

An Early Iron Age Farm Community in Central Europe

Excavations at a site in Bavaria unearth clues to an economy of 1000 to 800 B.C. in which farmers were just beginning to exchange their surplus for the work of specialized craftsmen

by Peter S. Wells

Town life was commonplace in the Near East by 3500 B.C., but most settlements in Europe north of the Alps were little more than hamlets until the end of the late Bronze Age and the beginning of the early Iron Age. In that part of the world the transition to town life first took place in about 800 B.C. It was a time of rapid change in temperate-climate Europe that saw both the growth of trade and the expansion of metal production. Archaeological knowledge of the transition has come mainly from the excavation of cemeteries that number in the thousands and from the chance (but not infrequent) discovery of buried hoards of metal. Only a few European settlements of the period, however, have been investigated systematically, and so the economic developments that led to the formation of the first central European towns remain rather poorly known. Here I shall describe the findings of four seasons' work at a farmstead site of the period in Lower Bavaria and relate those findings to the rise, both there and elsewhere in central Europe, of larger settlements: precursors of the trading towns of the medieval period.

The site, Hascherkeller, is on a sand and gravel terrace that forms the northern border of a narrow river valley on the outskirts of Landshut, the principal city of Lower Bavaria. The terrace is 15 meters above the river (the Isar, a tributary of the Danube), and its waterborne deposit of glacial debris is covered by a thick layer of loess, a pale yellow sedimentary soil attributed to wind deposition at the end of the Ice Age. The loess in turn is covered by a rich humus, the product of millenniums of soil development, and the top 40 centimeters of the humus has been disturbed by modern deep plowing. Hence nothing of the original ground surface of the prehistoric settlement survives. Only those fea-

tures that were a result of the settlers' own deep digging, such as pits of various kinds and boundary ditches, still remain: dark, humus-filled intrusions in the otherwise undisturbed loess.

Beginning in 1978 my colleagues and I set about dividing the area of intended excavation into mostly adjacent five-by-10-meter plots. The plow-disturbed humus was removed with shovels in two consecutive excavations, each to a depth of 20 centimeters. The archaeological material in the disturbed humus was collected and catalogued according to the level and the plot of origin. Once the bottom of the disturbed humus was reached the work proceeded with hoes and trowels until the top of the underlying loess came to view. Before the intrusive features thereby uncovered—the pits and ditches—were further excavated they were mapped and photographed. The humus fill in each pit was then bisected and the two halves of the fill were examined separately. All the fill we removed was screened through quarter-inch wire mesh.

As we proceeded it became apparent that the settlement had consisted of three enclosures side by side and extending from east to west, each one bounded by a double ditch. The enclosures were well defined on their northern, eastern and western sides, but stream erosion had destroyed their southern side. Our work in the first year and in the seasons that followed concentrated on the contents of the western enclosure and the middle one.

Although plowing had destroyed the top of the double ditches, what remained was as much as three meters wide. Excavation showed that the ditches were V-shaped and about 1.5 meters deep. The fill was dark brown and contained small fragments of pottery and animal bone. One section of

the inner ditch of the western enclosure had a row of 19 postholes at the bottom; evidently a wood palisade had once stood there. The average distance between the centers of the postholes was 13.7 centimeters. If this figure represents the average diameter of the individual posts, the palisade was a stout one.

Experiments have indicated that earth-set posts of this kind rot within a few decades. Even though no other postholes have been found so far, many sections of the perimeter ditches show evidence of redigging, which would have been necessary to set up new posts as the old ones decayed. This suggests that all the ditches held palisades. Their purpose was presumably not so much to guard against possible attackers as to keep domestic animals inside the settlement and to keep wild animals out at night.

