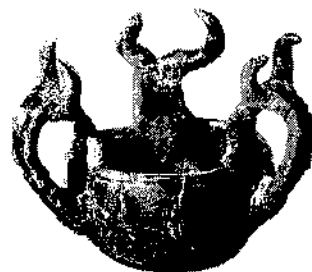


5. The Hallstatt Salzberg

5.1. Archaeological heritage of the Hallstatt region Fritz E. BARTH



This text is part of the Austrian application to the World Heritage Committee of the UNESCO, to get the "Hallstatt - Dachstein Salzkammergut - Region" inscribed as Cultural Landscape on the World Heritage List

Hallstatt, set in the Upper Austrian lake district known as Salzkammergut, justifiably claims world-wide fame not just for its scenic beauty but also as the site of prehistoric finds. Particularly two places have yielded major finds: the necropolis that gave the Hallstatt culture its name, and the salt mine. Both are located high above the present market town of Hallstatt in the inaccessible Salzberg valley, and they are joined by a causal relationship: salt mining provided the economic base for a wealth which found its expression in an abundance of burial offerings in the graves.

Large-scale salt mining was already an established industry in Hallstatt in the middle of the Bronze Age. Then the brine spring was caught in large deep basins and the water boiled special vessels. The ceramic material used for these vessels is found only in Hallstatt and Bad Reichenhall, another ancient salt mining town.

Right at the start of modern mining, workers must have come across traces of their predecessors' labour in the underworld, naming them *Heidengebirge* ("Heathen Hills"). So far, more than 60 underground sites have been discovered, primarily on three spots known as Western, Northern and Eastern Group respectively. The groups are viewed as consecutively and independently worked mines.

Salt mining in Hallstatt started towards the end of the Bronze Age. Steep pits were driven down to extract the salt rocks, applying a method on loan from copper mining and not adapted to the features of a saline deposit. Copper miners had to follow the seam and cut wide, deep shafts that sloped with the mineral vein. The same happened in the Northern Group of the Hallstatt mine even though the more or less homogeneous deposit would have permitted other methods. Major find sites in the Northern Group are the *Appoldwerk*, where workers cut across an ancient shaft in 1879, and the *Grünerwerk*, where a large system of shafts and trial pits was investigated in recent years. The largest known shaft width is 17 m (*Flechenerwerk*) the lowest depth is 215 m below ground (*Colloredokehr*).

At all exposures of the Northern Group - to the extent known - the old cavities were filled in with very fine sediments. The material, slipped in from the surface, indicates that the late Bronze Age mine had been shut down systematically and over time filled up with sediments. The closure was probably due to events external to Hallstatt, perhaps trading routes blocked by fighting or political events or a slump in sales.

Salt mining in Hallstatt however, was not suspended for long. Production started again already in the 8th century B.C., although miners now developed new district (the Eastern Group) and employed a fundamentally different method. They still strove to reach the body of salt through steeply slanting shafts with as little detour as possible; but once there, they drove almost horizontal drifts to mine the salt. One site yielded some interesting details: through some fortunate circumstances, an ancient opening was preserved at the *Stügerwerk* which clearly shows that a horizontal tunnel was first driven and its roof raised at various points so that several crews could work at the hanging wall simultaneously. The broken material was no longer conveyed but remained in place, and the floor rose to the same extent as the roof, guaranteeing that the working level would stay the same. Efforts

were made to mine larger rocks, which was achieved by the following method: curved channels facing each other were carved and linked by a short central to form a heart-shaped structure which was then cut out in whole. Tests using emulated tools found that a medium-sized structure could be shaped by a crew of two in about nine hours; at the tests, however, it was not possible to cut out the halves of the heart-shaped structure in one piece although the method appears useful only in the light of this goal. But a piece found in the *Stügerwerk* shows that it was basically feasible. The prehistoric miners must have used a trick that we have not yet discerned. As a consequence of the mining method, the roofs and side walls of the prehistoric section in the *Stügerwerk* are covered with heart-shaped cutting traces - rows of pick-axe marks. Similar marks were also found in the *Katharina von Edlersbergwerk*.

