CHAPTER 40

# GERMANY IN THE BRONZE AGE

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## Introduction

The cultural diversity of Germany during the Bronze Age can be understood only against the background of the country's geology, geography, and climate. From south to north, Germany can be divided broadly into the following regions: the Bavarian Alps (to *c.*3,000 m) and Alpine foothills, the southern *cuesta* landforms (plateaux and mountains), the hills and low mountains of the Mittelgebirge (400–1,000 m), and the flat north German lowlands (to *c.*200 m), with the North Sea and Baltic Sea coastlines and offshore islands. The north is marked by sandy expanses and glacial moraines with lakes and bogs. The landscapes of the Mittelgebirge and southern Germany form many small, distinct areas with fertile soils, whereas the Alpine foothills are characterized by gravelly moraines and mountain landscapes. There are mineral deposits (copper, tin, and gold), but it is still unclear whether they were exploited at that time; this is in contrast to Bronze Age salt production.

The great river systems (rivers with tributaries) of the Danube, Rhine, Weser, Elbe, and Oder form physical networks for communication, by which common cultural elements and contacts were established. The south of Germany has always had strong connections with the Alpine countries (Switzerland, northern Italy) as well as Bohemia, Moravia, Austria, and Hungary. To the west are links to France, Belgium, and the Netherlands, as well as the British Isles. Eastern Germany has close connections with Poland, while the north (Lower Saxony, Schleswig-Holstein, Mecklenburg) has ties with Denmark and southern Sweden.

Consequently, there exist a large number of archaeological groups ('cultures') within an extremely complex timeframe (Fig. 40.1). From the south to the northern edge of the central uplands, the chronological system in use is that devised by Paul Reinecke (1872–1958) (*Bronzezeit* A–D; Hallstatt A and B), while the system introduced by the Swedish scholar Oscar Montelius (1843–1921) (Periods I–VI) is applied to the Nordic Bronze Age. Dendrochronology and radiocarbon dating have essentially confirmed previous absolute dates.

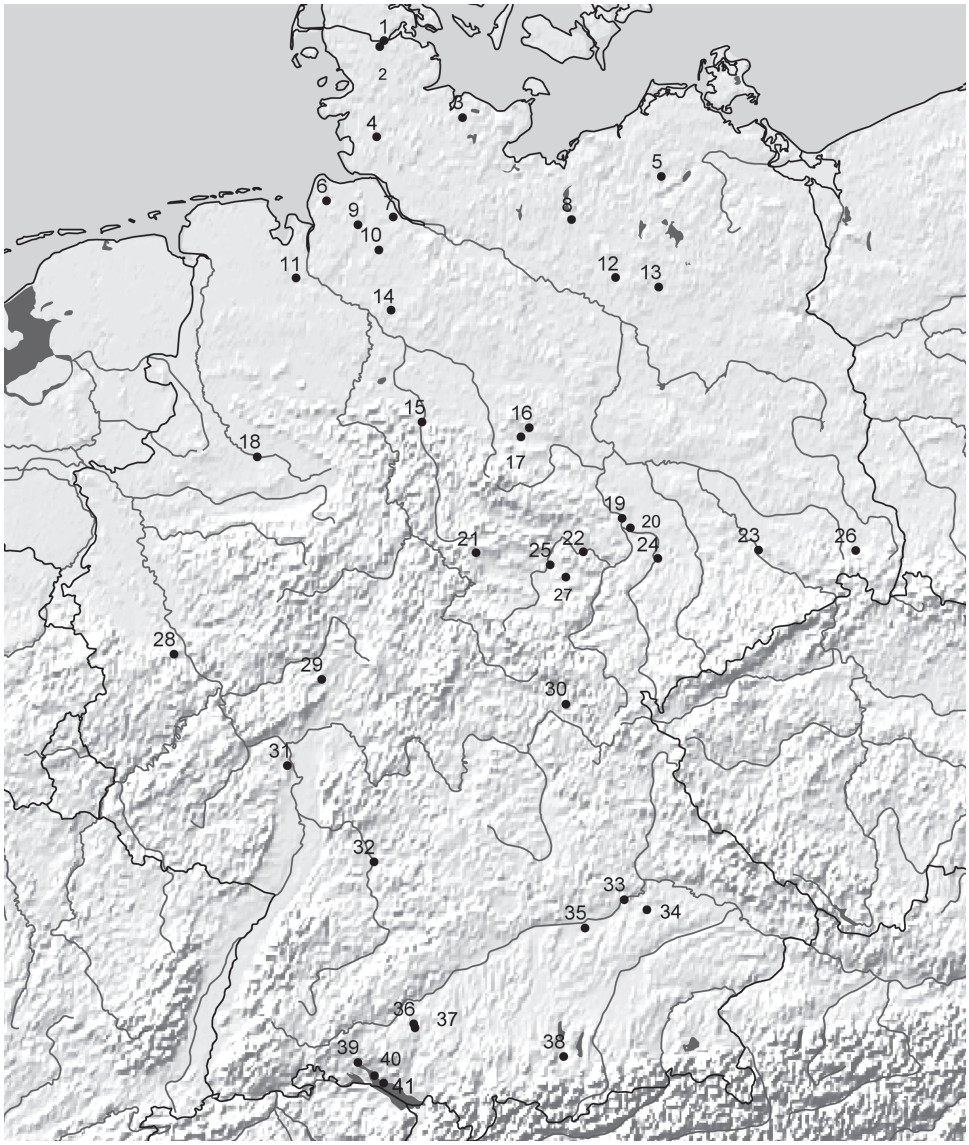


FIG. 40.1 Map of Germany showing sites discussed in the text. 1. Harrislee, 2. Handewitt, 3. Rastorf, 4. Albersdorf, 5. Thürkow, 6. Krempel, 7. Stade, 8. Peckatel, 9. Alfstedt, 10. Anderlingen, 11. Moordorf, 12. Seddin bei Groß Pankow, 13. Herzsprung, 14. Schafwinkel, 15. Schulenburg, 16. Schöningen, 17. Hünenburg bei Watenstedt, 18. Warendorf-Neuwarendorf, 19. Halle-Giebichenstein, 20. Dieskau, 21. Helmsdorf, 22. Mittelberg bei Nebra, 23. Heinrichsburg bei Seußlitz, 24. Zwenkau, 25. Leubingen, 26. Niederkaina, 27. Großbrembach, 28. Wachtberg-Fritzdorf, 29. Butzbach, 30. Heunischenburg bei Kronach, 31. Dexheim, 32. Neckarsulm, 33. Frauensberg bei Weltenburg, 34. Langquaid, 35. Ingolstadt-Zuchering, 36. Wasserburg Buchau am Federsee, 37. Forschner, 38. Weilheim, 39. Bodman, 40. Unteruhldingen, 41. Hagnau.

Map: author with M. Uckelmann.

The German Bronze Age is usually divided into an Early Bronze Age (EBA) (from the end of the third/beginning of the second millennium BC to around 1600 BC), a Middle Bronze Age (MBA) (1600–*c.*1300 BC), and a Late Bronze Age (LBA), also called the Urnfield period (1300–*c.*800 BC). The most important distinguishing features are the burial customs and grave forms: the Early Bronze Age is characterized by flat graves with bodies buried in the crouched position, the Middle Bronze Age by inhumations beneath mounds, and the Late Bronze Age by the deposition of urns containing cremated remains in burial places known as urnfields.