Most of the information about the community at Hascherkeller has come from the contents of the pits found within the enclosures. Of the 21 largest pits we excavated, 11 could be assigned on the basis of their contents to the three-enclosure settlement; the remaining 10 belonged either to earlier and smaller Bronze Age settlements or to later Roman occupations. Like the ditches, the pits with their dark fill stood out sharply against the loess subsoil. Indeed, the fill of the pits was even darker than that of the ditches, an indication that the pits had held additional organic matter.

The form, size and contents of the 11 pits put them in five functional categories. Three of the pits were long, narrow and cup-shaped, and they were oriented toward the cardinal points of the compass; two were oriented north-south and one was oriented east-west. Such orientations have been found to be prevalent among houses of the same period



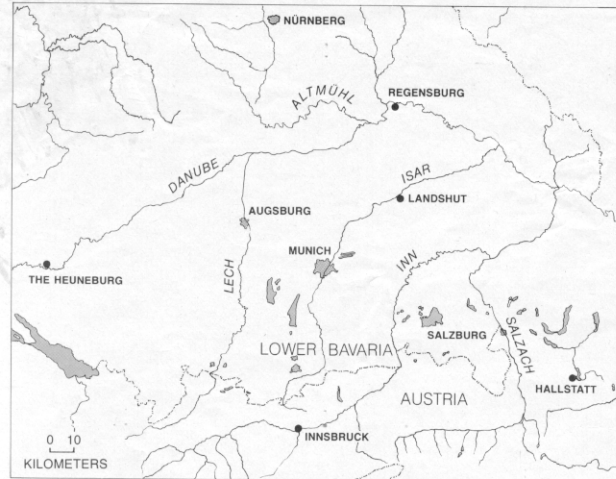
RECTANGULAR EXCAVATIONS exposed one of three farmsteads at Hascherkeller, an Iron Age site in Lower Bavaria. The discoloration of the soil just in front of the two-meter scale rod reveals

part of the ditch system that separated this farmstead from its neighbor to the west. The farmers erected palisades in the ditches in order to keep livestock from straying and to keep wild animals out at night.



PROFILE OF A DITCH dug at Hascherkeller three millenniums ago is marked by a V-shaped intrusion of dark humus into the yellowish loess subsoil covering the gravel of a river terrace. The ditch

was one of two concentric ditches surrounding the westernmost of the farmsteads. In the ditches were found fragments of bone, pieces of baked mud plaster from the building walls and sherds of pottery.



SITE OF THE FARMSTEADS is above the Isar River on the outskirts of the city of Landshut. Nearby are Hallstatt, an Iron Age industrial site, and The Heuneburg, a trading town.

excavated elsewhere in Europe. The coincidence suggests that the pits served the function of "cellar holes" for houses. They were probably storage places for large pottery vessels that protected foodstuffs from dampness, temperature fluctuations and animal predation. The potsherds found in the three pits support this conclusion; most of them were fragments of thick-walled vessels.

The mouth of three of the deepest pits was circular and the walls were nearly vertical. Similar pits at other settlement sites of the period have been found to contain carbonized grain; moreover, the pits had been lined with basketry or clay, indicating that they had served for grain storage. The three pits at Hascherkeller did not yield any such positive clues to their use. They contained few potsherds or other kinds of waste, however, and may well have served a similar purpose.

Two more pits seem to have been associated with metallurgical activity. One of them held a hammerstone and a sandstone mold for casting finger rings. Several small scraps of bronze were found nearby. An adjacent pit contained red-stained pebbles and soil, apparently discolored by intense heat. One may conjecture that a hot fire in the second pit melted down bronze for casting. The pit where the mold was found also yielded a loom weight made out of fired clay and five clay spindle whorls. These suggest that the area served for weaving as well as casting.

One large pit, some meters north of

the central enclosure, contained much charcoal, and at its bottom were the remains of a boxlike clay structure. More than half of all the potsherds found at the site were taken from this pit. Most of them were from what potters call wasters: pottery that had burst or warped as it was being fired and was therefore discarded. The conclusion seems inescapable that the clay structure in the pit was the firebox of a potter's kiln.

