ile de France area in the ninth AD. Honey too was often used in beer throughout western Europe, except perhaps for the Iberian peninsula and Ireland. It must be stressed that this picture is based on highly fragmentary evidence, and it may be incorrect in many particulars. It may be hoped that future archaeological discoveries will add much to our knowledge.

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## Introduction

Today there is a great proliferation of beer styles, which are differentiated by the nature and proportions of the water, yeasts, cereals, hops, and other additives used in them, and sometimes also the special techniques employed to produce, store, or serve them. Thus, some beers are fermented with yeasts to make them lagers and some to be ales; some are low in alcohol and some quite high; some are made of lightly roasted barley while others use heavily roasted barley and even include wheat or other cereals; some include hops only as a preservative while others rely on a prominent hoppy flavor; some have added fruit, honey, herbs, or spices; and some are stored in whiskey barrels. In general beer styles are the result of a long tradition of experimentation in a specific region, such as Belgian saison, French bière de garde, Irish stout, British brown ale, Baltic porter, Finnish sahti, Czech pilsner, German kölsch, and Italian chestnut beer (an up to date guide to these modern styles with many maps is Webb and Beaumont 2012; see also Mittag in this volume). Most of

these regional styles developed in the modern era, but some evidence exists for a simpler geography of beer in ancient Europe, which is the subject of this chapter. No one has as yet attempted a comprehensive geography of beer for ancient Europe; on the other hand, different historical geographies of intoxicants in general have been proposed.

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## Historical Geographies of Intoxicants

Sherratt (1995, p. 32), presenting a “geography of intoxication”, suggested that at some time in prehistory alcohol displaced narcotics which were inhaled as smoke by those living in the temperate zone of Mesopotamia and the Mediterranean, while those living in steppe regions and especially desert areas continued the earlier practice. He further argued that fruits, especially grapes, were fermented to produce alcohol in southern Europe and that this influenced the fermentation of honey and cereals among more northern Europeans who did not have viticulture (pp. 25–26).

Such a north/south Europe formulation has been common in much scholarship though it has been presented in a number of different ways. Thus Wayens, Van den Steen, and Ronveaux (2002, pp. 93–94) in their attempt at a “short historical geography of beer” proposed that there developed

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two drinking traditions in Europe which became established by the Middle Ages and which survive to some extent today, with beer-drinking in the north and wine-drinking in the south. The authors explained this as being due at least in part to climatic conditions and the evolution of agriculture though they admitted that “climate determinism ... does not ... justify the weight of beer in Northern Europe”. Presumably the authors meant that the climate does not explain the lack of beer in southern Europe since cereals, the main ingredient for beer, did grow there. The authors, however, gave no suggestion as to why purportedly there was no beer in southern Europe.

Engs (1995, pp. 228–229) put forward a more nuanced theory of a modern pattern in Europe, which had its roots in ancient times, which consists of beer-drinking in Scandinavia, the Netherlands, Britain, and northern and eastern Germany, wine-drinking in Italy, Spain, Portugal, southern France, and Greece, and a blend of both beer-drinking and wine-drinking in areas between these zones, including northern France, southwestern Germany, Belgium, Austria, and Switzerland. Engs explained that this has been “due to the ecosystem, seasonal variation and socio-political structures” (p. 228) and she contended that the lack of beer in the south was caused by deforestation dating already from “early antiquity” since wood was required to brew beer (p. 231).

Such north/south theories, however, are misleading and somewhat outdated. In the less than 20 years since Engs’ study, the situation in Europe has changed. Having analyzed 1997 to 1999 Food and Agriculture Organization statistics, Grigg showed beer consumption was on the increase, and as expected beer predominated in northern Europe and wine in southern Europe (2004, pp. 101, 104–106). However, more recently, beer-drinking has been on the increase while wine-drinking has been on the decrease in southern and eastern Europe as a whole, and at the same time beer-drinking has been on the decrease in northern and central Europe, leading it would seem to a homogenization of European drinking traditions (Marques-Vidal 2009, p. 138; Colen and Swinnen 2011, pp. 131–132; Herrick 2011, p. 147). Beer in fact is quite a popular beverage today in southern Europe (Medina 2011, pp. 73–75) and there has been a veritable craft brewing revolution in Italy (Webb and Beaumont 2012, pp. 158–163). As pointed out in the latest World Health Organization study of global drinking patterns (2011, p. 6): “Today, in Spain the most consumed alcoholic beverage in litres of pure alcohol is beer, while in Sweden, it is wine.” Sigaut (1997, p. 82) had already pointed out that while beer remains emblematic of northern Europe and wine of southern Europe there exists today a more or less universal geography of beer.

More importantly for the present study, not only do the north/south theories inaccurately reflect actual contemporary patterns of consumption in Europe, but they misrepresent and simplify ancient ones as well. Thus before the Middle Ages

there was certainly beer-drinking at some points in time in what is now Portugal, Spain, southern France, northern Italy, and parts of Greece. Also, to respond to Engs’ conclusion that southern Europeans did not brew because of a lack of firewood, recent research has shown that while deforestation in ancient Greece, for instance, was at times a problem, forests did regenerate, and there remained for the most part a ready supply of wood (Thommen 2012, p. 41), and thus this cannot explain why ancient Greeks did not make and drink beer.

In fact it seems from recently discovered archaeological evidence from various sites in both northern and southern Europe that during the Bronze Age (roughly 3000–1000 BC) alcoholic drinks were typically made by mixing together a number of fermentable products, cultivated or wild, including fruits, cereals, and honey (Sherratt 1995, p. 25; Nelson 2005, p. 16). The northern evidence from Denmark and Scotland is surveyed in Koch 2003, pp. 126–132; Nelson 2005, pp. 11–13, with the map at p. 13; McGovern 2009, pp. 137–145. See also Dineley 2004, p. viii for Britain. The southern evidence from Greece is surveyed in Nelson 2005, pp. 13–16; McGovern, Glusker, Exner, and Hall 2008, pp. 202–203; McGovern 2009, pp. 186–187. For Cyprus, see Crewe and Hill 2012 and for Spain, see Garrido-Pena, Rojo-Guerra, García-Martínez de Lagrán, and Tejedor-Rodríguez 2011, pp. 110–111, 114–115). Indeed during this period whichever wild or cultivated product could be fermented probably was, with little thought of producing specific styles of alcoholic drinks. A good example comes from the grave of a young woman in Egtved, southern Jutland, Denmark, dated to between about 1500 and 1300 BC, in which a birch bark bucket was found which contained traces of lime, meadowsweet and white clover pollen, as well as wheat grains, bog myrtle, cowberry, and cranberry, presumably the remains of an interesting mead/beer/wine beverage (Koch 2003, p. 129; Nelson 2005, p. 12; McGovern 2009, pp. 144–145).

