

BOHEMIA AS A MODEL TERRITORY FOR RESEARCH ON TRANSPORT AND TRADE IN PREHISTORY

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The Bohemian basin is surrounded by mountain chains which remained uninhabited throughout prehistory. Any contact between the population of present-day Bohemia and other regions must have passed through this border zone and required therefore a journey of several days in an uninhabited territory crossed via various routes which were in use throughout prehistory. There is evidence of numerous and intense trade contacts with neighbouring regions. This paper focusses on two case studies of Late Iron Age trade: the import of salt to Bohemia and the export of quernstones from Bohemia to Moravia. In both cases we can observe a regular long-lasting trade where great volumes of goods were transported. It is argued that this trade and the related transport must have been well organised and involved numerous people at least partly specialised in these activities; the crossing of the Frontier Mountain chains required hundreds of people and pack animals. It is hypothesised that some 5–10% of Bohemia's population in the Late La Tène period took part in this trade to various degrees. As supported by written sources, it is suggested that some exchange activities were involuntary or forced, although archaeological sources do not permit to estimate the proportion of free and forced circulation of goods.

INTRODUCTION

Despite the fact that trade and exchange are classical topics in archaeological research, the study of these social interactions is often limited to tracing the origins of a particular kind of artefact or raw material. Interpersonal relations often remain out of the question or are expressed by means of abstract models. Archaeologists dealing with relatively recent historical periods resort to written sources or the opinions of historians which they adopt with the hope that they will provide more “reliable” information.

In terms of the La Tène period, a very inspiring debate on the theme of Celtic trade was the cause for opposition between two eminent ancient historians in the past few decades, namely Timpe and Dobesch. Both historians draw very different conclusions from a similar set of ancient written sources. On the one hand, Timpe (1985) states that written sources do not mention Celtic trade specifically and that it can therefore be argued that trade in Gaul was entirely managed by Greek and Roman tradesmen. On the other hand, Dobesch (2002), puts forward that trade

was widespread amongst Celts and that this played an important role in their economy. Archaeologists studying the La Tène period economy took up similarly divergent positions (Salač 2004).

When comparing Timpe's and Dobesch's studies, it becomes clear that the divergence of both historians' arguments stems from the different way in which they consider the term "trade". Timpe perceives trade mainly as an organised activity carried out by professional tradesmen, as it is most often described by written sources. Because it was mainly the Greeks and the Romans who carried out this particular type of trade, we can see why Timpe stressed the Greek and Roman involvement in the Celtic trade. Unlike Timpe, Dobesch paid more attention to evidence of internal trade among the Celts.

In light of the Timpe and Dobesch debate, it is clear that the definition of trade is crucial for the study of this topic. Numerous definitions of trade circulate among archaeologists, historians, ethnologists, sociologists and economists. These definitions range from considering any kind of exchange to be trade to the view of trade as an act of exchange which is exclusively undertaken by specialised tradesmen, realised through monetary exchange or carried out over long distances. The relation between trade and exchange is also viewed in various ways.

In this paper, the term "trade" is applied mainly in the sense of: "the mutual appropriative movement of goods between hands" (Polanyi 1957: 266); "trade is a method of acquiring goods that are not available on the spot" (Polanyi 1975: 133); "the reciprocal traffic, exchange, or movement of materials or goods through peaceful human agency" (Renfrew 1969:

152). The words trade and exchange will be treated here as synonyms.

It can be argued that, given the limits of archaeological sources, archaeology is obliged to take up the widest possible definition of trade. When considering ancient trade, it is advisable to begin on the most general level so as to not exclude some significant traits or archaeological periods which would not fit our artificially imposed criteria. In fact, it is obvious that trade does not develop in a unilinear way in which a new or seemingly more advanced form of trade substitutes the lesser, preceding form. It is most likely that any new form of trade only widens the range of possibilities, since previous forms are usually not bound to disappear, as exemplified by recurrent returns to simple barter occurring regularly in moments of crises (wars, natural disasters etc.).

With trade loosely defined, the original question of whether trade existed (in prehistory or in the Celtic age) becomes much less pressing. If we accept that trade is a way to peacefully obtain what is unavailable at in a particular space and time, there can be no doubt about the existence of trade. As early as the Neolithic, the numerous finds of stone tool deposits far from their original source can be considered as evidence of the existence of a regular form of trade capable of connecting very distant places and of supplying large areas with considerable amounts of both raw materials and finished products. For example, despite the lack of flint mines throughout Bohemia, flint tools are regularly found in Neolithic settlements (Lech 1987, Popelka 1999). This can only be explained by a well working exchange system.

This situation is even more marked in the Bronze Age, where the rarity of copper and tin deposits stands in sharp contrast with the pan-European distribution of bronze objects.