# Central and Southern Germany

## Early Bronze Age

In Germany, as an integral part of central Europe, there are numerous cultural manifestations in the EBA, which, although having their own regionally specific character, when taken average rich single graves and their associated together show distinct common features. These are evident in the appearance of above-votive depositions and hoards with new kinds of ceremonial weapons, such as solid-hilted daggers (*Vollgriffdolche*) and halberds, as well as various kinds of axe. From this it can be inferred that around 2000–1800 BC a leading social group ('chieftains') emerged, in farming communities that stretched from the lower Danube to southern Scandinavia, the south of England (Wessex culture), and Brittany, and were in close contact with one another. Their common features are evident not only on the physical level, as seen cross-regionally in very similar object forms and burial rites, but also in the spread of new technologies, like the introduction of tin-bronze, and the advent of complex metalworking techniques. EBA cultural groups are like 'islands' in central Europe, particularly near important deposits of copper, tin, and salt. Between these 'islands' are wide stretches of land that still continued in the Late Neolithic tradition. The most distinctive culture group is the Aunjetitz or Únětice culture (named after Únětice near Prague) (2300–2200 to 1600–1500 BC). Of more than just regional significance, this culture spreads from the middle Danube (south-west Slovakia, northern Lower Austria) across Moravia and Bohemia to central Germany, and as far away as Silesia and Great Poland. Flat cemeteries, some quite extensive, in which the graves contain crouched bodies oriented south-north, are predominantly situated near rural settlements—which, however, are still hardly known (e.g. Schöningen, with longhouses: Maier 1996). Beside simple burials there are occasionally graves with stone walls (*Mauergräber*) or graves holding tree-trunk coffins. Men and women are all buried lying on the right side and facing east. Children are occasionally buried in large storage jars (*pithoi*). Sometimes several people, probably members of one family, are buried in a single grave. The most important Únětice cemeteries are at Großbrembach and Nohra (Thuringia) and Wahlitz (Saxony-Anhalt), Burk bei Bautzen (Saxony) (Zich 1996). In the largest known central German site, Grossbrembach, single families were buried. It was also possible to demonstrate the people's supposed Bohemian origin from epigenetic markers on the skeletons (Ullrich 1972).

The roots of the early phase of the Únětice culture (Proto-Únětice phase), which largely lacks metal, are found in the outgoing Late Neolithic (Corded Ware culture, Bell Beaker culture). The Únětice culture reaches its peak in the later ('classical') phase. Characteristic artefact forms in the early phase are globular and narrow-necked pots with fringed decoration and small ornaments made of copper as well as bone and shell (Zich 1996; Bartelheim 1998).

The later phase, whose beginning has been dendrodated at the latest to the twentieth century BC, is characterized by its distinctive pottery forms. Burials from this time yield considerably more grave goods made of a copper alloy that is unusual for its higher tin content (Rassmann 2005). Most burials contain few other grave goods; however, there are exceptional richly furnished tumuli from this time. These are the isolated burial mounds, visible from afar, which are usually referred to as 'princely graves'. Such graves occur at Helmsdorf, Leubingen (the 'Leubingen Group' was named after the enormous mound there), Dieskau, Nienstedt, Sömmerda, Lochau, and Österkörner (Meller 2004). There are no such monuments elsewhere in the broad Únětice culture area, apart from comparable tumuli at Łęki Małe (Poland) (see Chapter 42). The two large mounds at Leubingen and Helmsdorf, which are strikingly similar, have been dated by dendrochronology (Leubingen: excavation 1877: 1942 [± 10] BC; Helmsdorf: excavation 1906–7: 1840 [± 60] BC; Becker, Krause, and Kromer 1989). According to the lavish grave goods, only one person was laid to rest in the burial chamber of these large mounds. Many grave goods were provided, some of gold. Altogether, the weight of all the gold objects from these 'princely graves' amounts to *c.*1 kg in the form of tools (flanged axes), pins, bracelets, diadems, and finger-rings. There are also bronze weapons such as axes, daggers, halberds, chisel-like tools, a cushion stone, and a large Middle Neolithic stone axe. The halberd, a pan-European weapon presumed to be of Irish origin, the stone axe, and the golden ceremonial axes (like the Dieskau axe), must also have functioned as insignia of status. The building of these burial monuments required a huge investment of labour. Rich hoards of metal objects from the same time and, to some extent, with the same forms were also found around several of the giant mounds (e.g. Bennewitz, Dieskau, Halle-Kanena, and Neunheiligen).

In comparison with the generally modestly furnished flat graves of the Únětice culture, the few princely graves of the 'Leubingen Group' convey a clear social differentiation, with concentration of wealth and power in a few—almost without exception—male personages. What brought about this almost unique social differentiation is still unclear. Certainly, close proximity to the copper deposits in the Harz foothills (e.g. Helmsdorf) was important on the one hand, just as the rich finds around Halle/Saale (e.g. Dieskau) can be explained, on the other hand, by the evidence of salt extraction at this time in Halle-Giebichenstein. However, there might be another explanation: a possible control of the exchange of metals (copper from the Alpine region [Krause 2003]; source of tin unknown), amber (from the western Baltic Sea), and salt (from Halle) on the trade route from the Danube to Scandinavia, which dates back to the Neolithic. Even today, however, there is no definite proof of the exploitation of central German copper and tin deposits at this time (Rassmann 2005).

Comparable burials are rare north of the central German Únětice culture. Rich hoards (Bresinchen I, II; Melz I, II) have been recorded in Brandenburg and Mecklenburg. The later Únětice culture reaches its north-eastern border in eastern lower Saxony, where it affects the Late Neolithic *Riesenbecher* ('Giant Beaker' group).

There are hardly any recorded graves from the end of the Únětice culture. It seems that the situation must be understood through the emergence of fortifications or small hill forts, which show strong connections to the middle Danube area (Mad'arovce, Věteřov). At Zwenkau (Saxony) there is a low rampart surrounding large longhouses (Huth and Stäuble 1998), as well known from other areas (e.g. Schöningen) (Maier 1996). The end of this once-powerful culture is still unclear. It disappeared at the start of the Middle Bronze Age.

There are other pockets of EBA groups in the southern German region between the Alps and the Rhine and Main, mainly from flat cemeteries (crouched inhumations) with burials oriented according to sex (following the tradition of the Bell Beaker culture); some of the

graves are furnished with tree-trunk coffins and/or stone covers. The groups are linked by the modesty of their copper grave goods, and a parallel is drawn between them and the earlier Únětice culture (Bz A1). The Straubing group is spread through southern and south-eastern Bavaria (e.g. cemeteries at Straubing and Alteglofsheim), and adjoins the Ries group to the west (Nähermemmingen cemetery). There are also the Singen group on the upper Rhine, the Hochrhein-Oberrhein group on the northern upper Rhine (Singen cemetery), and the Neckar group (Remseck-Aldingen cemetery) further north. In Weilheim, home of the Neckar group, a 4.5 m-high stone stele was found, with images of halberds and an oval disc or crescent moon depicted in relief. Adjoining these Early Bronze Age groups to the north is the Adlerberg group, which spreads across the northern upper Rhine and lower Main region (cemeteries at Worms-Adlerberg, Hofheim, and Trebur). There are scarcely any known settlements. The graves are provided mostly with small pieces of copper ornaments made from sheet-metal and wire, including cross-regional types of pins (oar and disc-headed: *Ruder-* and *Scheibenkopfnadeln*) with a geometric decoration that is also seen on other objects, such as triangular dagger blades. Bone and shell ornaments continue to be widespread.

The period Bz A2 produces the first burial mounds and weapon hoards containing solid-hilted daggers (Gaubickelheim and the Ingolstadt halberd hoard) and tools (axes) made of classic tin-bronze. Finds from this Langquaid stage include the first socketed spearheads and flanged axes with a strongly curved cutting edge, as well as pins with a perforated spherical head. These are spread across broad regions of central Europe and represent a cultural 'equalizing' process at the end of the Early Bronze Age (Vogt 2004).