It was during the Iron Age (from roughly 1000 BC on) that the production of indiscriminately mixed fermented drinks began to wane, though it did continue on in some places, such as Scandinavia (McGovern 2009, pp. 153–154). This tradition over time gave way to the separate manufacture of wine (made from fruits, especially grapes), beer (made from cereals, especially barley [I use “beer” throughout in its contemporary generic meaning as any alcoholic drink made from fermented cereals]), and mead (made from honey) in different regions of Europe. Wine-making was concentrated in the vine-rich south, among Greeks and later Etruscans and Romans, who spread their technological knowledge throughout Europe, and viticulture came to be practiced as far north as vines could be grown. Beer-making was dominant in much of western, central, and northern Europe among Celtic and Germanic peoples as well as others. By the tenth century AD, Gaul (roughly modern France)

came to be more associated with wine and Germany with beer (Nelson 2005, p. 81), as remains the situation today. On the other hand, beer had never been normally drunk by Greeks or by Romans in Italy (though it was found in other locations within the Roman empire) since they considered it a “cold” and “wet” substance which was unmanly and which was produced from rotten cereals, and thus inferior to “hot” and “dry” as well as manly wine made from grapes (Nelson 2001, pp. 101, 103–104, 2005, pp. 33–37, forthcoming). Finally, mead-making seems to have been most prominent in the north (the evidence from Germany is surveyed in Koch 2003, pp. 132–135), though honey continued to be used in wine by Romans and in beer by Celts. Mead may have been the only beverage in the most northern reaches of Scandinavia until well into the Middle Ages; at least in the late ninth century AD, the common people of “Estland” (likely on the Baltic Sea) were said to drink mead and not to have beer (Old English Orosius, 1.1 in Bately 1980, p. 17).

This chapter will concentrate only on beer in Europe from the period from 1000 BC, when distinct alcoholic beverages came to be created, to AD 1000, by which time hopped beer as is common today had begun to be popular. Although it has been suggested that beer-making came to Europe from the east (see, for instance, the map in McGovern 2009, pp. 132–133, as well as Sewell in this volume), an independent native European brewing tradition uninfluenced from the outside is here presumed and thus non-European evidence will be ignored.

### Towards an Ancient European Geography of Beer

Since beer-making was mainly a domestic activity in ancient times, beer styles presumably differed from household to household, and regional varieties were distinguished mainly by the ingredients which were obtainable and preferred. Thus, for instance, the locally available water and wild yeast no doubt provided their own specific characteristics to a given brew.

Certainly at least by the Roman period beer-making grew from being a simple domestic chore to becoming a professionalized activity in parts of Europe. Thus beer was produced by professional brewers in some regions, such as Britain, for units in the Roman army; the maltster Optatus and the brewer Atrectus are known to have supplied the military force at Vindolanda around AD 100 (Nelson 2005, pp. 65–66). Surely with this professionalism came the need not only to make beer in large batches but also to produce a somewhat consistent product. There also arose important beer-making centers, such as in the Mosel/Moselle River basin (in what is now Germany, Luxembourg, and France) in the early centuries AD. Thus in Trier, Germany there existed

a guild of brewers, among whose members were a certain Fortunatus as well as a woman whose name was probably Hosidia, as known from surviving, fragmentary tombstones; another brewer there, Capurillus, is not explicitly linked to the guild (pp. 56–57, 60–63). Not far away upstream along the Mosel/Moselle River in Metz, France, the brewer Julius is attested (p. 60). These brewers of the Mosel/Moselle basin probably developed their own particular style, though nothing now is known of it. In the early ninth century AD, Charlemagne provided regulations for brewers working on his imperial estates to ensure their expertise and their attention to cleanliness (p. 99). By that time monastic breweries across western Europe were setting the standard for very large-scale industrial brewing (pp. 100–114). This eventually led to the end of the proliferation of widely divergent individual local styles of beer.

While something is known of where beer in general was brewed and by whom, there is unfortunately little evidence for distinctive production methods in different regions before AD 1000 whether in individual households or larger commercial or industrial enterprises. One of the most explicit ancient sources, the Roman author Pliny the Elder, writing in the first century AD, said only that the peoples of Gaul and Hispania (roughly modern France and Spain, respectively) made beer using “various methods” (*pluribus modis*) and that the people of Hispania also aged their beers (14.29.149 in André 1958, p. 72) and that the Gauls had “various types” (*plura genera*) of beer (22.82.164 in André 1970, pp. 79–80), without providing any further details.

Because of the lacunose evidence only two factors can really be used to differentiate broadly the types of beer found in ancient Europe: the base cereals and the additives used to make beers. Before examining in detail the beer varieties, it is worth looking at the evidence which exists for them, which is both written and material, and to consider its problematic nature.

The earliest extant ancient European written sources about beer were authored by non-beer drinkers (Greeks and Romans) about outsiders, and thus they are potentially misinformed or biased. Even when the beer-drinkers themselves were writing about their own beverage by late antique times and the early Middle Ages (such as in Old Welsh, Old Irish, Old English, and Old Norse works), their accounts are often vague and incomplete. In fact, usually beer is mentioned in written sources only in generic terms, with no breakdown of type or ingredients (such references will be passed over here, but can be found collected in Nelson 2005). When authors do differentiate beers they do so mainly by the cereals used to make them, though sometimes they also speak of additives. Even these mentions, however, are often difficult to place in any sort of concrete temporal or geographical context. Thus, for instance, in the first century AD the Greek medical author Rufus of Ephesus (in what is now Turkey, just outside

Europe) mentioned beer made with dates as being bad for the stomach in a short passage which now survives only in an Arabic translation in a work by a Persian physician from over 800 years later (fr. 197.1 in Al-Rāzī, *Kitāb al-hāwī* 11.1 in Daremberg and Ruelle 1879, p. 481; neglected in Nelson 2005). It is impossible to know now whether Rufus himself was indebted to a much earlier source, was speaking from personal experience, or was thinking of date beer as a common drink or a special medical concoction (as found in other sources, as shown in Nelson 2005, p. 73); therefore, it cannot be determined from his testimony where date beer was drunk in ancient times.