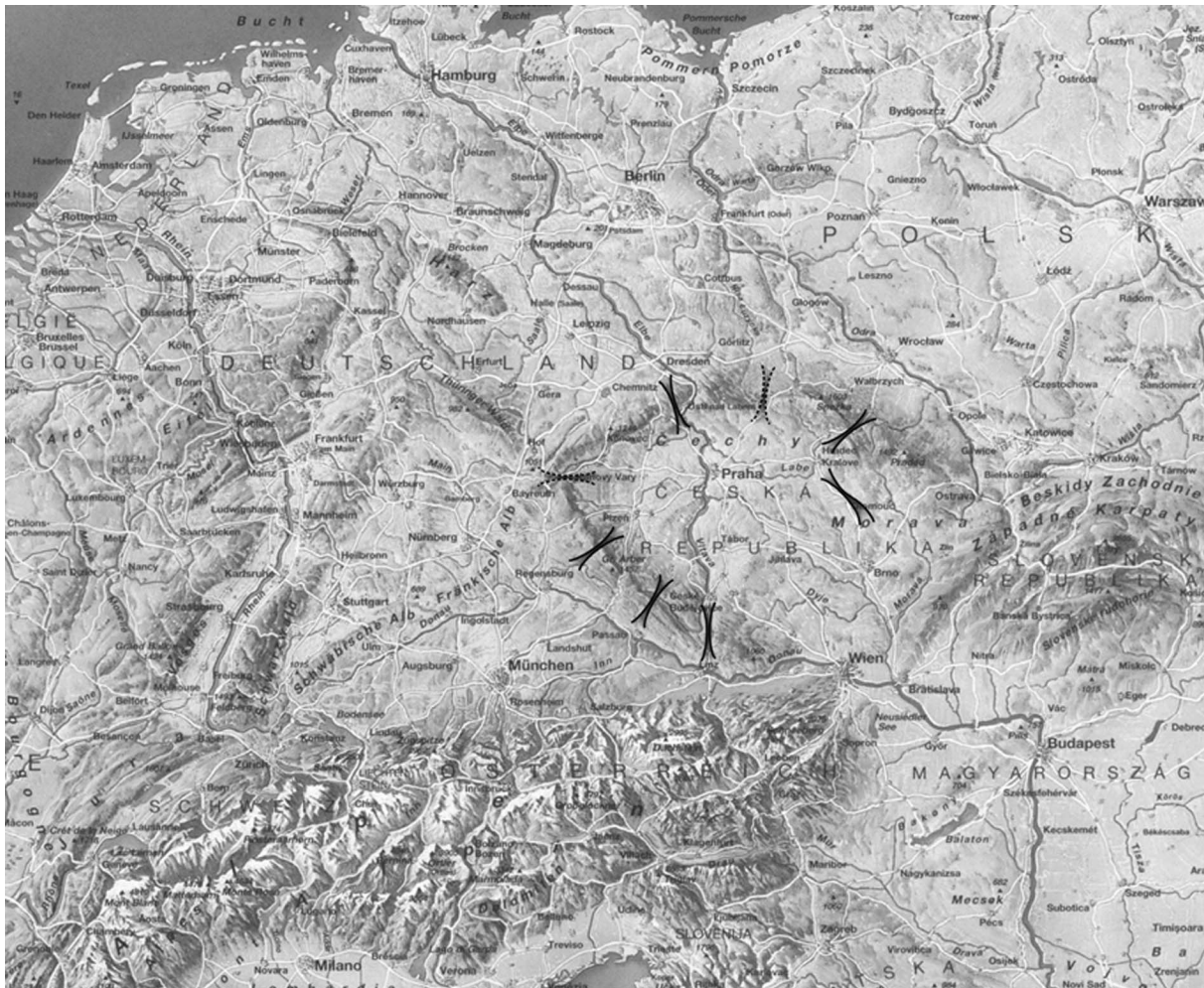


Fig. 1: Bohemia and connected neighbouring regions in prehistory (symbols indicate approaches)

Trade could not have taken place in one direction only: a satisfactory equivalent must have been offered for the received goods. Here, we must take into account a broad range of possible commodities which can hardly be attested by archaeological evidence is beyond any doubt, such as cattle, food, salt, hides, textiles, wood and later also wine, oil or slaves.

The best way to assess the development and functioning of a particular trade system is through a comparison of geographically restricted raw material deposits with the widespread distribution of finished products

found in prehistoric settlements throughout Europe. Trade is not only a necessary prerequisite for the regular distribution of irregularly occurring resources but also for the division of labour and thus social development. It can be argued that the external supply of food allowed some communities to specialise in particular types of labour, including mining, manufacturing of instruments etc. (for Bronze and Iron age: Dürnberg: Stöllner 2003, for Hallstatt: Kern et al. 2009). The construction of huge tumuli, hill-forts or oppida would not be conceivable without adequate supply of food and other products.