Finds give us a clear idea of the tools used in the Eastern Group: they were bronze lobed pick-axes with a short, thick handle sharply tapering in the upper third. The head is large and lobe-shaped, the prongs are short, thick and conical. The handle's tapered shape must have caused considerable springiness in the pick-axe. The mines were lit with wide, very flat splints. At working level, large fires appear to have been kindled, as is evidenced by charred logs. Digs at the salt dilution works yielded broken pieces of large clay bottles with tapered necks and a beech cooking spoon encrusted with pap - proving that the large fires were also used for cooking.

The miners wore clothing made of fur or leather and carefully woven woollen fabric. On their heads they had pointy caps with the fur worn inside and berets which were made by pulling at the edge of a circular piece of fur. Their shoes were made of a single piece of leather. The heel was sewn with much care, while the three lobes of the front and sides were folded and tied with a string. The sacks used for hauling, also found in the Eastern Group, were similarly characterised by practical thinking. The hide of a large animal was skinned without abdominal incision and sewn together at the back. The neck was used as a filling funnel, the stumps of the front legs served as handles. A second model had its neck sewn together and fitted with a loop. This model was filled from below, closed by folding and - probably carried with two belts slung across the shoulders: the original model of an alpine rucksack.

Work at the flourishing mine in the Eastern Group was terminated abruptly by a local accident, when a landslide, probably laying waste to the entire alpine valley, penetrated deep into the mountain through the air shafts. The disaster appears to have killed the miner whose body was found in the *Kilberwerk* in 1734 and who attained posthumous fame as the "Man in the Salt". It probably happened in the middle of the 4th century B.C. when the necropolis became disused. The survivors attempted to get the mine back in operation, driving new air shafts (*Katharina von Edlersbergwerk*, prospecting in the *Christina* tunnel), but their efforts were not crowned with success. The settlement was moved to the Dammwiese, a meadow at the southern foot of the Plassen, where no repetition of the disaster, was feared, and a new district was opened up: the Western Group. The highest-lying of the three groups, it became the first to be worst, with few finds and usually just short references to the *Heidengebirge* in the work reports. Nevertheless number and location of finds indicate that the mine was successfully worked for a long time.

The necropolis, second archaeological dig in the Salzbergtal, gives us evidence that the pains and risks of salt mining were found to be worthwhile. There is hardly any other place which yielded finds of similar quantity and quality. The Hallstatt necropolis was discovered by master miner Johann Georg RAMSAUER in 1846. He was the first to recognise the graveyard character and decided to start a dig. By 1863 he had excavated 980 graves and documented them with the support of the Museum Francisco Carolinum in Linz and the Vienna Museum of Art History. RAMSAUER thought that the dig was exhausted, but his

successors were able to discover another 290 graves. Friedrich MORTON dug up 62 more graves in 1937-39, which had been the last to be filled. A penstock laid through the Salzbergtal in the last two years unearthed the - so far - last graves. They provide an indication of the wealth of pottery which must have been there and was missed by the digs of the previous century.