The last two pits, shallow and with gently sloping sides, held small fragments of pottery and animal bone. Apparently these shallow excavations had been borrow pits: places where the Hascherkeller inhabitants dug loess as a raw material for making their pottery or for plastering the walls of their houses with mud. Thereafter the hollows had gradually filled up with settlement debris. In this connection, the 11 pits yielded a total of 198 kilograms of baked mud, fired either when a structure had burned down or when the mud had been plastered on a wall adjacent to some source of heat, such as a hearth. The rest of the mud had simply weathered into silt again after the settlement's buildings had fallen into disuse.

The most abundant evidence of human occupation at Hascherkeller was the broken pottery. The total number of sherds recovered was 14,853. The great majority of them were found in the pits, but 3,828 came from the ditches, from the humus layers overlying the loess subsoil and from other areas. All

represent plain, coarse wares typical of ordinary farmers' pottery. Many graves of this period in central Europe contain fine decorated wares, but fewer than 4 percent of the sherds from Hascherkeller had decorations of any kind.

We sorted the sherds on the basis of their thickness and found that they fell naturally into three categories. The first category consisted of relatively thin-walled wares; the sherds were less than 4.5 millimeters thick. The second category consisted of sherds from 4.5 to nine millimeters thick, the third of sherds more than nine millimeters thick. The remnants of small cups, beakers and bowls fell into the first category; they were also the fewest in number and the most frequently decorated. Sherds from larger bowls and from high, wide-mouthed jars with a coarse surface finish made up the second category. Those representative of the third category were chiefly from rough-surfaced jars that probably served mainly for food storage. At other habitation sites of the period many such intact vessels, buried in storage pits and cellar holes, have been found with grain still in them.

Except for the great quantities of fired mud, which provided useful information about the location of structures in the settlement, the most numerous remains at Hascherkeller were fragments of animal bone, 1,435 of them. Brenda Benefit, a doctoral candidate at New York University, has analyzed the bone fragments and finds that 253 of them can be identified as belonging to specific parts of animals of known species. The identifiable bones are predominantly (87 percent) those of domestic animals; the rest are the bones of wild animals. Of the bones of domestic animals, those of pigs predominate (37 percent), those of cattle come next (24 percent) and those of sheep and goats together account for almost all the rest (33 percent). Also found were fragments of a small number of horse and dog bones. The wild animal principally represented among the bone fragments is the red deer (*Cervus elaphus*), but there are also fragments of the bones of hares, hedgehogs and one species of bird (the quail). There are in addition a good number of fishbones but none that allow the identification of the species.

Benefit has analyzed the animal teeth uncovered at the site. She finds that the wear of the pigs' teeth has a bimodal pattern, indicating that the animals were slaughtered at two different times in their life span. Many had been eaten as suckling pigs, not long after birth. The rest were killed at about age two. This is a pattern of pig slaughtering common in Europe down to the present day. It maximizes the yield in meat with respect to the quantity of feed that must be given

the animals when in the winter months they cannot forage for themselves.