Intensive copper mining was undertaken in the Alpine area from this time (certainly in the eastern Alps; and probably on the headwaters of the Rhine in modern Switzerland: Krause 2003). The mined metal circulated in the Alpine foothills in the form of ring ingots (*Ösenhalsringe*) or bars (*Rippen- und Spangenbarren*), as well as flanged axes (Neyruz type, Salez: Krause 2003). Thousands of these bars are recorded as the sole or major component of large hoards (Mauthausen, Austria, weighing *c.*150 kg: Lenerz-de Wilde 1995).

There are only a few noteworthy EBA findspots north of the Rhine-Main line and west of the northern and eastern boundaries of the Únětice culture. Between the lower Rhine and Elbe there are various regional forms of the so-called *Riesenbecher* group (Pot Beaker, Bentheim Beaker), which are recorded from both cemeteries and settlement sites. They are in the Late Neolithic tradition, and in their twisted cord-decorated pottery (*Wickelschnurkeramik*) they fit into the transition to the Middle Bronze Age (Sögel-Wohlde Period) (Vogt 2004). Probably also belonging to this phase, which is difficult to differentiate, are the leaf-shaped flint daggers, like those recorded in their thousands from Period I of the Nordic Bronze Age and seen as stone substitutes for metal daggers. There are several striking objects that are imports from other regions (in particular the British Isles): the Wachtberg-Fritzdorf (Rhineland) gold beaker, gold lunulae from Schulenburg (Lower Saxony) and Butzbach (Hessen) (and their copper imitations?), the golden disc from Moordorf (near Aurich, Friesland, Fig. 40.2), and Anglo-Irish axes. Numerous single finds of flat axes with curving blade and early trapezoid flanged axes, some with a raised tin content, possibly indicate imports. These axes partially compensate for the apparent absence of finds in other areas.

## Middle Bronze Age

The transition from Early Bronze Age to the Middle Bronze Age or Tumulus period (*Hügelgräberbronzezeit*) was very fluid in the different landscapes of central Europe. The

FIG. 40.2 The gold disc from Moordorf near Aurich (Lower Saxony) found in 1910, dm. 14.5 cm and metal thickness 0.14 mm.

Source: Niedersächsisches Landesmuseum Hannover.

Tumulus culture occupied a rather large area characterized by inhumations beneath large mounds, which were grouped together in cemeteries that range in size from fairly small to quite large. The multitude of preserved mounds and the often rich graves recorded in them make this short period one of the most distinctive periods in central Europe. The cemeteries, which often include dozens of mounds, convey an impressive and lasting picture of the prehistoric landscape and even today make it to some extent a visible 'landscape of the dead'.

The roundish-oval mounds are still about 1–2 m high. They are built of soil, sand, turf (sod), stone, or a combination of these materials (e.g. Görner 2002; Geschwinde 2000). Their architecture is very varied, depending on the resources available in each particular region. The mounds are often bounded by a stone setting, a ring ditch, or rings of wooden posts (especially in Westphalia and the Netherlands). Modern anthropological investigations indicate that the burial under the mound begins with that of one man (Geschwinde 2000). There is no doubt that each mound belongs to a small family group (Ripdorf: Geschwinde 2000). Single burials predominate; however, cremations begin and increase during the Middle Bronze Age. The body is usually buried prone and oriented north-south or east-west in graves that are often protected by stones or burial chambers with wooden fittings. The central burial is then joined by any number of additional burials at the same or—more frequently—a higher level in the mound. Sometimes there are flat graves between the mounds or, especially in north-western Germany, long parallel rows of posts that lead to the mounds.

The dead were buried with their personal equipment. Men were provided with weapons (comprising—infrequently—sword, dagger, axe, and spearhead) and ornaments (usually a pin or bracelet) (Fig. 40.3a). Women's grave goods consisted of rich costume ornaments (Fig. 40.3b). 'Baltic' amber ornaments were very popular (spacer plates), and there are sites with hundreds,

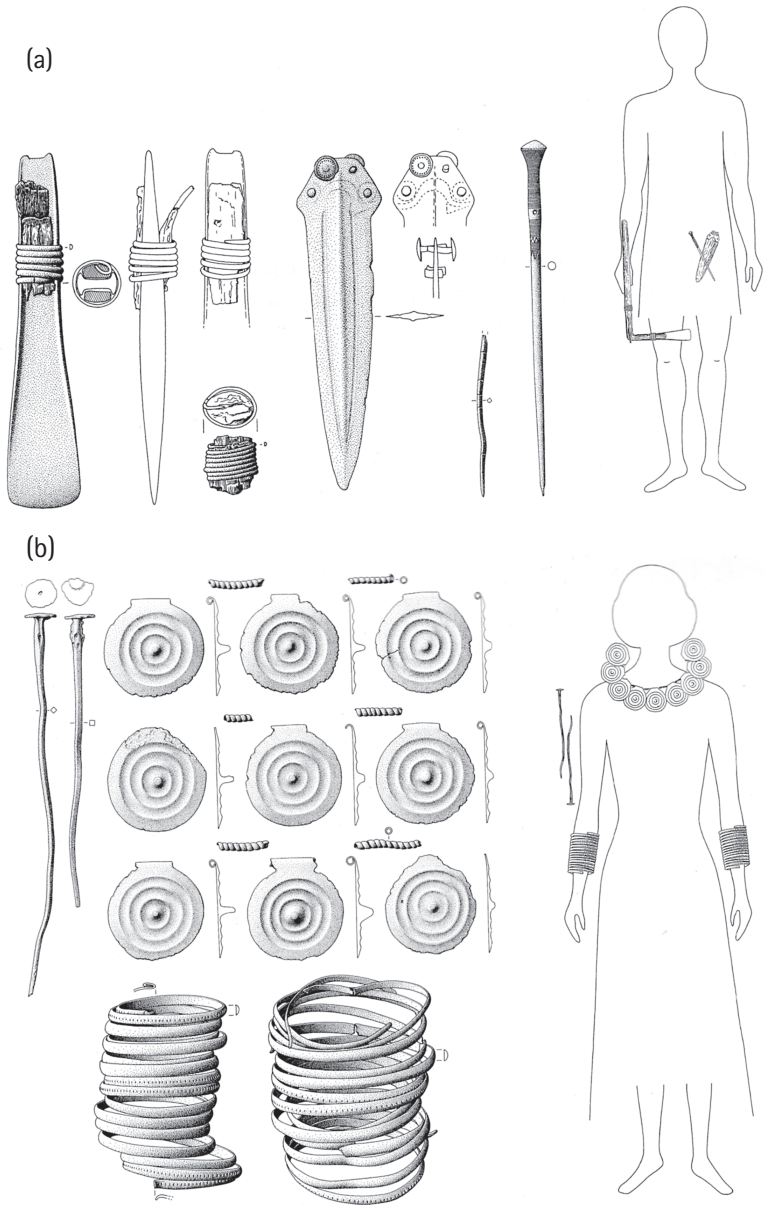


FIG. 40.3 (a) Wolnzach-Niederlauterbach (Bavaria), tumulus 1, grave 1: male burial of the earlier Tumulus culture (Bz B and later) with axe, dagger blade and pins, and a reconstruction of how they were worn; (b) Wolnzach-Niederlauterbach (Bavaria), tumulus 1, grave 2: jewellery of a female burial of the earlier Tumulus culture (Bz B and later) with pins, and neck ring with discs and spiral roll ornaments, as well as arm spirals and a reconstruction of how they were worn.

Source: U. Wels-Weyrauch.

even thousands, of amber beads in Württemberg (Hundersingen) and southern Bavaria (the Ingolstadt hoard has around 2,800), far more than in Nordic Bronze Age graves (see Chapter 41).