Ever since the discovery (the first publication appeared in 1848), scientists have been working to analyse and interpret the abundance of finds. The first comprehensive presentation was furnished by Eduard von SACKEN. Moritz HOERNES, who first inventoried the prehistoric department of the Vienna Museum of Natural History, where the finds were brought and who in the course of his work acquired an intimate familiarity with the material, attempted an in-depth analysis. He selected 240 graves, categorising them in two stages and breaking them down into men's and women's graves. In his opinion, the composition of the necropolis was perfectly typical. Karl KROMER, who finally did the full presentation (a task frequently demanded and attempted) in 1959, arrived at an entirely different conclusion. He found a clear predominance of men's graves, inferring a very specific population structure governed by the purpose of the settlement. According to him, the necropolis was filled in line with distinct rules, with graves furnished with arms encircling those without arms, so that the buried "warriors" continued faithfully to do their duty of protecting the community against enemies even beyond the grave. His theories were fiercely disputed but also used as underpinnings for further speculation. Thus, Imma KILIAN-DIRLMEIER accepted the specific population structure but still views the mingling of rich and poor, young and old graves as an indication that those associating in life wanted to continue their closeness after death. Systematically pursuing this idea, she guesses that communities interested in salt mining sent working parties to Hallstatt who had sections of the necropolis allotted to them. According to her, the necropolis was thus structured not by clan or family, nor by social status, but rather by provenance. Recently, Frank Roy HODSON reconsidered the old model developed by HOERNES, believing that, on the basis of his computer analysis, he can see graves of men, women and children.

The Hallstatt necropolis is at the entrance to the Salzbergtal valley, at the steep slope of the Niederer Sieg. Estimates put the number of dead originally buried here at 2000, but only 1270 graves are under museum administration and open to research today. About half of the dead (45%) were cremated before burial. Nevertheless more than 70% of the bronze vessels - surely an indication of the dead person's wealth and power - were found in cremation graves. Cremation burial thus was reserved to a higher social stratum and was less dependent on the time of burial. It should be noted in this connection that the bronze vessels are not so much cooking pots but are rather connected to drinking habits, as witnessed by the large buckets used for mixing and the bowls. Similarly, weapons are found primarily in cremation graves. A special accessory for the rich graves were clay vats, described by the excavator as oval clay coffins without lids. Their incidence is so far restricted to the Hallstatt necropolis, and even there they are a rare sight. Normally, the bottom of the grave was simply levelled or perhaps compressed.

There have been repeated complaints that the documentation of the Hallstatt graves, in spite of the good quality of depiction and undisputed pains taken by the excavator, is not quite satisfactory by today's standards, harbouring many an uncertainty. Yet recently so many previously untapped sources have been discovered by a careful search that there is a fair chance of clarifying many issues. But an irretrievable loss was caused by RAMSAUER when he disposed of the skeletal remains and clay vessels - digging for precious antiquities as dictated by the spirit of his time - as being shabby and therefore useless. The more valuable are the few clay vessels that have survived, a pointer to the splendid variety that was lost.