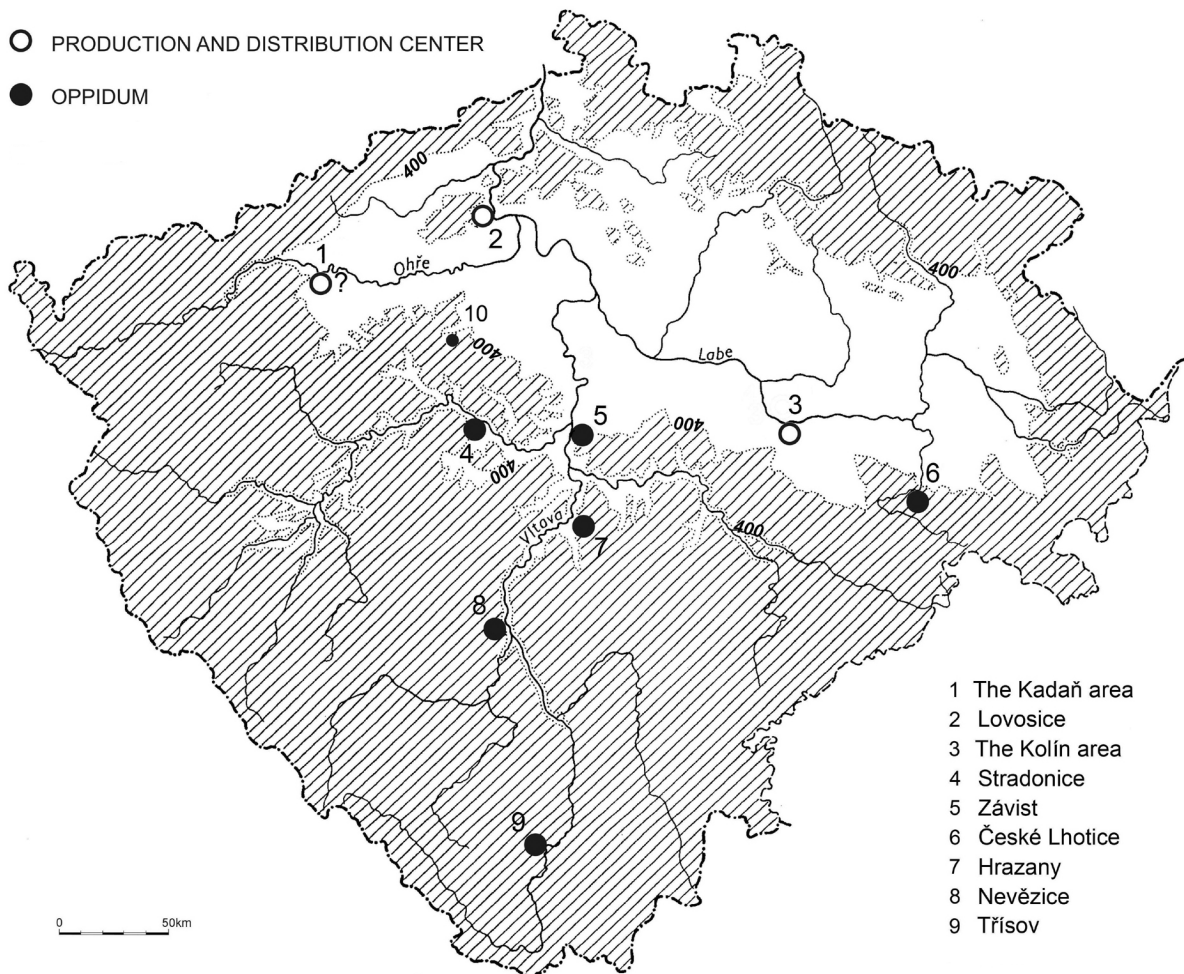


Fig. 2: The Bohemian Basin in the Late La Tène Period: distribution of oppida and production and distribution centres

BOHEMIA – A BRIEF DESCRIPTION

Bohemia as a geographical unit is a basin of c. 52 000 km² separated from the rest of the world by an uninterrupted chain of mountains. These mountain ranges are very inaccessible and remained therefore uninhabited up to the high Middle Ages. In prehistory, a single waterway (the Elbe to the northwest) and between eight and six mainland ways connected the Bohemian basin with the external world (Fig. 1, 2).

The basin itself can be divided in three types of landscape: 1) Lowlands along the lower

courses of principal rivers with altitudes between 170–300 m. 2) The inland highlands and the foothills of the Frontier Mountains with an altitude between 300–500 m. 3) The Frontier Mountains reaching heights of over 1000 m.

Prehistoric settlements were always concentrated in the lowlands, along the rivers Elbe, Ohře and Vltava, with their fertile soils and favourable climate (Fig. 1–3). This territory has been settled continuously since the Neolithic and mineral reserves of any kind are completely absent in these areas.

The Frontier Mountains were not inhabited in prehistory, as agriculture was not practised in

this area, with the exception of very limited herding practices. The Erzgebirge is an exception in this respect as it is a densely populated area with rich ore deposits, including copper. It is also the only resource of tin in central Europe (Mísař et al. 1983).

Conditions in the highlands are much less favourable for agriculture due to lower quality soils and a more humid and colder climate. It is here, however, where mineral resources (e.g. gold, graphite, copper, iron) are present and were exploited in prehistory. Permanent human presence in prehistory is attested only at lower altitudes, where agriculture could be carried out, in the vicinity of mineral deposits or along the mainland routes connecting the Bohemian basin with the external world. The highlands remained void of human settlement in some archaeological periods (e.g. the Neolithic, Middle La Tène period, Roman Iron Age).

BOHEMIA AND LONG-DISTANCE TRADE IN THE LA TÈNE PERIOD

Communication between the Bohemian basin and neighbouring areas has always been constrained by the girdle of the Frontier Mountains. In this study, we will focus on commodities which are likely to have been transported and regularly traded in relatively large quantities and over long periods of time within and eventually beyond the mountain chain surrounding Bohemia.

We will concentrate in particular on the so-called long-distance trade, defined here as trade in which goods could not simply circulate through contact between neighbouring settlements or regions but had to be transported at distances of several days (Salač 2004). In other words, long-distance trade is

understood as trade between partners who could not have been in everyday contact. In the case of the Bohemian basin, trade involved social relations which crossed the no-man's land of the Frontier Mountains (Fig. 1).

LONG-DISTANCE TRADE AND SALT

Despite the fact that salt trade is notoriously difficult to detect archaeologically, it is with regard to this commodity in particular that we can establish some far-reaching conclusions (Stöllner 2002). Salt mines of any kind are completely absent in Bohemia. Nevertheless, it is generally agreed that salt is an indispensable component of human diet (Heuberger 1994) and though physicians and biologists may not agree on the exact dose, a regular intake of salt is considered to be necessary for any organism, with 5–6 g a day or 2 kg a year being most often quoted (Carter 1975, Bergier 1989: 13; Heuberger 1994: 65; Simon 1995: 35; Fries–Knoblach 2001: 2). However, salt consumption may vary significantly between cultures and ethnic groups (Bolzano 1994). Additionally, a daily dose of salt intake may well be attained without consuming salt itself but through the consumption of meat.

Writing in a different geographical and cultural setting, but contemporary with the transalpine La Tène period, M. Porcius Cato (231–149 BC), recommends in his *de agricultura libri* (book LVIII) a *modius* (8.754 l = almost 19 kg) of salt for each slave per year (ie. c. 52 g a day). However, salt consumption is to a great degree a culturally specific matter, depending on the role of salt in nutrition, medicine, fodder, conservation, technology and even in the sphere of prestige and luxury products.