At the start of the Middle Bronze Age several innovations spread quickly and with lasting effect across central Europe, including Germany: swords (based on influences from the Danube region) and spears (socketed spearheads) appear as new weapons, while two-edged razors, tweezers, knives, and sickles are the new tools. Many small axes (flanged axes, *Absatzbeile*) might also have served as weapons. The use of the horse as a transport animal (for wagons and battle chariots) is particularly significant, and evidence for this is seen specifically in decorated bridle or cheek-pieces made from antler and bone. The grave goods reveal only very slight social ranking. In all, a largely egalitarian, or homogeneous, society can be inferred (Geschwinde 2000; Görner 2002).

The Middle Bronze Age can be divided into a number of short phases, each of which lasts only a few generations. While the older phase (Bz B or Lochham period) is characterized by certain bronze forms in widespread use, including the oldest solid-hilted swords (*Vollgriffschwerter*) (Spatzenhausen type) and rapier-like swords with organic hilt, in the following period (Bz C1–C2) it is possible to identify several regional groups by the distinctive metal fittings worn on their clothing. The regional groups of southern Germany up to the northern edge of the Mittelgebirge are distinguishable primarily by their grave goods: the southern Bavarian group, Alb group (Swabia), Haguenau group (Alsace), Rhine-Main and Fulda-Werra groups, Thuringian group, and Upper Palatinate group (closely linked to the western and southern Bohemian groups). To the north of the Mittelgebirge is the Lüneburg group, which is very closely related to the south German groups, particularly the Fulda-Werra group (north and east Hesse), but also has features of the Nordic Bronze Age (Period II). These groups had a range of about 50–100 sq km and were in close neighbourly contact. They also exchanged their women (the so-called *fremde Frauen*, foreign women phenomenon). As in the preceding EBA, the cultural forms grew weaker as one travelled down the Rhine, both in the middle and lower Rhine lands and in Westphalia. Here there are close cultural ties with the Low Countries, as evidenced particularly in the construction of burial mounds ringed by wooden posts and an already significant proportion of cremation burials (see Chapter 31).

During the MBA most bronzes were made inside Germany. It is often postulated that the Mittelgebirge copper deposits were exploited; however, to date this has not been proved (Jockenhövel 1983). MBA settlements are not well known. Rural settlements were probably close to the burial mounds and consisted of only a few houses or just a single farmstead. There are hill forts at the beginning and end of the period. For reasons that are not yet understood, the societies of the MBA pushed ahead with 'colonization' in the Mittelgebirge. This could have been driven by population pressure or social conflict. However, economic special interests, such as the as yet unproved mining of local copper, salt production, or regional transhumance, could also have been behind this development (Görner 2002).

## Late Bronze Age

In the Late Bronze Age (Urnfield period) cremation gained acceptance in central Europe, from the thirteenth century BC onward. These ritual burials differed from one culture group to another. Not until around 1100 BC (Ha A2) was urn burial the common and standardized burial practice in much of southern Germany (Wiesner 2009). The dead were burned on a pyre, then the remains of their bones and ashes were picked out, scattered in graves, or

interred in clay pots. Burials differ depending on time and region, with graves ranging from the very simple to constructions protected by stones. The urn is placed in the grave together with other clay vessels, which sometimes form complete table services (Wiesner 2009). As such cremations were already occurring in no small number in the MBA, a regional continuity of ritual is to be assumed, rather than a possible foreign innovation brought from the Danube region in the course of a migration. The move to cremation, which also leads to the general disappearance of burial mounds, was probably due to a change in religious beliefs based on social status and identity, burial rites, and a new range of symbols (water birds) (Primas 2008). Beside cremation burial there were still inhumations, which, because they were often richly equipped, involve both a tradition coming from the Tumulus culture and a social element.

The Urnfield period is generally divided according to its bronze forms into a number of phases that span Bz D/Ha A1, Ha A1 and Ha A2, Ha B1, and Ha B2/3, and lead into the Early Iron Age (Hallstatt period) (Müller-Karpe 1959; Sperber 1987). Iron was still an expensive metal in central Europe in the later Bronze Age; occasionally it was used to make ornaments and to decorate sword blades (especially damascening) (Primas 2008: 126–7).

In the LBA greater cultural standardization followed the geographical splintering of the MBA. Many metal forms (especially weapons and tools) appeared across large areas; however, there are also many regional variations in ornaments (especially fibulae) and pottery. From these the following local culture groups can be distinguished in southern Germany: the southern Bavarian group in the Alpine foothills (with connections to the Alpine Hötting-Morzg group [Tyrol] and the southern Alpine area) (Schütz 2006); the Franconia-Palatinate group in eastern Bavaria (with strong echoes of the western Bohemian groups: Knovíz, Milavče); westwards to the Rhine is the lower Main-Swabian group (Kreutle 2007); and the Rhenish-Swiss-Eastern France group (RSFO, see Chapters 32 and 39) occupies the left side of the upper and middle Rhine, and the Mosel and Saarland. The Lausitz group extends through central and eastern Germany and also influences the frontier areas (Thuringia, Harz Mountains, Brandenburg, and Mecklenburg), where a great many small groups develop (the Saale Mouth group, Unstrut group, Helmsdorf group, Elb-Havel group, etcetera).

LBA pottery and bronzes show less differentiation north of the Mittelgebirge zone, between the lower Rhine and the Saale and Elbe. From around 1000 BC these landscapes are increasingly influenced by the later Nordic Bronze Age (Periods IV and V). The LBA lasts until Period VI (*c.*600 BC), but it is visible in some imported objects (swords, razor-knives, bronze vessels, fibulae) from the Early Iron Age in southern Germany. The appearance of the Jastorf culture around 600–550 BC signals the end of the Bronze Age in this region.

All in all, there is a greater range of burial rituals in the Urnfield period than in the Tumulus period. The custom of cremation limits the possibility of reconstructing clothing. The grave goods only faintly reflect the actual lifestyle or function, in other words status, of the dead: Margarita Primas (2008: 95) speaks of a 'veiled, foggy' hierarchy. Many areas like lower Bavaria have only a few weapons among hundreds of graves. Nevertheless, clear signs of a vertical hierarchization of Urnfield society begin to emerge. There are few 'rich' graves, compared with masses of 'simple' ones (Sperber 1999; Clausing 2005; Wiesner 2009).

The majority of Urnfield burials are provided only with pottery grave goods; next are the graves that contain a few ornaments and decorative objects (pins and small ornaments). The 'richer' graves have knives and/or razors, and some have simple weapons (bows and arrows). The wealthiest graves are furnished with larger weapons (swords, spearheads), and bronze

drinking vessels, or wagon parts, as well as high-quality bronze and gold ornaments (Clausing 2005). Most are the graves of adult men, conventionally described as 'chieftains' or 'nobles'. Graves of women are rare, though sometimes they followed the men in death, as shown by double (male with female) burials. The central figure in LBA society is the sword-bearer (Sperber 1999).

Warriors now bore swords with leaf-shaped blades that were used to cut or slash, whereas the earlier blades were used as thrusting weapons. The sword types found are solid-hilted (*Vollgriffschwerter*), or rod-tanged (*Griffangelschwerter*), and grip-tongue or flanged (*Griffzungenschwerter*) with an organic hilt. The warrior had a spear for throwing or thrusting at his side. In most cases the spear shafts were made of ash. Arrows with specially shaped heads were used as projectiles or for hunting and kept in a quiver of organic material with bronze fittings. Double buttons belong to a weapon-belt made of leather or fabric. More simply furnished male graves frequently also contain bronze knives and razors. Whetstones were used to sharpen both tools and weapons.