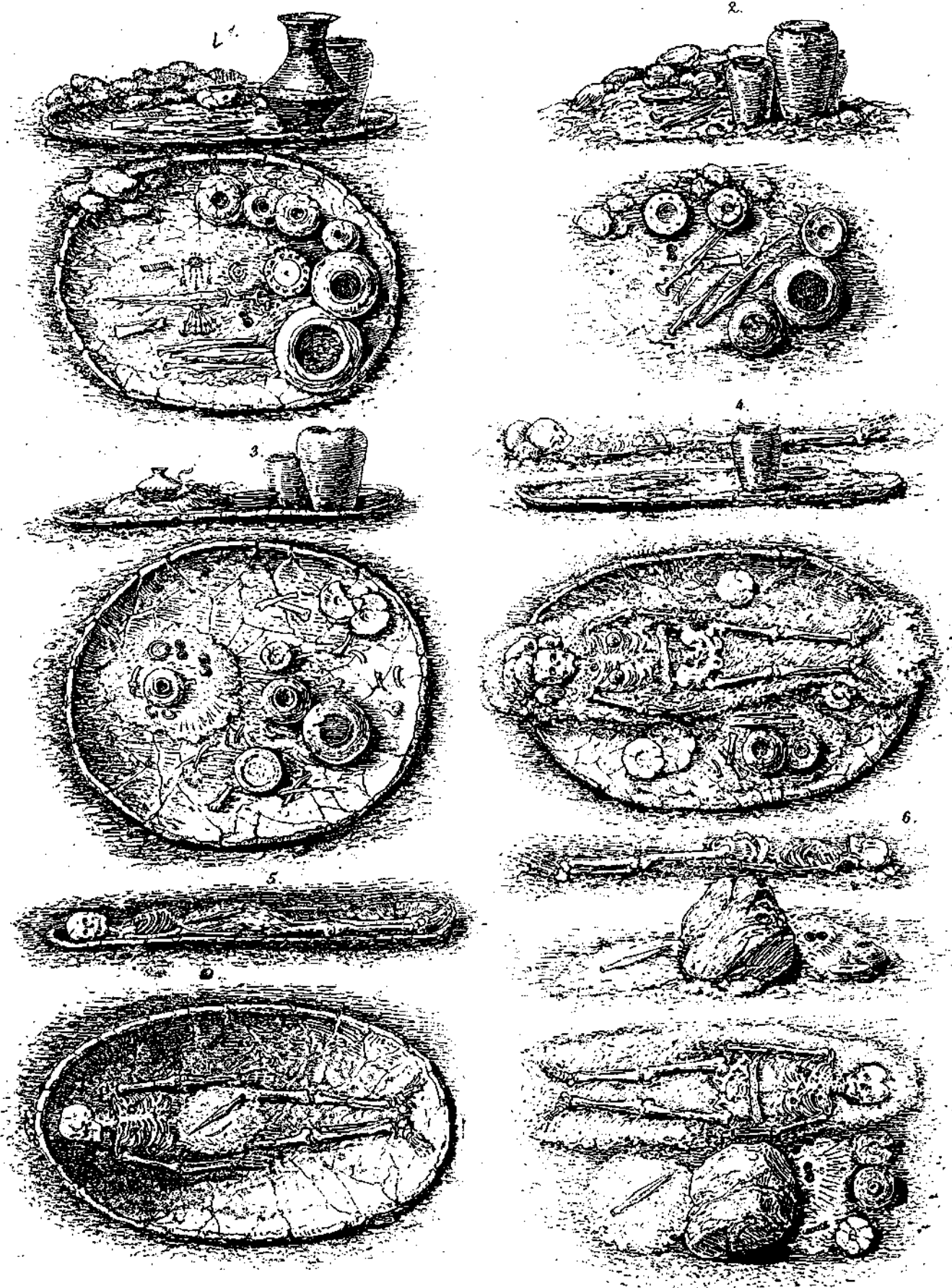


Fig. 5.1.1.: Examples of RAMSAUER's documentation, after SACKEN (1868).