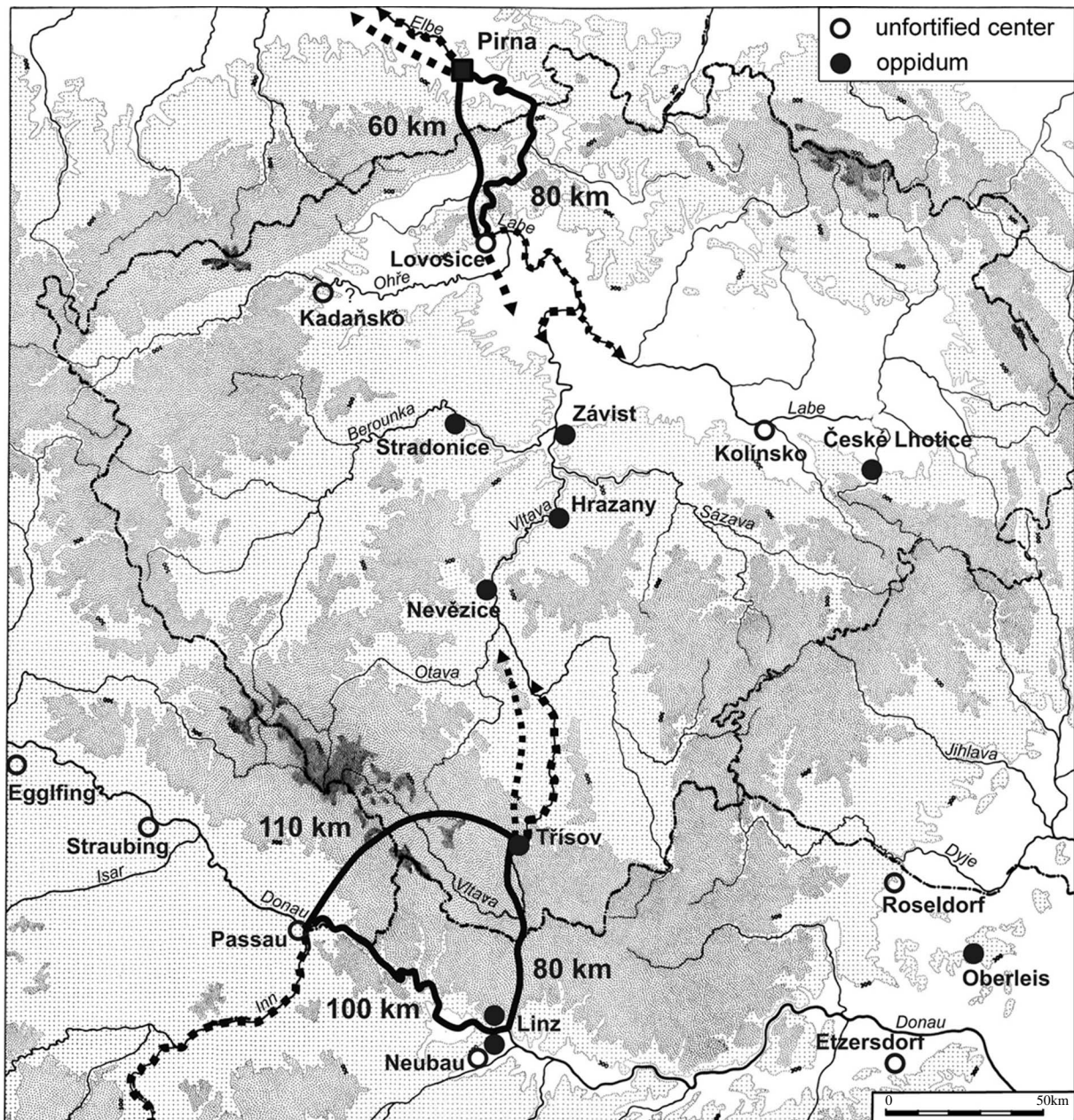


Fig. 3: Salt trade routes to Bohemia in the Late La Tène Period

Although we can only speculate about the use of salt in the La Tène society, the latter seems to have played a significant role in social life and economy, as exemplified by the huge production centres of apparently supra-regional significance such as Dürrnberg at Hallein in the Alps (Stöllner 2002), Bad Nauheim in Hesse (Kull 2003), the Seille region in Lorraine (Bertaux 1981, 1987) and Droitwich in England (Woodiwiss 1992). Salt

was also obtained extensively from sea water (Prilaux 2000, Saile 2000, Fries–Knoblach 2001, Kull 2003, Haid and Stöllner 2004).

If we estimate the annual consumption of salt at about 1 kg per individual (ie. less than 3 g a day, thus half of the recommended daily dose), the logical conclusion is that — even when we omit the use of salt for feeding cattle or for technological purposes (tannery,

metallurgy etc.) — tens and hundreds of tons of salt must have been imported in Late La Tène Bohemia every year. More specifically, the estimated import of salt would have reached 220 tons a year or 550 kg a day. Taking into account that due to weather conditions, transport was impossible throughout the winter and we can therefore make a rough estimation that it could be only carried out some 250 days a year, we must increase the daily import to some 800 kg. This value corresponds to four cartloads a day (Kunow 1983: 51–52) or a caravan of 20 pack horses with corresponding accompaniment, which is more probable in the Frontier Mountains. A similar estimation is unfortunately not possible for river-borne transport due to a complete lack of written sources on this subject. In any case, vessels were probably able to carry greater cargos than pack horses (Kunow 1983: 51–52). However, we must not forget that river-borne transport heading into Bohemia had to go upstream (for a more detailed discussion on river transport: Salač 1998, 2008).