Female graves are identifiable from grave goods consisting of rich ornaments and dress fittings, especially head ornaments, neck-rings and wide anklets, as well as bracelets, fibulae, and one to two pins. Beside delicate hair-rings, headbands, and earrings, rich female attire includes neck ornaments (either a solid neck ring or a chain of spirally rolled beads called *Spiralröllchen*, some with amber and/or blue glass beads, and gold discs), and different kinds of pins, fibulae, bracelets, etcetera. They wore rings with a ribbed pattern on their fingers and occasionally wide, richly decorated ankle bands. On the whole, however, female graves are less richly furnished than male graves. The size of the graves and the urns used as containers for cremated remains reflect the age and sex differences between men and women, and boys and girls (Falkenstein 2006).

Children's graves are characterized by small bracelets, amulets, miniature vessels, and feeding vessels. Their grave goods are usually similar to those provided for women (their mothers?) (Wiesner 2009: 481).

Occasionally the rich graves contain vessels made of beaten bronze: mostly small cups, sometimes buckets, cauldrons, and sieves as parts of a complete drinking service (Jacob 1995: Fig. 4) (Fig. 40.4). Items of bronze body armour (helmets, corslets, greaves, shields) are totally unknown as grave goods. Such objects are, however, recorded from wet places (rivers, bogs) or from hoards, where they have been deposited in fragments.

The graves of an upper social stratum stand out from the simply furnished graves. They are identified by their construction (stone blocks, dry walls, or chambers of wooden beams, oriented with striking regularity in a north-south direction in south-western Germany: Falkenstein 2006); by the type of burial (sometimes cremated lying on a wagon [Clausing 2005] or a double interment of man and woman [Sperber 1999], at times also uncremated); and by the grave goods (weapons, bronze vessels, and gold ornaments). Sometimes it is possible to infer different generations from the position of such graves in relation to one another. These unusually rich graves include wagon-graves of the Poing/Hart an der Alz type. Such warrior graves spread through the Alpine foothills from eastern France to upper Austria (Clausing 2005) and are characterized by a ceremonial chariot (always with four-spoke wheels), together with grave goods of small bronze weights and raw metal (see Chapters 22 and 29).

The largest known cemetery from the LBA is in southern Bavaria at Ingolstadt-Zuchering near the Danube (Schütz 2006). Here around 580 graves (out of *c.*800–1,000) have been excavated, documenting use of the cemetery for almost 500 years, from around 1300 BC to 800 BC. The population of the accompanying settlement is estimated at about 30 people.

FIG. 40.4 The vessels from the cremation burial at Unterglauheim (Blindheim, Bavaria), dating to the later Urnfield period (Ha B1). The cremated remains were kept in the two gold cups which were placed on top of each other and lay between the two bronze basins, which were placed in the bronze bucket with bird-sun-boat-motifs.

Photo: H. Hollo, Augsburg.

An unusual site is the Neckarsulm cemetery (Württemberg), which consists exclusively of inhumation burials, about 50 in all (Knöpke 2009), in single, double, and multiple graves. All are males, many were sword-bearers; arguably they form a 'male band' (*Männerbund*). They all have remarkably good constitutions, which sets them apart from the rest of the population.

The extensive necropolis at Warendorf-Neuwarendorf (Westphalia), with about 350 graves, can be considered the most important reference cemetery of the north-western German Bronze Age (Jockenhövel 2003). It can be divided into five main occupation phases, which lasted more than 1,500 years and spread from west to east on both sides of an unpaved road that can still be followed for a length of 140 m. The route of the ancient road determines the orientation of the early grave enclosures, the so-called 'long beds' (*Langbetten*) (see Chapter 22). The oldest graves date to the Eneolithic and only one grave dates from the EBA. Two large burial mounds from the Tumulus period are distinctly visible in the landscape and form the starting point for a continuous occupation of the cemetery. The LBA graves that follow take their dimensions from one of these mounds. Most of the burials date from this phase, when the gradual transition from inhumation to cremation occurs. The foundation grave (Grave 105) lies in a *Langbett* and is identified as a male grave by a dagger and spearhead. Graves shaped like a keyhole (*Schlüssellochgräber*) follow, and there are ring ditches as well as unenclosed graves, with cremated remains in small pits. The vast majority of individuals buried in the long graves and keyhole-shaped grave enclosures are males, as in the Netherlands. In contrast to many south German cemeteries, occupation here continues into the Iron Age. The graves contain only one or two pots and very rarely small ornaments (mostly small pins).

## Eastern Germany: The Lausitz Culture

The successor to the Únětice culture, and several smaller groupings that were still trapped in the Late Neolithic milieu, was an extensive culture complex which developed in eastern central Europe at the beginning of the Middle Bronze Age. Defined as the Lausitz (Lusatian) culture (after Rudolf Virchow in 1880), it nevertheless divides up into numerous smaller groups. The very distinctive pre-Lausitz culture in eastern central Germany, Silesia, and Great Poland is a fringe group of the central European Urnfield culture (Gedl 1992), which, however, at the start of the LBA, acquired a cultural independence that lasted about nine hundred years. It is a large region, spanning the great river systems of the Elbe, Oder, and Vistula. Poor in raw materials, yet always acting as a kind of mediator between south and north, it is therefore open to many stimuli. In their burials and particularly in their pottery traditions and clothing, the Lausitz groups in north-eastern Bohemia, northern Moravia, northern Slovakia, central Germany, and central and southern Poland distinguish themselves clearly from their neighbours (see Chapters 42 and 43); possibly there was quite a strong ideological or political structure behind a number of these groups.

The western Lausitz culture can be broken down into several smaller subgroups between the Oder and the Elbe, indicating that there were impediments to the spread of particular burial features, pot styles, and costume habits (Schunke 2004). A number of regional groups formed on the western edge of the culture. They include the Saale Mouth group, the Unstrut group, and the Helmsdorf or Elb-Havel group (Schunke 2004).

The periodization of the culture is made possible by the pottery typical of each phase (Buck 1989). The pre-Lausitz phase 1 (Bz B–C) is identified by pots ornamented with 'warts'; phase II (Bz C–D) by pots with rings of bosses; phase III (Bz D–Ha A1) by sharply angular, fluted pots; and phase IV (Ha A2–Ha C1) by pots with horizontal grooves. The late development is seen in the Billendorf phase, where strong influences from the eastern Alpine Hallstatt culture become apparent (Buck 1989). It is difficult to establish a correlation with hoards from the same region, as the graves contain few bronze objects (von Brunn 1968). The often very rich hoards with various bronze objects (also originating in the Danube area) complete the picture of an interlinking system of communication.

The large urnfields typical of the Lausitz culture were occupied over many generations, so they often contain thousands of graves (e.g. Tornow, Niederkaina, Liebersee, Saalhausen, Klein Lieskow, Neuendorf). The grave goods comprise almost exclusively large numbers of pots, with only few and small metal objects, such as pins, ornaments, and metal tools (knives, single-edged razors). As there are no graves with weapons and rich ornaments, the social hierarchy of these large groups is obscure. There are weapon burials, particularly in the Elbe-Saale region, which functions as a corridor between the Danube and the western Baltic, especially in the older phases of the LBA (Bz D to Ha B1) (von Brunn 1968).

In the Lausitz area, as in central Europe at the same time, a dense network of fortified settlements arose, some on high ground and plains, others on marshlands and islands. They functioned as centres where metalwork was particularly concentrated (e.g. Niederneundorf, Senftenberg, Dresden-Coschütz). Bronze-workers evidently enjoyed high standing, since a fair number of burials include casting moulds as grave goods (Jockenhövel 1990). Assemblages of metal objects—weapons especially—were deposited as supplies or as votive

or sacrificial offerings. The Lausitz culture drew to an end with its late manifestations (Billendorf group, Aurith group, and Göritz group) around 500–400 BC, in a changing world of worsening climatic conditions, soil erosion, indigenous and exogenous factors (strong influences from the eastern Hallstatt culture group), as well as the emergence of iron technology. Probably the 'Scythians' or other mounted nomads also contributed to the Lausitz decline. Evidence of these people (the gold hoard at Witaszkowo, formerly Vettersfelde, lower Silesia) is found as far away as the Oder.