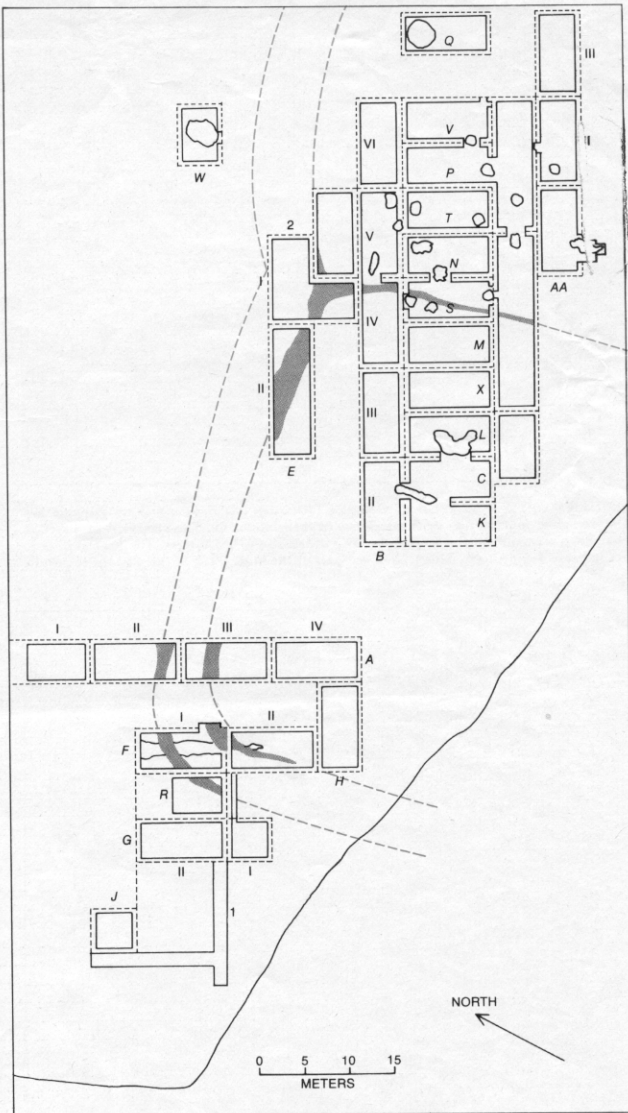
Sheep, goats and cattle led longer lives, regardless of the cost in winter fodder. Presumably the sheep were raised mainly for their wool and the goats and cattle for their dairy products. The cattle may also have been valued as draft animals and, when they were eventually slaughtered, as a source of hide.

In addition to this substantial array of meat and dairy resources the remains of various plants show that the farmers of Hascherkeller relied on cereals, garden crops and certain wild foods to augment their diet. Analysis of the plant remains by Caroline Quillian Stubbs, a doctoral candidate at Harvard University, indicates that the main cereal crops were millet, wheat and barley and that lentils were also cultivated. The inhabitants collected hazelnuts and the products of several other wild plants that are looked on as weeds today but that played an important role in the diet of earlier Europeans. At this settlement the inhabitants collected cleavers (*Galium*), goose-foot (*Chenopodium*) and sorrel (*Rumex*).

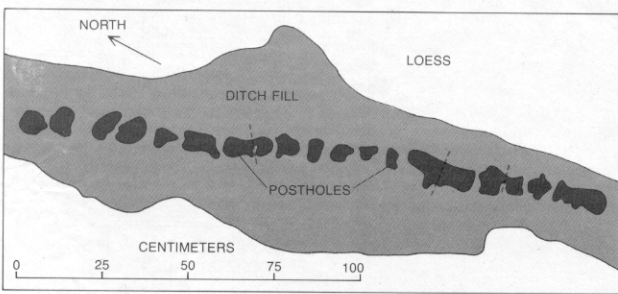
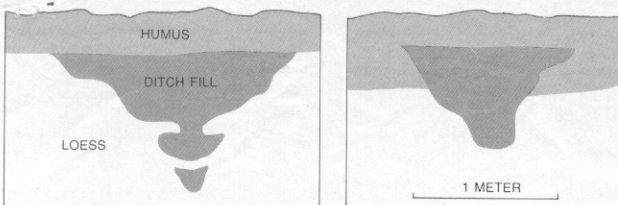
What picture of early Iron Age life can one build from these humble clues? The estimated size of the three ditched enclosures that make up the Hascherkeller farmsteads, each consisting of some 3,000 square meters, corresponds to the size of individual enclosed farmsteads at many other late prehistoric and early historic settlements in Europe. It is likely that each farmstead was inhabited by a family numbering from five to 10 individuals and that each included a dwelling, a barn for the stock and smaller structures such as sheds and workshops. It is evident that all three farmsteads were operating at the same time: their perimeter ditches meet neatly and never cut across each other.