A population of hundreds of thousands without access to salt resources may be estimated for La Tène Bohemia. In this study, we will work with a very rough estimate of 200 000 inhabitants, based on calculations presented by Holodňák (1987) for La Tène B which were multiplied proportionally to the increase of settlement density between La Tène B and La Tène C2–D1. In comparison, Žemlička (1997) estimates the population of Bohemia in the middle of the 11th century AD at about 450 000. The extension and density of settlements (or archaeological sites) does not seem to differ substantially between the Late La Tène Period and Early Middle Ages.

Salt was imported to Bohemia from the Salzkammer region to the South (Dürrnberg) (Stöllner 2002), most probably via one of the branches of the Golden track (*Goldener Steig*; Pauli 1974), connecting Passau with southern Bohemia (Fig. 3). If we hypothesise that in the

Late La Tène period, the route went from Passau to the oppidum of Třísov and that it was along this route that all salt consumed in Bohemia arrived, 20 pack-horses and 5–10 accompanying people would have to arrive at Třísov every day. Taking into account the long distance between Passau and Třísov (around 110 km) and the difficult terrain, the journey must have taken at least six days. From this, we can conclude that in days with favourable conditions, at least 240 pack-horses and 60–120 people were on the road in both directions. The entire track went through uninhabited territory and as no help could have been provided by the local population, the caravan had to be completely autonomous in terms of provisions and fodder (Fig. 3). Given the supposed frequency and intensity of transport, hunting or grazing possibilities must have been extremely limited along the track. As all the supplies had to be carried along, the number of both pack animals and people must have been much higher, complicating the necessary organisation in both departure points.

The track via Linz, Upper Austria (the oppida of Grünberg and Freinberg; Urban 1994) can also be taken into account when considering the transport of salt to Bohemia (Fig. 3). The salt would have to be shipped from Passau down the Danube (c. 100 km) and then carried from Linz to Třísov (c. 80 km). However, apart from the territory of Linz, this area is largely uninhabited and the number of pack animals and escort would basically be the same as along the route from Passau to the oppidum of Třísov. However, along the Linz route, we have to take into account a change in means of transportation and perhaps also a change in haulers in the region of Linz.

In addition to the Golden Track and the Linz routes, the salt supply might also have arrived in Bohemia from the region of Halle/Saale, beyond the actual confines of the Late La Tène culture.

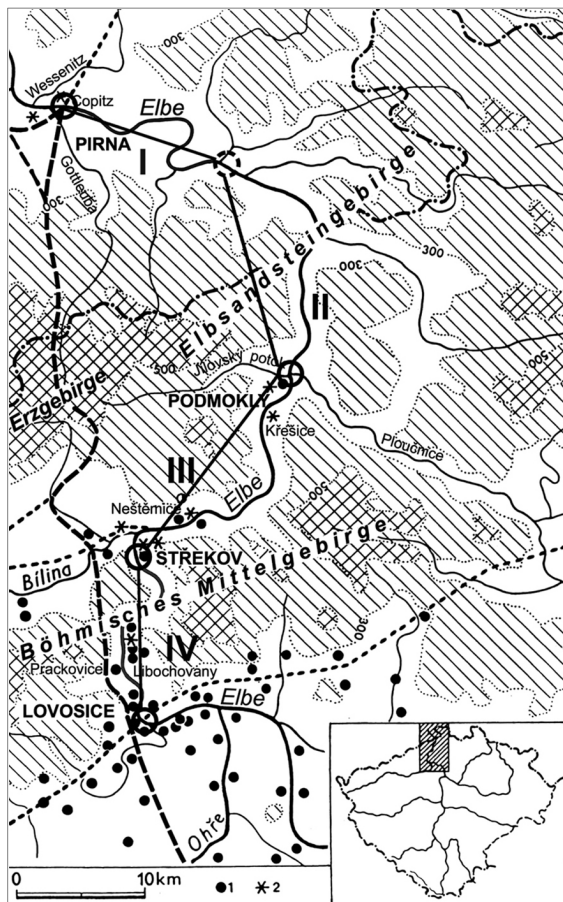


Fig. 4: Reconstruction of upstream routes in the Bohemian–Saxonian Elbe canyon (Iron Age: 1 – inhumations; 2 – cremations)

In this case, the route would also have passed through vacant mountain zones (Erzgebirge, Böhmisches Mittelgebirge, Elbsandsteingebirge). If river transport up the Elbe occurred regularly, it must have passed through a narrow, long (c. 80 km) and only extremely sparsely inhabited canyon and all transport, including that of salt, in the direction of Bohemia must have gone upstream (Fig. 3 and 4).

Despite the lack of any precise information about the form and capacity of La Tène boats or about the organisation of the navigation, we can estimate that the crossing of the canyon took at least four days (Fig. 4, Salač

2008). In this period, the Elbe canyon was populated by a mixed cultural group (the so called Bodenbacher Gruppe), which is marked by a mixture of Bohemian La Tène culture characteristics and of the northern late Billendorf and Jastorf cultures. The Bodenbach sites are located exclusively on the banks of the Elbe in portions of the watercourse that are difficult to navigate. It is probably not by chance that the distance between these cultural groups is roughly that of one-day upstream navigation. It is supposed that the Bodenbacher Gruppe (consisting of several hundreds of people) controlled the river navigation and that this group was greatly dependent on these transport activities (Simon and Hauswald 1995, Salač 1998, 2008).

There is archaeological evidence for both the connection with the south (the Danube area) as well as for the northern Elbe–waterway. However, it is impossible to ascertain if all regions took part in the salt trade and to what extent. It is possible that only half the number of pack animals and tradesmen was involved in the salt trade. Although our calculations may be very general and approximate, they show that a very good organisation was indispensable for the Late La Tène salt trade and that this trade could not have been run on an occasional basis. All the more so if we assume that salt, as well as other (archaeologically visible) goods (see below), arrived at every settlement unit. In order to supply hundreds of thousands of people living in such a vast territory, salt trade must have been stable and regular. Last but not least, an adequate trade good must have been collected and distributed to the salt deposits to make the specialised production and the whole trade system function. Salt mining was dependent on the import of goods, particularly when taking place in areas where normal agricultural activities could not have been carried out, such as the Alps (Stöllner 2002, 2003).