## Northern Germany: The Nordic Bronze Age

The so-called Nordic Bronze Age, or Nordic culture area *(Nordischer Kreis)*, has represented one of the most striking developments of the European Bronze Age ever since the early days of systematic research. The culture stretches across the north German and south Scandinavian region, especially in the western Baltic area. Building on the Late Neolithic foundation of the Single Grave culture, an Early Bronze Age culture develops during a lengthy transition phase from around 2200 to 1700–1600 BC. In many respects this culture continues Stone Age traditions. This is especially evident in the thousands of flint daggers (which gives it the alternative name 'Dagger Period'). However, this culture must be seen in connection with the metal-using cultures that shared its southern boundaries, especially the Únětice culture. The metal finds, in particular the flat axes and flanged axes, are at first imported from both central and western Europe (so-called Anglo-Irish axes), but they increasingly assume their own native forms in a different craft tradition, which depended throughout the Bronze Age on a metal supply from central Europe (Krause 2003). There are rich metal hoards (Melz, Malchin) with halberds and solid-hilted daggers from the zone of contact between the Únětice culture of central Germany and the EBA in Mecklenburg. One example of the local metal craft is the Malchin-type dagger, cast in one piece (Wüstemann 1995).

Tin-bronze becomes established at the beginning of the following period, which is initially marked by a widely distributed set of forms consisting of flanged axes, early spearheads, and pins with perforated spherical head. They are influenced by the south German and Swiss culture area. The Sögel-Wohlde culture leads to a distinct cultural development that spreads from the eastern lowlands across Westphalia to Jutland. It is characterized particularly by inhumations in burial mounds and at this stage—unlike the contemporaneous Tumulus culture of central Europe—is only known from male graves. They are identified by their grave goods: short swords or daggers, flanged axes, heart-shaped flint arrowheads, pins, and occasionally small rings formed of spirally wound gold wire.

The Rastorf (east Holstein) burial mound, raised over a megalithic grave, represents a short-lived development at the start of the Nordic Bronze Age. The oldest male grave with its triangular dagger belongs to the EBA; above it there is an early solid-hilted sword (of Sögel or Apa type); the latest burial contains a Wohlde short sword.

If the find circumstances and context are reliable, the Mittelberge assemblage near Nebra (with Sögel-Wohlde swords and axes) (Sachsen-Anhalt) is datable to the beginning of the Middle Bronze Age. The large mysterious sheet-gold 'Sky Disc', with its astral symbols (sun,

moon, stars), a boat (?), and two 'horizon arcs', was reworked several times in the ancient past (see Chapter 14). It is widely considered to be the oldest concrete representation of the heavens, or a kind of calendar, a 'memogram' (as is also presumed for the gold 'hats', mostly dating to the MBA). At present it is impossible to reach a definitive conclusion about its function and significance (Pernicka et al. 2008).

There is no doubt that the Sögel-Wohlde forms stand at the beginning of the flourishing Bronze Age culture (Periods II–III: *c.*1450–1250 BC; 1250–1100 BC), which is recorded north of the Elbe (including the district around Stade) and also in Schleswig-Holstein. Magnificent finds of high technical and artistic quality come from large burial mounds with stone cist graves, with or without oak coffins, which still mark the landscape today. The mounds, as in central Europe, contain several graves, often a man and woman placed together simultaneously, or sometimes successively, and possibly with a distinction between generations (e.g. the Galgenberg near Itzehoe). Thus the mound as a whole can be viewed as the family burial site of an egalitarian society, belonging to an agriculturally oriented single farm.

In all of its stages the Nordic Bronze Age absorbed stimuli from the central European region, most of all early in the period as shown by early swords (of Apa type), the first spearheads, and the spiral ornamentation that was later transformed into a local artistic style. Local forms were developed: the first fibulae (two-part fibulae) as clothing fasteners, and the razor-knife with a carved horse-head hilt. The bronzes were usually cast with little reforging. Nevertheless, as well as cast-bronze vessels, there are some early vessels made of gold and sheet bronze, which were probably of local manufacture. Some assemblages, for example of sickle-sword weapons, double-axe ornaments, and wooden folding chairs with bronze hinges (Daensen find from the Stade group) are reminiscent of Mycenaean, Near Eastern, and Egyptian models. Finds of Baltic amber in the eastern Mediterranean region (the Qatna Kings' Graves, the Uluburun shipwreck, and the Mycenaean Shaft Graves) suggest they may be exchange gifts through direct or indirect connections, via land or sea. Other items, like furs or stockfish, might also have been exchanged.

Several regional groups in Schleswig-Holstein and western Mecklenburg can be identified by specific weapon combinations. Examples are the western Holstein group (sword, spearhead), the Segeberg group (sword, palstave, like the Stade group), and the western Mecklenburg group (sword, palstave, dagger).

In male burials there is an unmistakable emphasis on fighting, so chiefs and warriors are referred to as representatives of a prosperous, rurally structured community, which was not, however, very large in number. Near the burial mounds are the isolated farmsteads that have only been investigated in recent decades, identified as early house-and-barn buildings, where a byre is provided for the cattle. This house form, so well adapted to its surroundings, continued to exist in the region until the pre-modern period. The site of Handewitt (Schleswig-Flensburg district) is revealing, because it shows the instability of Bronze Age settlements. Within a short period there were, in turn, farmland (plough traces), a house-and-barn (*Wohnstallhaus*), and a burial mound on this site.

Among the valuable finds, the so-called *Trachthügel* (costume-mounds) are important as they preserved objects that otherwise would have decayed, such as wooden vessels decorated with tin studs in star-like shapes (from the Stade group: Heerstedt), and the remains of woollen clothing (e.g. Harrislee). Of particular note in this region are cast bronze vessels (Jacob 1995; Martin 2009), which partially resemble the wooden vessels.

Period III saw the inclusion of other areas in this independent cultural region, in particular, Mecklenburg-Vorpommern (von Brunn 1968), indicating a dynamic process whose sequence of events cannot be fully understood. The first imports of bronze vessels from the Danube-Moravia-Bohemia region appear, giving rise to local imitations. Particularly striking are the cauldron-wagons from Peckatel (Mecklenburg) and Skallerup (Zealand), which, as cult equipment, bear the symbols of a new religious movement that quickly takes hold in central Europe (e.g. Skallerup with its bird symbolism). This movement also brings the change from inhumation to cremation, which predominates from now on in the north, and is practised exclusively from Period IV. Cemeteries may contain up to several hundred urn burials (urnfields), as in southern Germany. Often they are placed around older grave monuments (megalithic graves, older Bronze Age tumuli) (memorials?) and they are occupied until the Early Iron Age (eg. Schwanbeck, district Mecklenburg-Strelitz). If anything, they contain only a few small grave goods (for example, razors, tweezers, pins, awls), while larger objects, such as swords, now occur in miniature form. Often the bronzes are placed together in hoards and deposited outside the graves as 'treasures of the dead' (*Totenschätze*). Many ritual bog depositions contain collections of male or (mainly in the later phase) female ornaments, which correspond to grave goods. In the Late Bronze Age pots are used more often than before as containers for cremated remains; however, the variety seen in southern German or the Lausitz area is never reached. Clay urns shaped like houses (*Hausurnen*) or human faces (*Gesichtsurnen*) are a special form from the end of the Bronze Age. At the same time, certain stone implements become important, like the axes known as *nackengebogene Äxte*.