The daily life of the 15 to 30 men, women and children in the settlement can be considered under three interrelated economic headings: subsistence, manufacturing and trade. Under the first heading there is abundant evidence for a self-supporting economic organization: animal husbandry that yielded both meat and dairy products supplemented by hunting and fishing, along with cereal and legume production supplemented by the collection of wild foodstuffs. Whether or not these farm activities yielded a surplus of meat or grain, it is probable that such activities as cheesemaking and hide dressing furnished the settlement with easily preserved commodities in excess of the farm families' own needs.

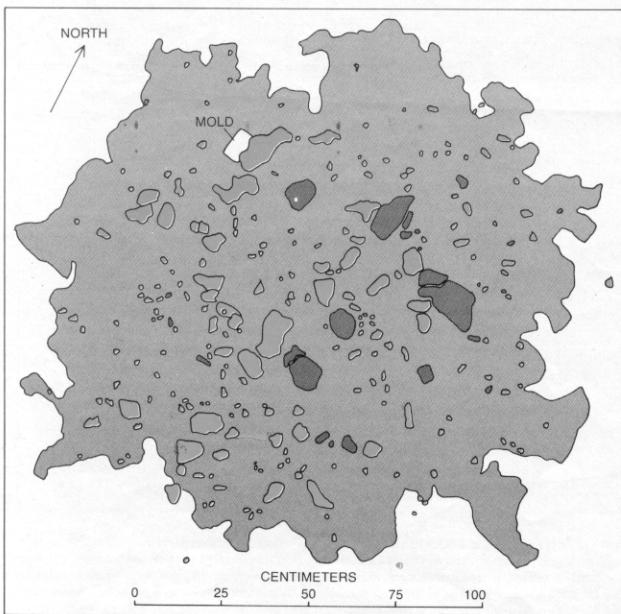
What commodities in addition to cheese, leather and possibly meat may have been produced in surplus quantities? They did not include pottery. At



TWO OF THE THREE FARMSTEADS, the westernmost and central ones, appear in this site plan. The excavated parts of the double ditches that surrounded each farmstead are in gray; their further extent, as indicated by a magnetometer survey, is outlined with broken colored lines. Of the 21 larger pits (solid outlines) uncovered by excavators, 11 had been dug during the early Iron Age. More than half of the pottery fragments found at the site came from a single pit (W) beyond the ditches of the central enclosure, which also contained the remains of a pottery kiln. Two cellar-hole pits (C, AA) led the others in the quantity of mud-plaster fragments they contained, respectively 75 and 44 kilograms. The west pit in rectangle N (see bottom illustration on next page) held a quartzite hammerstone, a sandstone mold for casting bronze finger rings, a clay loom weight, five spindle whorls and 20 kilograms of plaster fragments.



DITCHES WITH A V-SHAPED CROSS SECTION (left and right at top) are distinguished from the lighter loess subsoil by the darkness of their humus fill. The plan view of one ditch (bottom) shows 19 postholes over a distance of 1.6 meters. The broken lines in color indicate double holes. This section is a part of the inner ditch of the western enclosure.