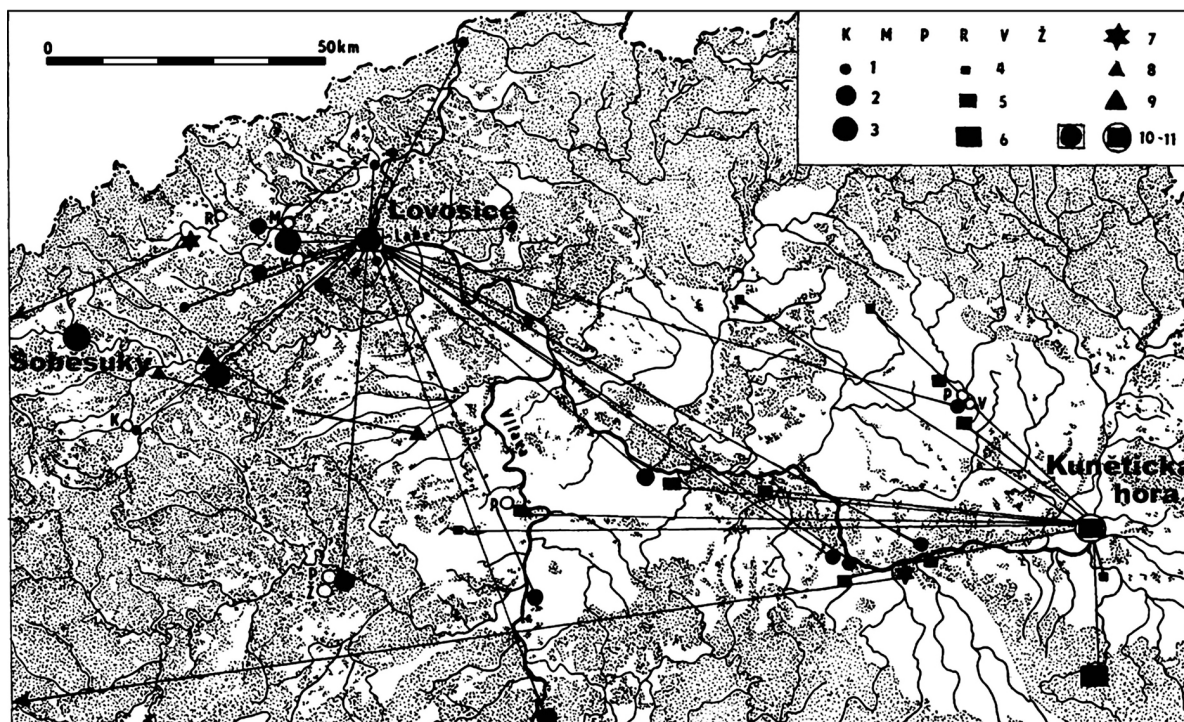


Fig. 5: Distribution of quernstones in the La Tène period (after Waldhauser 1981)

Salt and the goods offered in return must have covered the costs of transport and trade. The motivation of individuals who carried out, organised and controlled both activities must have played a significant part as well as the gains for the individuals involved, either in terms of obtaining a necessary food staple or in satisfying a desire for prestige goods.

LONG DISTANCE TRADE AND QUERNSTONES

A second case study concerns the long distance trade of quernstones, of which the origin and distribution can be traced very accurately for the Late La Tène period. Apart from some workshops with only regionally limited importance, there is evidence of two major workshops which supplied large areas within Bohemia: one in Lovosice and another around the Kunětická Mountain in eastern Bohemia (Fig. 5). The distribution networks of these workshops have been shown to

overlap (Waldhauser 1981, Holodňák and Mag 1999, Čižmář and Leichmann 2002).

Analyses of 140 quernstones from the oppidum of Staré Hradisko in Moravia (Fig. 6) indicate that the majority of quernstones were imported from very distant areas, mainly from Bohemia. Only a handful of quernstones (2.8%) were manufactured from local low quality material. Another 21% of the sample originated from stone quarried c. 30 km away from the site (Čižmář and Leichmann 2002, Čižmář 2003). More than half of the stones came from Bohemia (Fig. 6): 44.7% from the workshop of Kunětická hora (100 km as the crow flies) and 14% from Lovosice (not less than 240 km far. A final 4% were produced in Burgenland, Austria (Pauliberg, 220 km as the crow flies). Although local production of quernstones was possible and even mastered by local craftsmen, the inhabitants of the oppidum clearly preferred to rely on import.