On the other hand, the material evidence, as known through archaeological finds, is securely tied to a specific place, and also often can be pinpointed to an exact time period, yet it is sometimes as ambiguous or difficult to interpret as the written evidence (for a survey of the type of material evidence which exists for beer from ancient times, see Stika 2011, pp. 56–58). Some of this evidence, like what is found in the written sources, is also generic; that is, it points to the probability of beer-making or drinking in a certain location, but without any way to determine the specific type of beer involved. Thus tools and vessels used in the production, storage, and consumption of beer, the residue of beer itself (such as in the form of calcium oxalate or “beerstone”), and the archaeological remains of breweries all indicate the presence of the beverage, but this sort of material evidence usually can tell us nothing about types of beer. On the other hand, finds of ingredients for beer help to provide a picture of beer varieties. Finds of cereals or cereal pollen by themselves cannot be tied to beer-making any more than to bread-making, but finds of malted cereal can more tentatively be connected to beer (van Zeist 1991, pp. 119–120; Stika 2011, p. 56). Cereals must be malted (that is germinated by being moistened and then heated and dried and possibly roasted) before proper fermentation to allow the starch in cereal to be converted to sugars which yeast can then transform into alcohol and carbonation (to put it simply). Cereal can accidentally germinate by being present in wet fields or in damp storage places, and thus only deliberate germination should be considered to point to beer-making; however, malted cereal could be used to make bread too as was common among Greeks and Romans (André 1961, pp. 57–58) or can be eaten on its own. Thus in a number of sites throughout Britain driers with charred grain, mainly wheat, dating especially from the third and fourth centuries AD, have been discovered which may point to malting for beer production (for instance, van der Veen 1989; Cool 2006, p. 141, n. 59; Parks 2012), but need not. The same interpretative problem arises with beer additives as well. For example, in Graveney in England a find of hundreds of hop flowers dated to the tenth century AD was discovered in the context of a boat rather than a brewery (Nelson 2005, p. 112), and thus it is impossible to know

certainly whether they were meant to be used in beer. It is only when malted cereals and a typical beer additive (such as hops) are found together, or in the context of a likely brewery (with, for instance, a space for heating the mash, that is the mixture of ground malt and water), that the former presence of beer at the location becomes much more certain.

Since all of the evidence, both the written and the material, is highly fragmentary it is impossible to make any sort of certain pronouncements on the exact geography of beer in ancient Europe. In fact, since it is necessary often to extrapolate from a single source for an entire region over a long period of time, all conclusions must be considered highly tentative.

### Cereals Used in Beer

The cereal or combination of cereals from which a beer is made is one of the most essential parts of its composition. Barley is the most common cereal used in the making of beer today and the same was the case in ancient Europe. Where beer was made, barley was usually the base ingredient; yet, almost all places that had barley beer also had a secondary beer made either of wheat (particularly in western Europe) or millet (only in eastern Europe) (see Fig. 2.1; the map is synchronic, and thus does not show possible changes over time). There are some areas (such as Ireland and Scandinavia) where barley beer was present for which there is no secure evidence as to whether there was wheat or millet beer. However, since wheat existed in these regions, wheat beer may well have been made there as well. It is also possible that yet other cereals, such as rye or oats, were used in the making of beer in ancient Europe as well but the evidence for these is too indeterminate and will generally be passed over. None of the written evidence helps to show indubitably whether cereals were ever combined in one beer in ancient Europe. However, some of the archaeological evidence points to this. For example, malted spelt wheat and barley, perhaps meant for beer-making, were found together in a deposit in Colchester, England at the ratio of ten to one (Cool 2006, pp. 141–142) and the pollens of barley along with wheat, millet, and rye were found together in a bronze container in a grave in Verucchio, Italy which may once have contained beer (Marchesini and Marvelli 2002, pp. 301–305). It may be that many ancient cereal fields contained a mixture of various species which may have been often indiscriminately malted together to make beer.

Only the written and material evidence which explicitly and unambiguously indicates the cereal from which beer was used is here presented. The terms employed for types of beer (in Greek or Latin or else in Celtic or Germanic languages), which can sometimes indicate the cereal used in beer (see Nelson 2001, pp. 19–94), will be passed over since this type