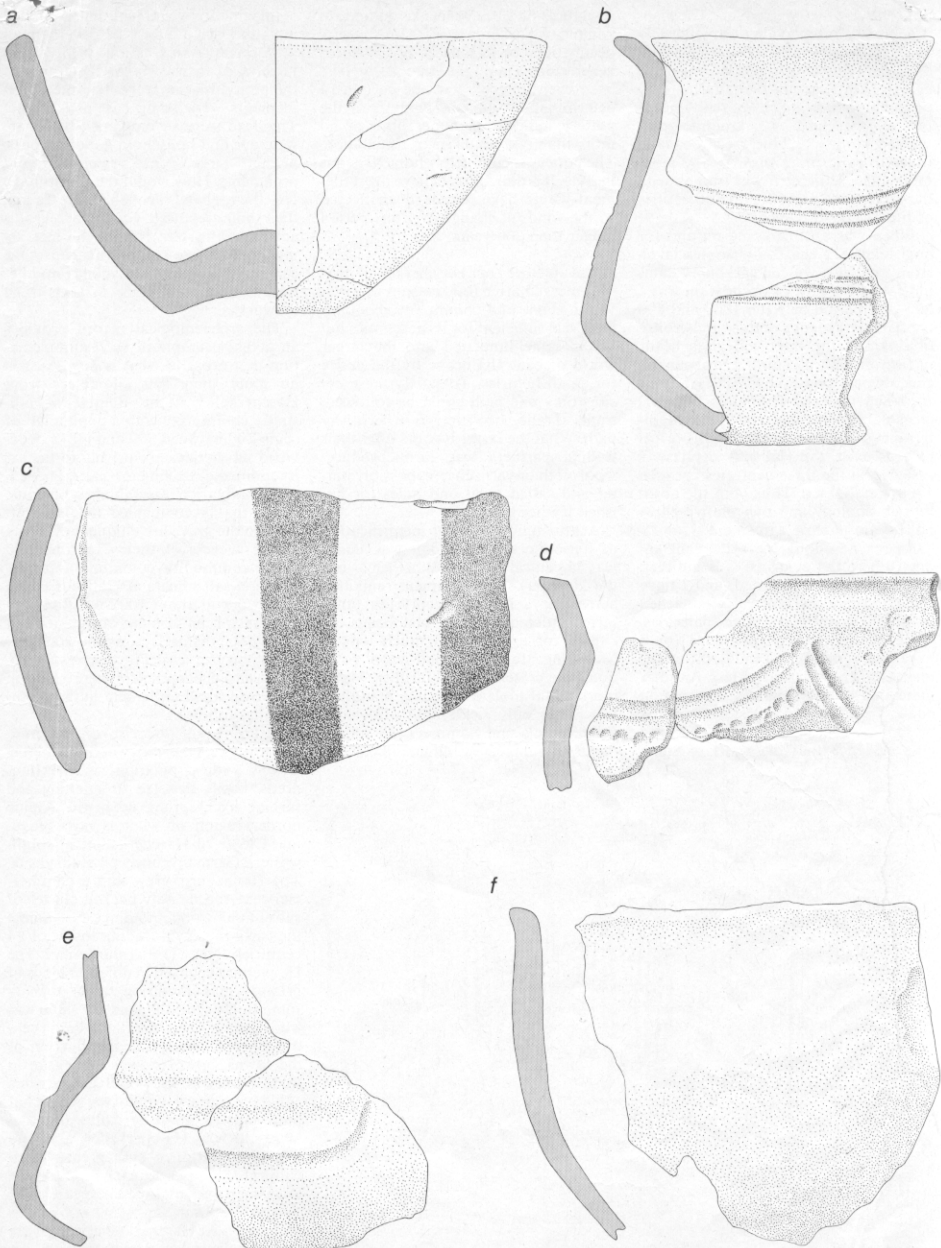
"WORKSHOP" PIT in rectangle N contained, in addition to casting and weaving equipment, numerous potsherds (black) and plaster fragments (color) in sufficient quantities to suggest that the structure housing the metal and textile workers also had mud-plastered walls. The sandstone casting mold is shown in situ to the left of center near the top of this plan view.

Hascherkeller each clay bowl, cup or jar was made not on the potter's wheel but by laborious coiling and paddling, which is unlikely to have given a farm settlement a pottery surplus. Our discovery of the loom weight and spindle whorls, together with the evidence that sheep were kept for a number of years before they were slaughtered, suggests, however, that one commodity perhaps made in excess of local needs was wool cloth.