During Periods IV and V there was a further expansion of the cultural (and political) influences of the Nordic Bronze Age. Regionally specific bronzes characteristic of the north (single-bladed razor-knives, often with boat decoration, tweezers, brooches or *Plattenfibeln*, and cast bronze bowls) are spread in burials and hoards across Lower Saxony as far as the lower Rhine, and from eastern Holland through the entire German lowlands to Pomerania. A few magnificent graves stand out from the mass of relatively modestly furnished graves, such as Albersdorf (Dithmarschen district, Holstein) or the 'King's Grave' at Seddin (parish of Gross Pankow, Prignitz district, Brandenburg), which indicate a similar social evolution to contemporaneous central European cultures (Hostomice, Bohemia; St-Romain-de-Jalionas, Western Alps).

There are still many hypotheses for the amassing of such wealth in the 'King's Grave' (Period V) at Seddin, which was excavated in 1899. An enormous amount of work was also expended on the construction of the grave that contained three cremation burials. The primary burial in a chased bronze amphora is that of a warrior (sword, axe, razor-knife, comb, etcetera), the secondary burials contain the cremated remains of two women who died with him. Other relatively richly furnished graves are found in the region around Seddin. They are also notable for their grave goods of wagon parts (bronze wheels, fittings) and horse harness (cheek-pieces).

During Period V many bronzes from the south-western German-Swiss area were imported into the north and east of Germany. They are evidence of a line of cross-regional communication that replaces the older route from the Danube region via the Elbe and Oder. Some examples from Periods III and IV are the bronze vessels. Of pan-European significance are the four LBA bronze spoked wheels from Stade (total weight *c.*45–50 kg). They belong to one or two ceremonial wagons and prove cultural links as far away as the Pyrenees (see Chapter 22).

High-quality large bronzes are still created, like the hanging-bowl, whose function remains unclear, and in particular the trumpet-like lurs, played in pairs (see Chapter 41). Other large objects made of beaten sheet bronze, such as round shields of Herzsprung type (named after examples from a site in Brandenburg), or bronze amphorae of the Seddin/Herzsprung/Rørbæk type, are most probably made in a few highly skilled workshops.

The end of the Nordic Bronze Age occurs in Period VI. Although the custom of urn burial continued, this period produces few bronzes. As well as objects of local production, there are also imports from central Europe from the Early Iron Age Hallstatt culture (swords and razors). Period VI leads into Jastorf culture of the later Iron Age, which is one of the archaeological groups for which there are sound reasons to see a connection with the Germanic tribes first mentioned in ancient sources in the first century BC.

The numerous hoards in the bogs of northern Germany are very important. The bronze objects in particular add to the stock of forms in the Late Bronze Age, because only a small number of forms have been recorded from graves. A votive deposit of imported bronzes (a helmet of the Biebesheim type, and swords), recovered from the Lesum (near the Weser at Bremen), is comparable to the south German river finds.

# Settlement

There are essentially three settlement types that can be distinguished during the Bronze Age in central Europe, including Germany: open settlements without fortifications, fortified settlements (hill forts), and settlements on damp ground (lakeside sites or pile dwellings).

## Open Settlements

The traditions that applied to Neolithic settlements continued into the Bronze Age. This is particularly so for the areas where self-sufficient farming settlements dominate (Assendorp 1997; Schefzik 2001). For the most part they are located on or near fertile soils, especially on lowland sites which are not flood-prone, or on slopes or hilltops, so that they have access to the valley meadows on the one hand and economically productive lands on the other. Proximity to water is the crucial factor. Some settlements ensured their water supply by building wells, which at times also served as places of sacrifice (e.g. Berlin-Lichterfelde; Atting, Lower Bavaria; Grossschkorlopp, Saxony). The houses lasted only a short time because they were made of wattle and daub, but the lifespan of the settlement itself was no longer than three to five generations. It seems that when the soil was exhausted of nutrients for cultivation, people moved on, within the same region.

Germany has produced few EBA settlements, but that near Ingolstadt-Zuchering (Upper Bavaria) serves to convey the basic 'village' structure: five trapezoidal houses spread over an area of about 2 hectares (Fig. 40.5). All that remains are the postholes for their timber uprights. The houses are uniformly oriented (north-south). The house size varies, with a length of 20–25 m and a width of 6–10 m; the floor area is approximately 120–250 $m^2$. Inside, storage vessels were set into the floor. Such EBA longhouses have now been found elsewhere in south and central Germany; they are typical of almost all central European culture groups (Schefzik 2001).

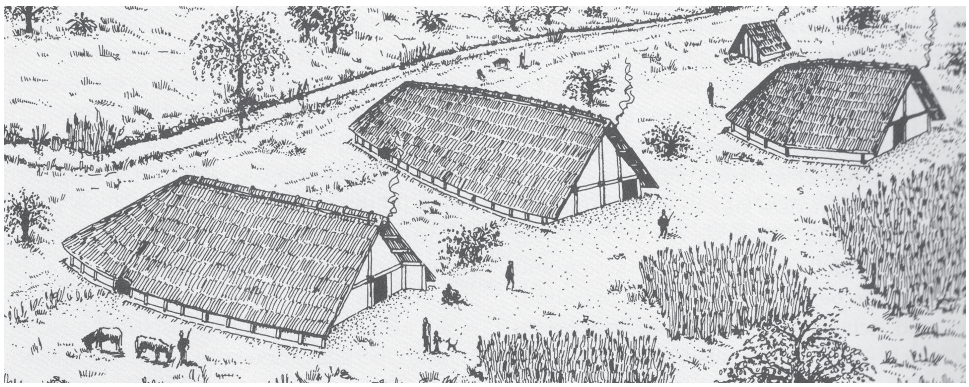

FIG. 40.5 Reconstruction of the Early Bronze Age settlement of Zuchering-Ingolstadt (Bavaria).

Source: A. Wimmer, Poing.

Few house floor-plans are known from the following MBA; settlements are mostly domestic sites with pottery. It was long the view that there were scarcely any permanent settlements, due to the apparent dominance of pastoralism in the economy of the period. Today, however, it is known that there were settlements in almost all areas and landscapes during the MBA, and that this period stands out as a time of settlement expansion. Besides the fertile lowlands, that is the productive loess soils, higher areas and hill sites were also sought out. Thus the Alps were widely settled during the period, and a system similar to a mountain pasture economy was in operation. These settlements would have been involved to some extent with the Alpine copper mining that took place in the Inn Valley in Austria until the LBA.

During the LBA settlements in many places again appear to be concentrated on the fertile soils. The huge number of finds is proof of a very dense settlement. Excavations of some of the larger settlements of this time convey an impression of their physical structure (for example, Unterhaching, Bavaria; Zedau, Sachsen-Anhalt; Berlin-Buch) (Schefzik 2001). They measured some 10–20 hectares in extent, but were not intensively occupied. The houses were mostly oriented north-south. Empty spaces indicate open areas within the village.

From the position of the posts it is possible to reconstruct relatively small (4–6 m by 4–6 m), rectangular, one-storey, predominantly one- and two-aisled, sometimes three-aisled buildings of *c.*20–40 $m^2$. The walls are mostly wattle and daub. The painting of internal walls was widespread, even if it has only rarely been preserved—white and red have been verified—and/or some form of plastic decoration was also carried out. As the floors of the houses have suffered from erosion, there is seldom evidence for hearths or ovens inside, but they do appear outside the houses, where perhaps they were shared by several families.

Smaller four- or six-post structures are identified as stores raised on stilts, for grain and other farm products. Probably the base was set high above ground level so that animals could not reach the supplies.

The settlement area was generally strewn with many pits of varying size and shape, which also had a partly ritual function. Grain was stored underground in them, while a number served as tanners' pits, others held soil or clay for building, or clay for ceramic production. These had a protective cover if necessary. Heavy looms were set up in pit houses.