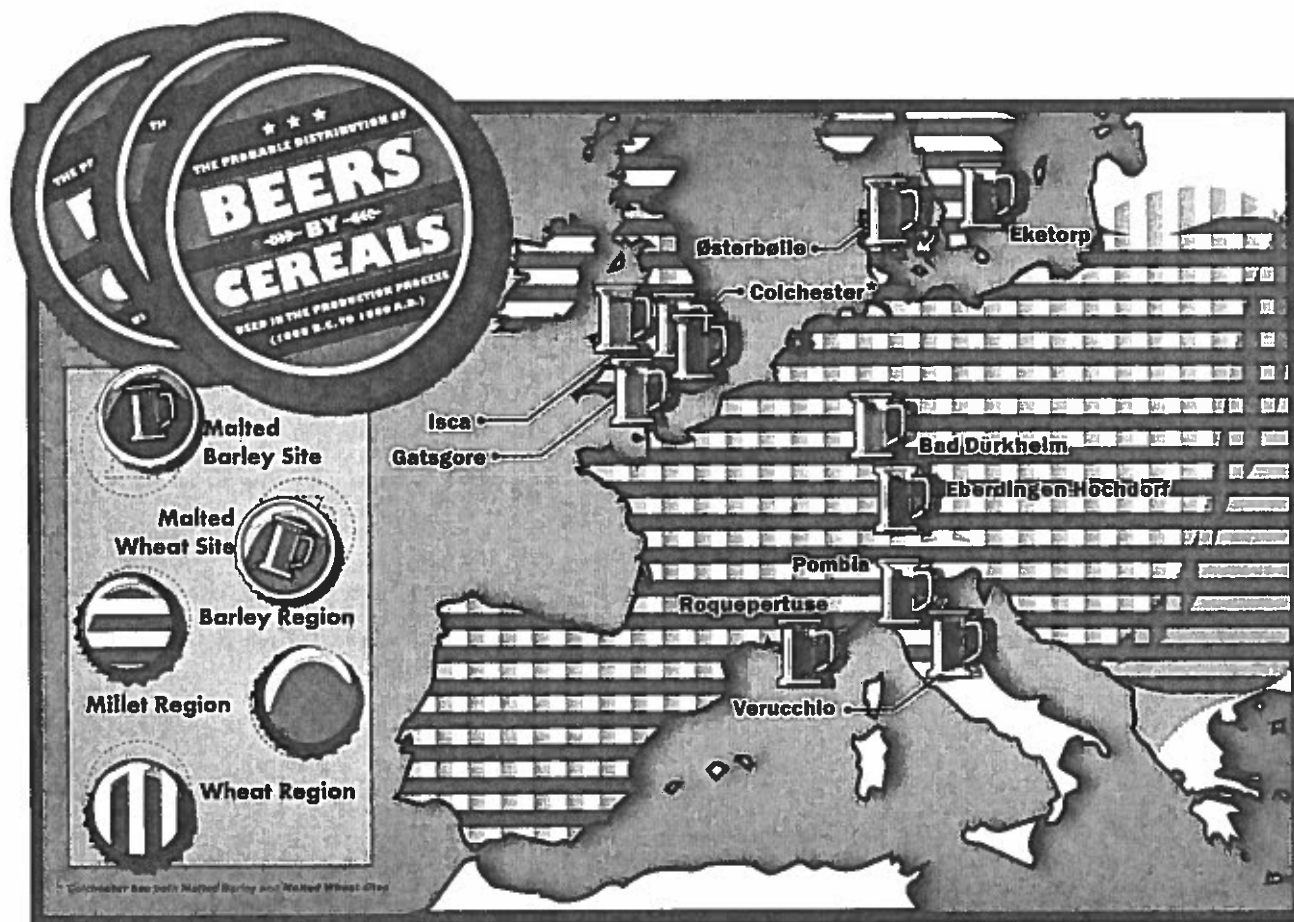


Fig. 2.1 The probable distribution of beers by cereals used in the production process (1000 BC–1000 AD)

of evidence does not provide additional information regarding the distribution of beer styles in ancient Europe.

## Barley

Barley, both two-row (*Hordeum distichum* L.) and six-row (*Hordeum hexastichum* L.), was widely cultivated in ancient Europe and could readily be malted to make beer (Nelson 2001, pp. 106–107; see Schwarz and Li 2011 for the present day use of barley in brewing). Barley beer was no doubt the type which was most widely produced and drunk in ancient Europe, as evidenced from both the written and the material evidence (see Table 2.1, in which the evidence is presented in chronological order).

Greeks from the seventh to the fifth century BC spoke of the barley beer of their neighbors in Thrace and Paeonia (roughly modern Bulgaria and Macedonia, respectively) in the northeastern Balkans. Later, as the Romans spread out of Italy, authors from the second century BC on spoke of barley beer among the peoples in what is now Spain (where a king drank it from silver and gold bowls), France, and Germany,

as well as in the Italian Alps, the northwestern Balkans, and (roughly speaking) in Ukraine and Russia. Also in the first century BC beer was drunk in what is now Portugal among Lusitanians when feasting with kinfolk (Posidonius, fr. 22 in Strabo, 3.3.7 in Theiler 1982, p. 40); although the type is not known, it probably was made from barley. Furthermore, beer made from barley malt is attested in Ireland from a law from around AD 700 (discussed in Binchy 1982). Additionally, an Old Irish poem, dated to around AD 1000 in its present form, mentions the beers in various Irish and British kingdoms including the bitter beers of the Saxons and the beers red like wine around Geirgin (*Scéla Cano meic Gartnain* 450–485 in Binchy 1963, pp. 17–18), which may refer to an Irish settlement in what is now Scotland (Binchy 1963, pp. xxvii, 38). Many other ancient Irish sources mention red beer, which may have been produced with a specially roasted barley (as is the case today with Irish-style red ale, for which, see Griffiths 2007, p. 34). Thus a source no earlier probably than the ninth century A.D. mentions that Saint Brigit miraculously turned bathwater into red beer (*Ní car Brigit* 36 in Stokes and Strachan 1903, p. 337). This was certainly thought of as an elite Irish beverage as those who were to be



**Table 2.1** Evidence of barley beer in Europe from 1000 BC to AD 1000

Modern locations	Written sources for barley beer	Material finds of malted barley probably for beer
Northeastern Balkans	Archilochus, fr. 42 West (seventh century BC) in Athenaeus, 10.447b (second century AD), who assumes it is barley (Thrace) Hecataeus, fr. 154 (sixth century BC) in Athenaeus, 10.447d (second century AD) (Paeonia) Hellanicus, fr. 66 (fifth century BC) in Athenaeus, 10.447c (second century AD) (Thrace) (all in Olson 2009, pp. 138, 140)	
Germany	Tacitus, <i>Germania</i> 23.1 (first century AD) (Germania) (Winterbottom and Ogilvie 1975, p. 49)	Eberdingen-Hochdorf (fifth century BC) (Stika 2011, pp. 58–61)
France	Posidonius, fr. 169 (first century BC) in Diodorus Siculus, 5.26.2 (first century BC) (Gaul) (Theiler 1982, p. 138) Dionysius of Halicarnassus, 13.11.1 (first century AD) (among Celts) (Jacoby 1967, p. 245)	Roquepertuse (fifth century BC) (Bouby, Boissinot, and Marinval 2011, pp. 355–357)
Spain	Polybius, 34.9.15 (second century BC) (Iberia) (Buettnner-Wobst 1963, p. 418)	
Denmark		Østerbølle (first century AD) (van Zeist 1991, pp. 119–120)
Britain		Colchester (first century AD) (Cool 2006, pp. 141–142, 176)
Northern Italy	Strabo, 4.6.2 (first century AD) (among Ligurians) (Lasserre 1966, p. 171)	Verucchio (eighth century BC) (Marchesini and Marvelli 2002) Pombia (sixth century BC) (Castelletti, Maspero, Motella De Carlo, Pini, and Ravazzi 2001; Gambari 2001, pp. 145–146, 2005)
Northwestern Balkans	Cassius Dio, 49.36.3 (third century AD) (Pannonia) (Cary 1917, p. 414) Ammianus, 26.8.2 (fourth century AD) (Illyricum) (Marié 1984, p. 86)	
Ukraine/Russia	Priscus, fr. 11.2 (fifth century AD) in Constantine Porphyrogenitus, <i>Excerpta</i> 3 (tenth century AD) (Scythia) (Blockley 1983, p. 260)	
Sweden		Eketorp (sixth century AD) (van Zeist 1991, p. 120)
Ireland	<i>Cáin Aigillne</i> 8 (eighth century AD) (Thurneysen 1923, p. 348)	