This brings us to the third economic heading: trade. Evidence that the settlement's inhabitants imported exotic materials includes the fact that bronze artifacts such as finger rings were being made locally out of melted-down scrap bronze. The scrap was certainly imported, and several of the bronze pins unearthed may also have been brought in from the outside. On the other hand, we also found five fragmentary iron objects, too small and corroded to identify. Although they vouch for the settlement's being one of the Iron Age, they do not necessarily indicate that the farmers imported any iron artifacts. Iron ore is nearly ubiquitous, whereas the raw materials for the alloy we call bronze, tin in particular, are not. Evidence for local iron smelting, in the form of one lump of iron slag, supports the conclusion that the people of Hascherkeller were familiar with iron smelting. There is no evidence, however, for local bronze smelting.

Additional imports include glass beads and graphite, the latter used for the surface decoration of a few of the local pots. If a smear of graphite is applied to the vessel's surface before firing, a shiny black finish is formed. This kind of ornamentation, either as a complete surface coating or as a series of bands, was particularly popular in central Europe beginning in about 1000 B.C. The principal sources of the graphite were deposits at least 100 kilometers from Hascherkeller, east of Passau on the Danube and to the north in Bohemia. As for the glass beads, four of them, blue green in color, were among the artifacts recovered: two from the pit that held the pottery kiln and two from another pit. Their place of manufacture is not known, but no evidence for local glass production has been found either at the settlement or at other sites of the period in central Europe. Judging from the relatively wide distribution of such beads, however, it seems likely that more than one bead-production center was regularly exporting its wares to the farm communities of the region.

What makes this pattern of scrap-bronze, graphite and bead importing particularly significant in relation to the later development of Iron Age towns in Europe north of the Alps is that all three



SHERDS FROM SIX POTS are fitted into the complete or partial profile of the original vessel. The decorated sherds are thinner than one of the two undecorated sherds (a). One vessel (c) was decorated

with black bands, made by rubbing its surface with graphite before it was fired. The nearest sources of graphite were 100 kilometers away, so that the local potter probably obtained the material by trading.

ports were luxury products. The manufacture at Hascherkeller of metal sickles or other agricultural implements, although they can perhaps be regarded as overly stylish, has a utilitarian purpose. No farmer, however, really needs bronze rings and pins, graphite-ornamented pottery or blue green beads in order to raise more pigs or sow more millet. The settlement was trading with the larger world not for the necessities of life but for ornaments.

When was all this going on and for how long? Six charcoal samples taken from three pits yielded carbon-14 dates indicating the time of occupation was a 200-year period between 1000 and 800 B.C. The settlement's pottery and bronze objects and the imported glass beads in turn fit with a central European archaeological phase known as Hallstatt B. When material from this phase is cross-dated with material from Mediterranean cultures for which historical records exist, the Hallstatt B phase is assigned to the three centuries between 1000 and 700 B.C. Thus both the absolute chronology and the relative chronology are in close agreement.

As for how long the settlement endured, here the evidence is less direct. The ditches were renewed, and I have suggested that the renewal was needed in order to rebuild rotted palisades. Since the timbers of the palisades would have lasted for a few decades, the settlement could have lasted no less. Another indication of the length of occupation comes from the mud plaster preserved by baking. Many pieces of baked mud give evidence that the walls of some

structures had been replastered and repainted two or three times. This suggests occupation for as long as two or three generations. Could the occupation have been even longer? Both the carbon-14 determinations and the analysis of the pottery indicate an upper limit of no more than two centuries of occupation. The pottery is completely homogeneous in style. It is difficult to believe the settlement would have remained unaffected by the winds of change over any period longer than 200 years.