Most of the rural settlements had no particular protection. It has been established that a few had palisades and/or thorn fences, which might have been meant to keep the animals out of the settlement, or else to hold them inside it (e.g. Berlin-Lichterfelde). In southern Bavaria a particular form of settlement emerged towards the end of the Bronze Age: a single farmstead set inside a rectangular system of palisades and ditches. These were the forerunners of a popular Iron Age settlement form called the leader's compound (*Herrenhof*).

The single farmstead is the typical settlement form for the north-west German region, and consisted of a *Wohnstallhaus* with small ancillary buildings. A characteristic of this zone is that to date there are no known fortified settlements; simple fences were their only protection. Another characteristic is the wide distribution of mostly long (up to 20–40 m by 10–15 m), three-aisled *Wohnstallhäuser* (house-and-barn), especially towards the end of the LBA. These rural settlements were largely self-sufficient apart from supplies of sought-after raw materials (copper, tin, amber, glass, etcetera). As a rule they numbered no more than 50–80 persons; thus a settlement would consist of only five to eight families. Rarely did it last longer than three or four generations.

## Fortified Settlements

A dense network of fortifications protected by walls, gates, and outer defence ditches dot the central European landscape in the Bronze Age (Jockenhövel 1990). Even here, however, there are regional differences. The hill forts multiply over time in particular 'stronghold horizons'. The first horizon occurs in the transition from Early to Middle Bronze Age, the second in the transition from Middle to Late Bronze Age, and the third at the end of the Bronze Age. This cyclical fluctuation is evidently connected to prevailing social, economic, and ecological conditions and to changes in them (Jockenhövel 1990).

Nevertheless, the Bronze Age enthusiasm for fort building did not affect every part of Germany. In the EBA it is confined to the regions that are influenced by the Middle Danube culture. There, it is native especially to the Mad`arovce/Věteřov culture, a dynamic group that influences the late phase of the EBA of south and central Germany.

During the MBA fort building almost completely disappears in Germany, as it does in the rest of central Europe. It reappears only at the start of the LBA, when it is highly developed, particularly in south Germany and in central and eastern Germany, the home of the Lausitz culture. There are well over a hundred of these constructions, not all of which were built at the same time. Most of the forts in eastern south Germany belong to the early and middle phase of the Urnfield period, those in the west almost exclusively to the late phase, while the Lausitz culture forts in many cases extend into the earlier Iron Age, some only being constructed in this period.

While the early fortifications have a relatively small internal surface area of up to 3 hectares, later fortifications are considerably larger: up to 30 hectares or more. Unfortunately larger-scale excavation inside such sites, which might elucidate their function, has yet to take place.

The forts are mostly situated on prominent and naturally protected sites: on hilltops, on plateau-like flat-topped hills (*mesas*), or land that is protected by loops of river bends in the south German hill country and Mittelgebirge areas, and on sand ridges surrounded by marshland in eastern Germany. The hilltops and mountain tops are fortified with solid

ramparts, the river sites with rows of embankments. Usually the defensive walls are adapted to the natural conditions. The fortified area varies in size from 1 to more than 30 hectares: smaller hilltops are 1–1.5 hectares, embanked sites 2–6 hectares, the combined systems 10–17 hectares, and the flat-topped hills 10–30 hectares, with exceptional cases of more than 100 hectares (e.g. the Bullenheimer Berg).

The population of such forts is estimated at up to one thousand. From the location of fortified settlements and their distance apart in certain well-researched regions, the circumference and area of such 'territories' can be determined: they covered about 50–150 km$^2$. From certain finds it can also be assumed that they had an additional function as cult places.

The ramparts that are still visible today are really walls that have collapsed. Their construction is very varied, the local variations depending on the building materials available. Outside the walls there was a ditch. The few entrances, the gates, were simple openings with barriers that could easily be moved together. There is a remarkable strongly fortified gate at Heunischenburg near Kronach, a fort which, to judge from the many weapons found, must have served as a kind of military base (Abels 2002).

Almost all the Bronze Age fortified settlements have a wealth of often valuable finds, including status-specific bronzes of the elite (weapons, horse harness, bronze vessels). Within the forts there are traces of dense occupation that indicate an increased population, and longer and permanent occupation of the site. These fortified settlements were 'suburbs' of the unfortified agrarian settlements that belonged to them. They can be regarded as specially protected 'concentration centres' for the political, social, economic, and religious life of the local community, the group that regarded them as centres of safety. A hierarchy of fortified highland settlements, unfortified highland settlements, and open lowland settlements must have existed. It has not yet been possible, however, to provide information about the interior of the residential buildings of the upper social classes in these forts.

Extensive research into the Hünenburg near Watenstedt (eastern Lower Saxony), and its Urnfield cemetery, has opened up a whole LBA landscape (from the twelfth century BC), with a fortified settlement and a large annexe (*Vorburg*) (15 hectares), an unfortified outer settlement (with houses), as well as a cemetery (Beierstedt). Evidence of a local metal workshop is significant—objects cast there include swords and high-quality hanging bowls—as also are signs of the very early cultivation of winter cereals (Heske 2008).

Large hoards have been discovered in many forts (e.g. Bullenheimer Berg; Bleibeskopf, Dresden-Coschütz). This accumulation served both profane and religious purposes. High-quality craft production, in particular of fine metal products, was concentrated in the forts. Numerous workshops are examples of this (e.g. Hesselberg; Runder Berg near Urach; Niederneundorf). It can be assumed that there were specialist craftsmen in the forts who worked for an elite or were dependent on it.

## Settlements on Damp Ground and Pile Dwellings

A particular form of settlement was continued from the Neolithic into the Bronze Age; but ended around 850 BC. This was the pile dwelling (*palafitta*), or lakeside settlement (Schlichtherle 1997) (see Chapters 38 and 39). Early debate on whether these settlements were permanently on platforms above the water surface, as the well-known reconstructions of Unteruhldingen on Lake Constance would suggest, has since been settled in favour of

settlements built close to the shore or occasionally in the soft muds close to the lake. Long and recurring periods of high water levels prevented continuous settlement of the lakeshore, which was possible only in dry periods. Such settlements thus existed mainly in the transition phases between the Early and Middle Bronze Age, and the early and middle Urnfield period, and at the end of the Urnfield period. The best-known sites on Lake Constance are the settlements of Bodman, Hagnau, and Unteruhldingen-Stollenwiesen (Schöbel 1996), on the Federsee in Upper Swabia, the Forschner settlement (Billamboz et al. 2009), and the Wasserburg settlement, both near Bad Buchau (see Chapter 39).

In spite of all the differences in timber architecture, there emerges a standardized type of settlement that was decided by its specific location and which differed from the contemporary forts and open settlements. Typical of these settlements is a systematic layout, with mainly circular, oval, or rectangular ground-plans. They were surrounded by breakwaters, strong palisades of protective posts. The Forschner settlement, for example, was accessible by a wooden bridge (Billamboz et al. 2010). In the settlements there were rows of houses and lanes set out either parallel or at right angles to one another. A kind of ring road inside the palisade provided access. The houses, with up to three aisles, were built as pile dwellings or log houses on posts or low mounds. The floor area varied in extent from 10 to 50 $m^2$. The settlement at Unteruhldingen-Stollenwiesen had up to 85 houses (Schöbel 1996). With an occupancy of four to eight persons per house, the settlement would have numbered approximately 340–680 people. Thus there are real villages, in contrast to the small open settlements on the mineral soils and the large fortified settlements of this region.

The economy of the damp-ground settlements was certainly oriented towards using the resources of the rivers and lakes. Mainly, however, like the dry-land settlements, they had a mixed agricultural economy. Cereal was cultivated and cattle were raised in their hinterland.

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