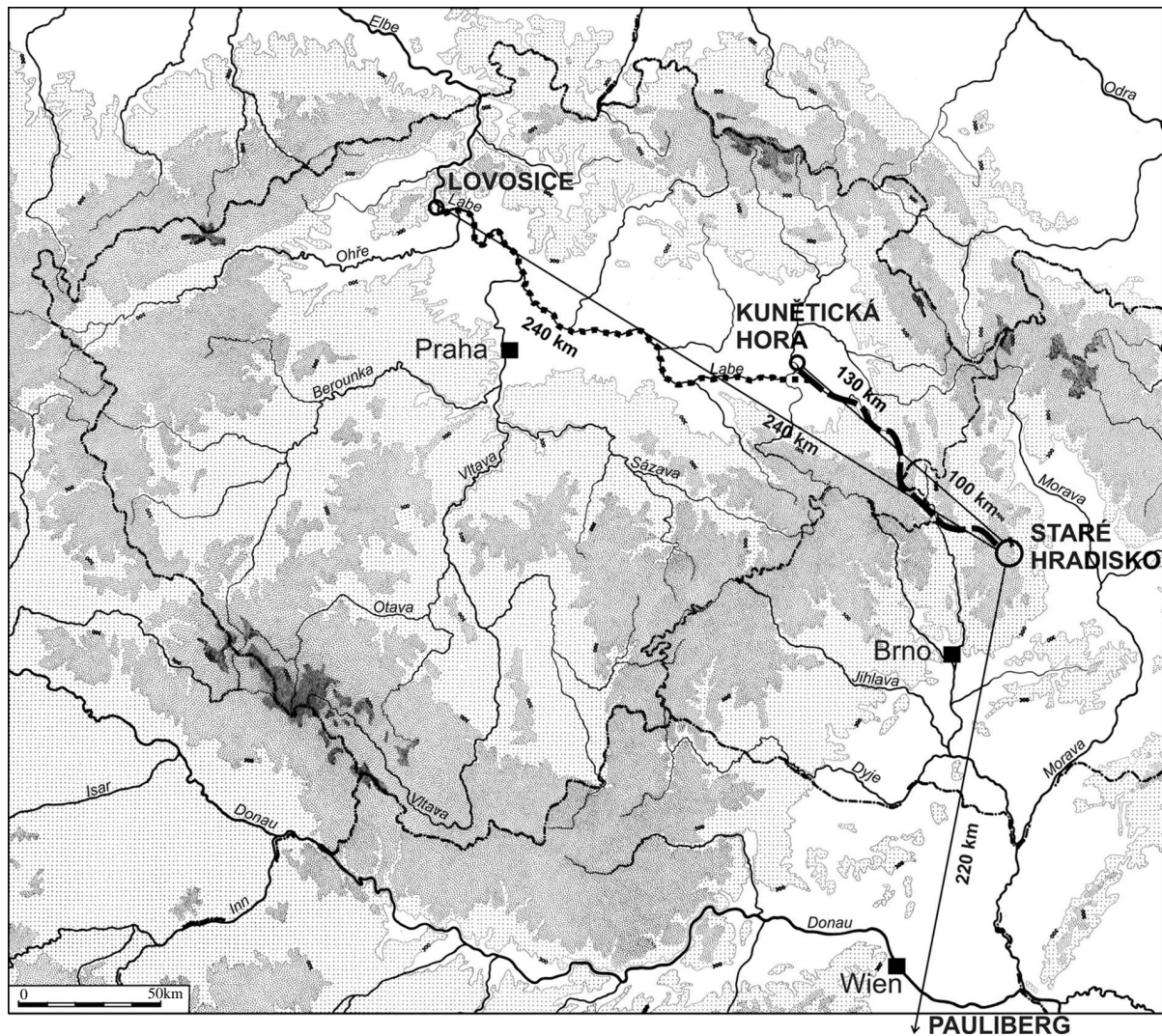


Fig. 6: Reconstruction of the quernstone export system from Bohemia to the oppidum of Staré Hradisko in Moravia

The composition of the entire sample points towards a regular trade, at least between Staré Hradisko and Kunětická hora. Although this trade must have satisfied most of the local demand, the oppidum was not confined to the products of a single workshop.

The quernstones arriving from Bohemia had to pass through the highland separating Bohemia and Moravia, which was basically uninhabited throughout the prehistory. The sparse La Tène settlements appear in a narrow corridor between the region of Staré Hradisko and eastern Bohemia (Vích 2003).

We can assume that the inhabitants of these settlements ensured contact between Bohemia and Moravia. However, the permanently inhabited regions of Bohemia and Moravia remained divided by an unsettled highland region. The trade routes between these two regions obviously crossed miles of deserted and difficult territory. Thus, similarly to the salt trade, there is evidence of extensive and regular trade taking place between non-neighbouring settlements or regions.

The quernstones from Lovosice were probably partly transported to Staré Hradisko by boat. The effective length of this journey

can be estimated at 240 km or, in case of upstream navigation, 12 days (Fig. 6, Ellmers 1989). After this, the material had to be discharged and the journey continued on the mainland. This change of transport took place near other manufacturing centres, such as Kunětická hora, and the dry-land journey (roughly 130 km) was thus the same for products of both workshops. According to Kunow's (1983: 53) calculations, 18–20 km as an average daily haul, this journey must have taken at least seven days under normal conditions. Several of these days must have been spent in uninhabited or only sporadically inhabited territories of the Bohemian–Moravian highlands (Fig. 6).

Similarly to the salt trade, the quernstone trade can be defined as long-distance: the products of the Kunětická hora workshop spent at least 7 days *en route*, whereas stones from Lovosice took 19 days to arrive at their destination. From this, we can argue that specialised haulers must have been involved in river borne transport as well as in the crossing of dry mountainous areas by pack horses.

In the case of quernstones as well as salt, great masses of cargo were transported: the weight of a complete finished quernstone is about 60 kg and tons of this material must have been transported every year. However, unlike salt, a cargo of quernstones could not have been freely divided. Moreover, besides being heavy and bulky, these objects are also fragile and can easily become damaged. The transportation of quernstones is therefore much more demanding in terms of transport and the quality of the roads. Nevertheless, no farm could have gone without this particular material and quernstones are found in every single settlement, implying that the quernstone trade must have reached even the smallest village. The need for quernstones in every settlement unit thus set in action a whole transport and trade system, although the purchasers themselves were in no way directly involved in its functioning.

SETTLEMENT UNITS AND LONG DISTANCE TRADE

To form a general idea about trade networks and the extent of trade within the Bohemian basin, we have to focus on various goods which were regularly exchanged. One of the significant new findings is that certain objects, which were previously considered to be rare, appear in all settlement units. For instance, glass bracelets and beads are regularly found in every settlement, including tiny villages in peripheral areas, although the production of these objects allegedly only took place in a very limited number of workshops. Although these workshops are not yet accurately localised, there is evidence that glass ornaments were distributed over long distances (Gebhard 1989, Karwowski 2004, Venclová et al. 2009).