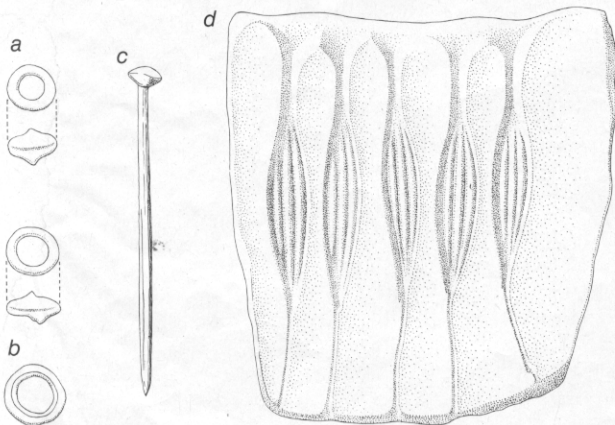
The picture of Hascherkeller that emerged after four seasons of excavation is one of a community economically self-sufficient for its necessities but at the same time tied into the larger world of central Europe by the desire for small luxuries. To satisfy these desires only one path could be followed: trade. Trade, however, is a two-way path. What the farmers could offer their trading partners was farm produce: wool cloth or yarn, cheese, possibly butter and salted meat and hides (or finished leather goods).

At this time a general intensification of agricultural production was under way in central Europe. Whether or not the Hascherkeller settlement remained active for a full two centuries, other farm settlements were then being occupied for as long and much longer. Manuring, fallowing and crop rotation were preserving soil fertility. Many more metal tools were being manufactured, not only sickles but also axes, saws, chisels and hammers, all implements that increased human efficiency.

Imagine for a moment that expanded metallurgy had led to the development of associations of smiths who did no farming of their own. As the graves of the period reveal, more than metal implements were being cast and forged. The dead were accompanied by ornate weapons and household goods: swords, helmets, large bronze vessels and gold ornaments. How would the smiths have fed themselves? Probably by trading their manufactured goods for surplus agricultural produce from the increasingly productive rural farmsteads. One can even imagine traveling middlemen finding their place in such trade networks.

The archaeological record provides an actual example of such an association that arose in what is now Austria no more than 160 kilometers from Hascherkeller. At the salt mines of Hallstatt a community with a population of some 200 between 800 and 400 B.C. devoted its energies exclusively to the extraction and trading of salt. The exceptionally rich assemblages of trade goods that accompanied the Hallstatt dead to the grave are eloquent evidence of the success of their experiment in a one-commodity communal venture. The first salt miners at Hallstatt began their work in about 1000 B.C., but they may have been farmers who mined salt chiefly for themselves, as the Hascherkeller bronze casters, weavers, shepherds and cheesemakers were to do in their own small settlement in the centuries that followed.

In any event the rise of the mining town of Hallstatt was not unique. Towns with populations in the hundreds, busily devoted to smelting and forging iron, sprang up in the Alpine border region of what is now Slovenia. Closer to Hascherkeller, in southwestern Germany, one well-studied site, The Heuneburg, grew into a commercial center: a densely packed cluster of substantial wood buildings not unlike the early medieval trading towns of 14 centuries later. The craftsmen of The Heuneburg engaged in different kinds of primary manufacturing rather than in some single specialty, and the same was true in similar commercial towns in central Europe. The principal function of the towns, however, was to engage in trade. None of these population clusters could have arisen without the support of thousands of small agricultural settlements such as Hascherkeller, able and willing to produce ever greater agricultural surpluses to exchange for the townsmen's goods. In Shakespeare's *The Tempest* Antonio says, "What's past is prologue." At Hascherkeller we can see the early Iron Age prologue to the urbanism of medieval and Renaissance times that ultimately shaped our modern world.



LUXURY PRODUCTS unearthed at Hascherkeller included glass beads (a), a bronze ring (b) and a bronze pin (c). Although the mold for casting the strips that were fashioned into finger rings (d) was found, no rings themselves were uncovered. The bronze pin and ring and the beads, like the graphite used to decorate the pottery, were probably traded for farm surplus.