Kings of Tara were said to be symbolically served red beer in a golden cup by a maiden goddess personifying the “Sovereignty of Ireland” in a source perhaps as early as the ninth century AD (*Baile in Scáil* 6, 9, 10, 11, and 14 in Murray 2004, pp. 34–36, 38).

Finds of malted barley, probably for brewing, further demonstrate that barley beer existed in Britain, Denmark, and Sweden. However, both the northern limit and the southern limit of the area where barley beer was available are very difficult to gauge with the presently available evidence. As for the northern limit, there is little doubt that barley beer reached into Norway. At least in the tenth century AD, the Norwegian poet Eyvindr mentioned beer in his poem about King Hákon the Good (*Hákonarmál* 16 in Snorri Sturluson, *Heimskringla* 4.32 in Jónsson 1900, p. 221), who was said, in order to promote Christianity, to have made it a law that if one did not celebrate Christmas with a feast of beer one had to pay a fine (Snorri Sturluson, *Heimskringla* 4.13 in Jónsson 1900, p. 185). The base cereal used for beer at this time does not seem to be specified in any of the surviving sources, but

it was probably barley. As for the southern limit, recent finds (neglected in Nelson 2005) from two early Iron Age graves point to the use of beer made of barley (mixed with other cereals) in northern Italy, though there exists no evidence for its use in southern Italy.

## Wheat

A variety of naked and hulled types of wheat was known in ancient Europe and it was probably mainly the variety known as emmer, whether hulled (*Triticum dicoccum* Schrank) or naked (*Triticum turgidum* L.), which was most often used to make beer (Nelson 2001, pp. 108–110). The principal areas where wheat beers have been brewed in Europe in modern times have covered a swath from Belgium, through Germany and into Poland (Hieronymus 2010, p. 16), although they are also found in Brittany in France (Webb and Beaumont 2012, p. 132). Production of British wheat beer ceased in the nineteenth century but has been revived since the late 1980s

**Table 2.2** Evidence of wheat beer in Europe from 1000 BC to AD 1000

Modern locations	Written sources for wheat beer	Material finds of malted wheat probably for beer
France	Posidonius, fr. 170 (first century BC) in Athenaeus, 4.151c (second century AD) (Gaul) (Theiler 1982, p. 142) Pliny the Elder, 18.12.68 (first century AD) (Gaul) (Le Bonniec and Le Boeuffle 1972, p. 81)	
Britain	Dioscorides, 2.88 (first century AD) (Wellmann 1958, p. 171)	Catsgore (Roman Era) (van Zeist 1991, pp. 119–120) Colchester (first century AD) (Cool 2006, pp. 141–142, 176) Isca (first–second century AD) (van Zeist 1991, pp. 119–120)
Germany	Tacitus, <i>Germania</i> 23.1 (first century AD) (Winterbottom and Ogilvie 1975, p. 49)	Bad Dürkheim (Roman Era) (van Zeist 1991, 120)
Spain	Dioscorides, 2.88 (first century AD) (Iberia) (Wellmann 1958, p. 171) Pliny the Elder, 18.12.68 (first century AD) (Hispania) (Le Bonniec and Le Boeuffle 1972, p. 81) Florus, 1.34.12 (second century AD) (Numantia) (Jal 1967, p. 80) Orosius, 5.7.13 (fourth century AD) (Numantia) (Arnaud-Lindet 1991, p. 100)	
Northwestern Balkans	Ammianus, 26.8.2 (fourth century AD) (Illyricum) (Marić 1984, p. 86)	

**Table 2.3** Evidence of millet beer in Europe from 1000 BC to AD 1000

	Written sources for millet beer	Material finds of malted millet probably for beer
Northeastern Balkans	Hecataeus, fr. 154 (sixth century BC) in Athenaeus, 10.447d (second century AD) (Paconia) (Olson 2009, p. 140)	
Northwestern Balkans	Cassius Dio, 49.36.3 (second–third century AD) (Pannonia) (Cary 1917, p. 414)	
Ukraine/Russia	Anonymous Lexicon in <i>P.Oxy.</i> XV.1802.ii.42 (second–third century AD) (Scythia) (Grenfell and Hunt 1922, p. 158)	

(Cornell 2010, pp. 153–155; Hieronymus 2010, p. 18). It is clear that in ancient times wheat beer was more widespread in Europe (see Table 2.2, presented in chronological order). Furthermore, modern wheat beers have inevitably been made from a combination of wheat malt and barley malt, while in ancient times they may have been usually made with wheat malt alone.

Greek and Roman authors from the first century BC to the first century AD recognized that wheat beer was consumed in what is now France and Britain. Cool (2006, pp. 141–142) further argued from the archaeological evidence (which is sparse) that barley beer was more prevalent in northern Britain and wheat beer was more common in southern Britain. The inhabitants of what is now Spain also had their own type of wheat beer (see also the later sources for this in Nelson 2001, pp. 47–50). Furthermore, by the first century AD Germanic tribes consumed wheat beer, as is known from written and material evidence. Finally, wheat beer existed in the northwestern Balkans, where it was said in the fourth century AD to be, along with barley beer, a drink of the poor. It may also have been found among

the Scythians in roughly what is now Ukraine and Russia, but the evidence is uncertain (Nelson 2005, pp. 43–44); if so, this would be the only region in ancient Europe known to have had separate barley, wheat, and millet beers.