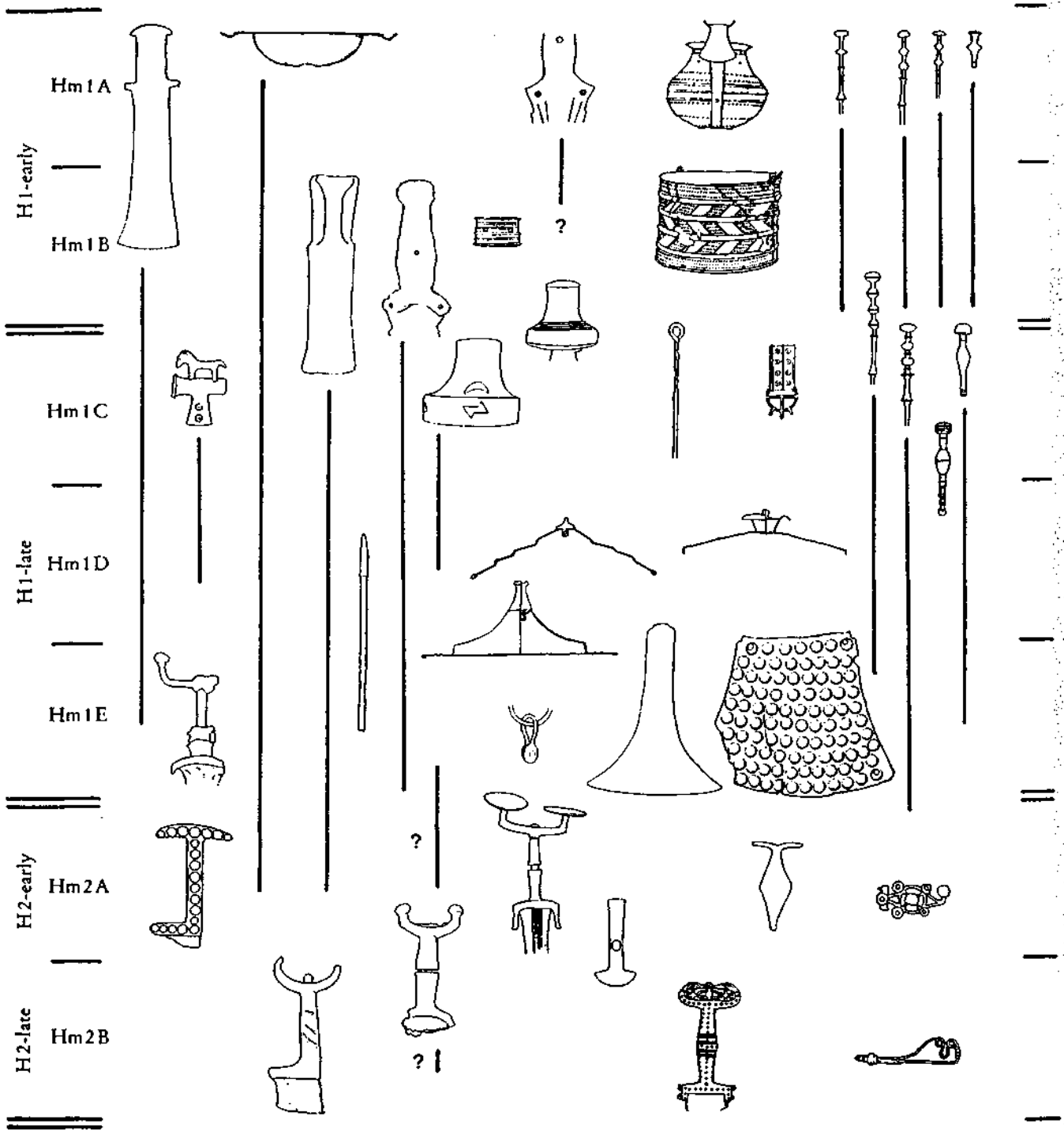


Fig. 5.1.2.: Summary of the proposed sequence of male types, after HODSON (1990).

RAMSAUER was also frequently reproached for leaving finds to celebrity visitors. With the Vienna imperial court resident in Bad Ischl during the summer months, the Hallstatt digs were soon becoming a popular destination for excursions. Emperor Francis Joseph visited the site several times. As a mine employee, RAMSAUER was not in a position to refuse requests for finds, may have felt flattered even - and many a find was lost. Yet in many cases RAMSAUER at least recorded the find in his protocol and had reproductions made for major pieces (as was the case with the cattle figurines).

The Hallstatt necropolis was mainly filled in two periods: the older one in the 8th and 7th centuries B.C. and the younger one in the 6th century B.C. A more detailed categorisation in line with the Southern German chronology is not fully feasible. A few graves demonstrated that the graveyard was still used in the 5th and early 4th century B.C. The main phases (known as "Hallstatt C" and "Hallstatt D") can be excellently visualised by the graves furnished with weapons, because of a change in fighting techniques. Typical for the older phase was a long cutting sword made of bronze or iron, which later changed to a short dagger with antennae, which probably did not play much of a role in actual fighting but is perceived by experts as a symbolic weapon marking out the leader, a theory bolstered by the magnificent workmanship of some specimens.