## Millet

Millet is not a very hardy cereal and yields a small return, facts which explain why it was not a very popular cereal for food or drink in ancient Europe. It seems that the common variety (*Panicum miliaceum* L.) was the one normally used to make beer (Nelson 2001, pp. 110–111). Millet beer is attested from written sources in the Balkans north of Greece and also among the Scythians (who inhabited what is roughly now Ukraine and Russia) in a period from the sixth century BC to the third century AD (see Table 2.3, presented in chronological order). In the Balkans a beer named *boza* is still made today using any of a number of cereals, though apparently the “best quality and taste is

obtained when millet is used" (Yegin and Fernández-Lahore 2012, p. 535). This may be a direct descendant of the ancient millet beer of the region. That millet was not used for beer in western Europe is implied from the silence of some sources. Thus in the seventh century AD Jonas spoke of beer only made of wheat or barley and placed it in Gaul, Britain, Ireland, and Germany, as well as in the Balkans (*Vita Columbani* 1.16 in Krusch 1905, p. 179). A later eastern European, Byzantine source (Leontinus) knew of beer made from oats and millet, but stated that barbarians especially used wheat and barley for beer (*Geoponica* 7.34.1 in Beckh 1895, pp. 212–213).

### Additives Used in Beer

As plain beer (made only with malted cereal, water, and yeast) lacks much flavor, a variety of additives, particularly locally available plants, must have been used to improve its taste since early times (Behre 1999, p. 35; Hornsey 2009, p. 36). Furthermore, some plants were added to beer also because they acted as preservatives (Behre 1999, p. 35; Dineley 2004, p. 13), so that beer did not have to be drunk soon after being made. It can be assumed, however, that until well into the Middle Ages beer mainly continued to be a beverage consumed relatively quickly, thereby establishing it as a local product little imported or exported (though some beer was stored and possibly transported in barrels already by the sixth century AD as shown in Nelson 2005, pp. 49–50, 94–97).

Rather than distinguish ancient European beers by their base cereal, as the surviving ancient Greek and Roman sources did, Behre, in an important article (1999, pp. 35, 36), instead spoke of two main styles of European beers which arose in ancient times, those made with sweet gale and those with hops, and he argued that all beers by the early Middle Ages were either of one type or the other, and that hopped beer over time came to replace sweet gale beer. Behre proposed that other herbs were used but were only of secondary importance (1999, p. 35; for a listing of some of these, see Dineley 2004, pp. 13–18, who places particular emphasis on the use of henbane in beer, and Hagen 2006, pp. 207–208). Only one source, for instance, mentioned fleabane being used in beer (Hecataeus, fr. 154 in Athenaeus, 10.447d in Olson 2009, p. 140). Furthermore, some beer additives may have been purely medicinal. Thus the Old English medical text known as *Lacnunga*, surviving in a manuscript from around AD 1000, described a beer made from wheat malt brewed in a copper kettle with boarfen, bishopwort, hindhealth, pennyroyal, and periwinkle to be drunk to help against coughing (180 in Pollington 2000, p. 242). However, for this chapter,

the focus will be only on sweet gale, hops, and also honey, which was clearly also a widespread additive (see Fig. 2.2).

### Sweet Gale

Sweet gale, also known as bog myrtle (*Myrica gale* L.), is a shrub which grows naturally along the coasts of northern Europe (Behre 1999, p. 36, Fig. 1; Nelson 2001, pp. 139–140). When placed in beer it provides "a certain sharp, distinctive, and probably potent but still sweet taste" (Unger 2011, p. 49). Some have further distinguished sweet gale beer from hopped beer by claiming that the former is narcotic while the latter is rather sedating (Hornsey 2009, p. 37). No written source before AD 1000 explicitly mentions sweet gale beer but large finds of sweet gale fruitlets, probably used for beer, and dating from the first century BC to the first century AD were found at several sites in the northern Netherlands in the area of the Rhine estuary (Behre 1999, pp. 35, 39, with the map of finds at 37, Fig. 3; Hornsey 2009, p. 38). As early as the tenth century AD in the Netherlands a type of beer made with a variety of herbs came to be known as *gruit* and it is usually assumed that sweet gale was the main ingredient (for instance, by Hornsey 2009, p. 37). However, the exact composition of *gruit* is unknown and sweet gale may not have been the predominant type of herb used in it (Unger 2004, pp. 30–34, 2011, pp. 49, 51). Regardless, there was probably a continuous tradition of using sweet gale in beer in what is now the Netherlands from the Roman period well into the Middle Ages. Sweet gale was probably also used in beer in other places; at least the tenth century AD Old English *Lacnunga* mentions boiling sweet gale among other herbs as well as honey in beer to treat lung disease (59 in Pollington 2000, p. 200). Clearly for some unknown reason hopped beer gradually replaced beer made from sweet gale and other herbs. Such beers died out until they came to be recreated in the late twentieth century by some adventurous brewers (such as the Jopen Koyt *gruit* made at present in Haarlem in the Netherlands).

### Hops

Hops (*Humulus lupulus* L.) are a climbing plant found throughout mainland Europe. Oils from the hops' female flower are now almost universally used in beer-making, providing a bitter taste and acting as preservative, sterilizer, and clarifier (Nelson 2001, pp. 140–144, 2011, p. 77; and see Hieronymus 2012, pp. 176–202 for the modern use of hops in brewing). However, it is unclear exactly when hops were first used in beer. Behre (1999, pp. 39–41, with the map of

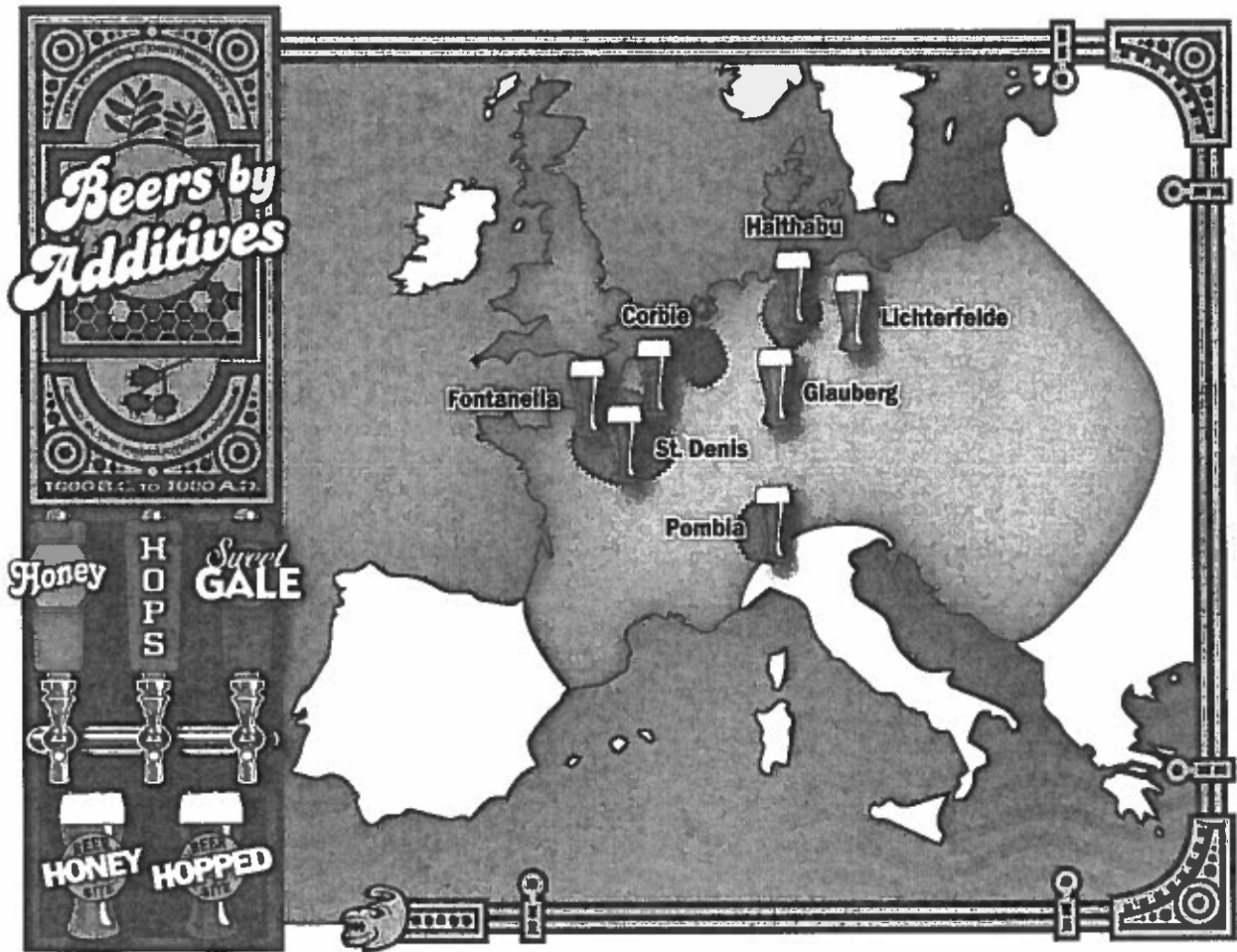


Fig. 2.2 The probable distribution of beers by additives used in the production process (1000 BC-AD 1000)

finds at 38, Fig. 4) showed that hops have been found in archaeological contexts dating to as early as the sixth century AD, but not securely linked to brewing. More recently, however, traces of hops were found with barley in an earthenware vessel placed in a cinerary urn buried in a sixth century BC Celtic grave in Pombia, northern Italy, providing the possibility that hopped beer is much more ancient than once thought (Castelletti, Maspero, Motella De Carlo, Pini, and Ravazzi 2001, p. 107; Gambari 2001, p. 146; Marchesini and Marvelli 2002, p. 305). Whatever the origins of hopped beer there is little doubt that it became widely popularized only by the Middle Ages. In the early ninth century AD a number of monasteries in France are recorded to have had hops, and in some instances, all in the Ile de France area, the hops were explicitly said to be used to make beer (Nelson 2005, pp. 107–109, with the map at 109). In Haithabu in northern Germany in a ninth century AD context there has been found an abundant amount of hop flowers coupled with malt residue, and thus surely for brewing (Behre 1999, p. 39). Also

an anonymous Old English herbal from the tenth century AD apparently alluded to using hops in beer (*Herbarium* 68.1 in De Vriend 1984, p. 110). It may be that hopped beer was popularized among monasteries in northern France and spread to various places from there (into the Low Countries, Germany, Britain, and Scandinavia, as traced in part in Unger 2004, pp. 53–106), to eventually become a globally dominant ingredient in beer.

### Honey

As was already mentioned above, in ancient Europe honey was fermented on its own to produce mead, but also at times it was combined and fermented together with malted cereal to create a honey beer (or bragget). Honey was useful in many ways as an additive during the production of beer: to increase alcohol strength (through its fermentable sugars); to act as a preservative; to provide yeast to help ferment the

malted cereal; to add a sweet flavor (if not fully attenuated); and potentially to add narcotic qualities from the flowers from the nectar of which the honey was made (Nelson 2001, pp. 131–135). In the fourth century BC the Greek explorer Pytheas visited northern Europe and wrote that among people there who had grain and honey, their beverage had these ingredients too (fr. 7 in Strabo, 4.5.5 in Roseman 1994, p. 134), presumably meaning that they made beer and mead and possibly also honey beer (the passage is ambiguous on this point). In the first century BC the Greek traveler Posidonius (fr. 170 in Athenaeus, 4.152c in Theiler 1982, p. 142) wrote that wealthy Gauls drank wine, the less rich drank wheat beer made with honey, and the masses drank plain beer (presumably made with barley). Perhaps traditionally the wealthy Gauls drank mead rather than wine before it was introduced to them by southerners. The existence of Celtic or Germanic honey beer has been confirmed by archaeological finds. Some one hundred small pots found in a well in Lichterfelde near Berlin and dating to around 1000 BC might have once contained honey beer (Koch 2003, pp. 136–137; McGovern 2009, p. 147). Furthermore, in a Celtic grave in Glauberg, Germany, dating to around 450–400 BC, residue from what may have been honey beer as well as mead has been found (Koch 2003, p. 135; McGovern 2009, p. 152). There is no evidence for honey beer in ancient times in the Iberian peninsula or in Ireland, though it may have existed there too.