An iron sword from grave no. 573 serves as an example for the far-reaching trading links of the time. The hilt and pommel are cut from ivory and richly inlaid with amber. Neither material was indigenous to the region where the sword was almost certainly made. The ivory was probably imported from Africa, and the amber from the beaches of the Baltic Sea. Trading over large distances was not restricted to raw materials, but extended to finished products. The glass jars found at the Hallstatt necropolis (actually the oldest glass vessels to the north of the Alps) were manufactured around caput Adriae, an area which also yielded the bucket lid in grave no. 696. The type of figural representation is typical for the Este region in Upper Italy.

Even people appear to have come from afar. Marktus Egg pointed out that the furnishings of the man buried in grave no. 259 were largely similar to those of a man lying in Vace/Slovenia. Brisk trading with this region is evidenced by numerous objects, e.g. the many pieces of armour found in the older weapons graves.

When we attempt an overall assessment of prehistoric Hallstatt, visualising life in the narrow valley, mining experts will tell us that it probably was a well-considered and strictly managed organisational structure. "Laborious burrowing" alone certainly did not enable men to do down 300 metres below ground and keep pits open for centuries. Recent digging has shown that mining was very extensive. Thus at the Kilbwerk, gravelly Heidengebirge, i.e. bottom settlements, was exposed which had a substance of three metres without reaching the top or bottom. Recent excavations at the salt dilution works supplied evidence of a prehistoric pit with a clearance of 15 metres. Such a production-driven enterprise would not have depended on traders passing through by chance, especially since Hallstatt probably had to rely on outside supplies. It is thus likely that they themselves organised the salt transport. Trading in the vicinity appears to have been done by pack animals and predefined counterfreight, as suggested by Ludwig Pauli for the trade between Hallein and Bohemia; it certainly was not an uncontrolled chance business.

It is more difficult to find out the reach of Hallstatt at the height of the culture that took its name. It is noticeable that the place is included in almost every map showing the range of the Hallstatt culture: maps of western incidences indicate it as one of the easternmost sites while on their eastern counterparts it is one of the westernmost sites. The intense ties to the south and south-east have already been noted. It appears Hallstatt was linked by trade directly or indirectly to almost the entire culture.

In the valley near Hallstatt, archaeologists are still faced with major challenges. Current work concentrates on the salt mine because modern miners have already penetrated to

larger depths beyond the reach of prehistoric miners and access to the few underground sites still open today cannot be ensured for an unlimited period. The work is thus of an emergency excavation type that is performed under pressure of time. The situation is aggravated by the difficulties of archaeological mining and the high costs associated with it. The fact of prehistoric pits being of a rambling type excludes short-term examinations and quick results. Findings so far have provided answers to some questions but raised new ones just as quickly. The reconstruction of the mining technique in the Northern and Eastern Groups is largely based on assumptions, still to be confirmed by excavations. The preliminary chronological interpretation similarly needs to be verified, although it is highly likely that salt was mined in Hallstatt throughout the last millennium B.C. It can thus be concluded that many surface finds are still awaiting discovery. Houses and graves of the late Bronze Age, the settlement and graves of the Eastern Group, and the graves of the people who lived on the Dammwiese and worked in the Western Group are still hidden in the narrow valley. Many a discovery may still remain buried in the ground to surprise future archaeologists.

Romans too left their traces in Hallstatt. Although no evidence of Roman mining has yet come to light, it is difficult to find any other reason than salt for their massive presence in this remote spot. The Celtic mine of the Western Group may have continued to operate far into the Roman era.

The Roman settlement was located in the Echernthal valley, at the foot of the sunny Echernwand mountain face. The extensive vicus included all the blessings of Roman civilisation: window panes made of glass have been documented as well as hot-air heating systems and luxury tableware from the Rhine. The Roman cemetery has not yet been fully explored, and rich archaeological horizons can be found in the cellars of modern houses. Recently a Roman layer was discovered in the Markt quarter on the debris cone of the Mühlbach rivulet. Even here in the valley, the soil of Hallstatt has not yet yielded all of its secrets.

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