Honey beer is also attested in early medieval Britain. The sixth century AD Old Welsh poet Aneirin referred to the honey beer (bragget) found in what is now Edinburgh, Scotland (*Gododdin* 144 in Koch 1997, p. 68). In a penitential falsely attributed to the late seventh century AD Theodore of Tarsus, Archbishop of Canterbury, honey beer is mentioned in passing (I in Migne 1864, p. 935, and found in various other sources as shown in Nelson 2005, p. 162, n. 43). In the law code of King Ine of Wessex from the late seventh century AD (70 at Liebermann 1903, p. 119) “Welsh ale” and “clear ale” were mentioned, and these two types are found in many later Old English texts, with “Welsh ale” probably referring to honey beer (Breeze 2004; Hagen 2006, pp. 211–213, 230). Interestingly, in the Welsh laws traditionally attributed to the tenth century AD King Hywel the Good, it was said that the King should be provided twice a year by his freemen with a vat of mead large enough that he could bathe in it, or else two vats of bragget or four of beer, thus clearly showing how highly the Welsh prized their honey-based intoxicants (*Dull Dyved* 2.19.3–4 in Owen 1841, p. 532; for other provisions of honey beer, see pp. 44, 64, 196, 198, 362, 390, 392, 534). Cornell (2010, pp. 146, 193) suggested that “Welsh ale” was usually made from wheat malt and honey, with the wheat providing it with a certain hazy appearance which would explain why it was normally contrasted with “clear ale”, which was presumably made simply with malted barley. This may

well have been the case as honey beer is only attested in places that had wheat beer and the only source before AD 1000 which explicitly indicated which type of cereal was used in honey beer, Posidonius, spoke of wheat. Honey beer seems to have died out during the Middle Ages only to have been revived in the twentieth century in Britain and elsewhere in Europe (Cornell 2010, pp. 194–195).

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## Conclusion

The surviving evidence for beer in ancient Europe, derived from both written and material sources, is fairly fragmentary and as such does not allow for a detailed picture of regional varieties of beer. However, there is enough extant information to reconstruct some general patterns of beer consumption from 1000 BC to AD 1000.

Scholars have typically emphasized a north/south European division, assuming that beer was only popular in the north. In reality beer was common throughout Europe between 1000 BC and AD 1000 except in what is now southern Italy and Greece. In fact more prominent than a north/south division was a west/east division: while barley was the common cereal used by all beer-makers, wheat was also used in much of western Europe as a secondary cereal while millet instead was used in the east. Scholars who have promulgated the north/south European distinction have attempted to explain it by vaguely referring to climatic, agricultural, and socio-political factors which led to wine being drunk in some areas and beer in others. Some of these factors may in fact have affected the widespread use of barley as well as the prevalence of wheat or millet beer in different regions. No doubt the fact that barley can be grown in a variety of different environments, as well as the ease in malting and fermenting it, led to its general popularity for beer-making. However, it is more difficult to explain why wheat beers prevailed in the west while millet beers prevailed in the east. The reason cannot simply have been a matter of climate or agriculture since wheat was grown in the east as well as the west and millet was grown in the west as well as the east. Clearly simply because a certain cereal was locally available did not mean that it was inevitably used to make beer; this is particularly clear in the case of southern Italy, where there was an abundance of cereal of various types, but apparently no beer was made from it. No doubt then there were cultural factors which led some ancient European peoples to opt not to make beer at all or else to make beer with wheat and not millet, or millet and not wheat. Some, like the Greeks, seem to have viewed every type of cereal, at least as processed in beer, to be an undesirable comestible, perhaps in part due to a pseudo-scientific understanding of fermentation and the nature of beer. It may be speculated that on the other hand Celtic and Germanic peoples may have upheld

wheat as a particularly beneficial cereal in beer while eastern European peoples championed millet instead, each for some now unknown reasons, whether nutritive, religious, or political. Drink choices therefore were not simply determined by geography.

However, the story of beer in ancient Europe is more complicated than a general acceptance of barley beer and further different regional preferences for wheat or millet beer. For one, some beer-makers may well have indiscriminately combined various types of cereals together. Furthermore, many beer-makers certainly added various other ingredients to their beers, to improve the flavor, to act as preservatives, and/or for positive physiological effects. Although many types of plant additives were no doubt used in beer, two main ones became popular: sweet gale first attested in the region of the Rhine estuary around the first century BC, and hops, first found in the sixth century BC but only popularized in the Ile de France area in the ninth century AD. Just as in the case of wheat and millet, which were cultivated widely in both western and eastern Europe but not used in beer throughout this whole area, both sweet gale and hops were found growing in the wild in a much larger region than where they were used in beer. Presumably ancient brewers over generations experimented with locally growing plants and some came to view sweet gale and others hops as particularly effective for their own purposes. This seemingly occurred independently in different places, such as in northern Italy and then later in northern France with regard to hops. However, a single container of hopped beer in a tomb in northern Italy can prove only that one brewer decided once to have recourse to this plant, and need not mean that it was then in wide use. Presumably there were particular impetuses which caused the practices of individual home-brewers of using certain additives to become accepted by a wider community of brewers. For instance, for the sake of mere speculation it could be suggested that sweet gale was first used by a number of independent home-brewers and only came to be widely adopted as a beer ingredient by an interconnected community of brewers in what is now the Netherlands because they had begun to export (on no more than a small scale perhaps) their beers up the Rhine river and needed to preserve them better for the journey. Similarly, when monks in what is now northern France wished to extend the shelf-life of their beers, which they needed in large quantities to supply themselves as well as guests to their monasteries, and even sometimes for outside sale, they came to use hops. Therefore a localized innovation, answering at first the very specialized needs of an individual home-brewer and her household or a particular commercial brewer and his clientele or eventually a larger brewing community, gradually came to be adopted ubiquitously.

Finally, honey was widely used in beer throughout western Europe, no doubt as a simple means to make a better, stronger, and sweeter brew. Honey, which took much work

to collect and which was the main available sweetener, was a prestige product, available for only more well-off consumers. Presumably throughout Europe those who had access to honey used it, whether on their usual foods or in their regular drinks, including beer. Apparently in western Europe honey was combined with malted wheat as the two premium beer ingredients. No evidence survives for the existence of honey beer in the Iberian peninsula and Ireland, but presumably this represents simply a gap in our knowledge, since honey was available in these areas and there is no reason to think that it would be avoided by beer-drinkers there.

In conclusion, it must once again be stressed that the picture presented in this chapter is based on highly fragmentary evidence, and it may be incorrect in many particulars. It may be hoped that future archaeological discoveries will add much to our knowledge.

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