Similarly to glass objects, sapropelite jewellery, which was first introduced in the 3rd century BC, is not only found in the Mšec/Loděnice region in central Bohemia (Fig. 2), where the raw material originates, but also in every single settlement unit in Bohemia and often also far beyond the country's borders (Venclová 2001). The situation is even more pronounced in the case of bronze objects, present in every settlement no matter how distant from copper and tin sources. Bronze object workshops are even found in areas dozens of kilometres from the regions where the necessary raw material was mined (Čížmář et al. 2008).

A traditional field of archaeological research is that of the pottery trade. Here we limit ourselves to the affirmation that pottery from distant regions (central Rhine, Moravia, the middle Elbe basin, the middle Danube basin, Italy) is present in La Tène Bohemia, and that at the same time, Bohemian pottery can be found in Moravia, in the middle Danube area, the middle Elbe basin and even in Burgundy (Salač 1992, Salač and Carnap–Bornheim 1994, Pierrelvecin 2010). Similarly to other goods, pottery arrived in and left Bohemia

through the corridors crossing the Frontier Mountains (Fig. 1). We cannot make a precise estimate concerning the intensity of this trade, but at least in the case of graphite pottery, the distribution must have been relatively frequent and intense (Kappel 1969, Waldhauser 1992, Trebsche 2003). At the same time, common “intra-Bohemian” trade reached every village. In every settlement in north-west Bohemia, about 10% of pottery was not produced locally but imported. Once again, we can regard this as evidence for a relatively intense and stable trade (Rulf and Salač 1995).

Finally, the minting of golden and silver coins is also evidence for the distribution of these precious metals at significant distances. Coins can also be considered as an expression of value indicating advanced economic relations. Until recently, the function of Celtic coins as a currency was questioned. With the introduction of metal detectors, however, the number of finds has increased so much that their monetary function is now beyond any doubt. Also, the complexity of the monetary system, which includes pieces of very low value, hints at this function. It is, however, not only the number of coin finds that has increased, but also the number of sites in which they appear. We can therefore argue that coins maintained their value as a currency beyond the territory of a few exceptional settlements (e.g. the oppida) and that they were much more used than until recently assumed (Militký 2008, Pierrevelcin 2010).

To conclude, from recent work, it has become clear that many artefacts, including glass bracelets and beads, sapropelite jewellery, pottery and coins were found in every settlement. Most of these objects were not produced locally and some even came from very distant regions. We can argue that this is evidence for settlements participating in a supra-regional trade system and that every individual seems to have had knowledge of

where to procure goods from beyond one's own region.

FOOD TRADE

We have demonstrated that trade reached every settlement. But what could small villages or isolated farmsteads offer in return for imported goods? In some small settlements we can put forward (but only rarely demonstrate) that raw materials, semi-products or finished products were offered. However, such settlements were only present in hilly territories. For example, exports include gold from the settlements in the Otava valley (Fig. 3, Michálek and Venclová 1994) or annular sapropelite jewellery from the region of Mšec/Loděnice (Venclová 2001). However, most of the rural settlements are situated in fertile lowlands without mineral resources. The lowlands were continuously inhabited from the Neolithic and hardly any extended forests were present as potential sources of timber or game. Added to this, for most of these settlements, there is no evidence of crafts or production which would be able to satisfy the needs of more than the village itself. If imported products, including precious material such as quernstones are present in these rural settlements, the most probable goods offered in exchange for these would have been food and cattle. Grain must have been of major importance, either as an essential part of the diet or as a source of the next crop. Finally, when correctly handled, grain can be stored over long periods of time and can make up reserves of significant economic and strategic potential (Salač 2006).

Multiple settlement units in Bohemia occupy the highlands, which are not favourable for agriculture; we can therefore argue that it was necessary for the local population to import foodstuff. Settlements with less hospitable soils and climate and rich local mineral deposits had a greater need to import food. In

other words, to be able to spend time exploiting the mineral deposits, the local inhabitants must have been liberated from agricultural activities which required more time and labour investment in these less fertile regions. Such was the situation for instance in the surroundings of the oppidum of Třísov (Fig. 2 and 3), which is not suitable for agriculture but very rich in graphite, which was exported as raw material or as finished product to the fertile lowlands. Timber could also easily be brought downstream from the highlands. Both regions were obviously interconnected by a dense exchange network whose principal drive was the trade of foodstuffs. The whole system would not be able to work without an effective food surplus in the fertile regions and its distribution into regions where raw materials were exploited (Salač 2000, Dobesch 2002, Salač 2002, Stöllner 2002, 2003, Salač 2004, 2006).

We can argue that with the foundation of oppida in the Late La Tène period, there was an increased need for a well functioning trade system between both parts of Bohemia. These spacious heavily fortified sites were only located in the hilly territories and the number of inhabitants of these less fertile geographical zones grew steadily. The construction and maintenance of imposing structures constituted a significant economic burden for the society, since part of the workforce engaged in these activities had to be at least temporarily released from other economic activities. The need for food import was further increased by the fact that the oppida were located on hilltops offering the inhabitants only very slight agricultural potential. Therefore, we can put forward that the Late La Tène period was marked by the pressure to produce and distribute a surplus of food (Salač 2000, 2002, 2004, 2006). Similarly, the people engaged in trade and

transport must have been exempt from regular agricultural activities and must have settled along the corridors of the Frontier Mountains – ie. once again in the hilly infertile grounds.

SOME SOCIOLOGICAL IMPLICATIONS OF LONG-DISTANCE TRADE

Evidence of trade across the Frontier Mountains shows both regions' ability to maintain far reaching trade relations without being in daily contact. Celtic society must have been sufficiently developed to be able to establish and maintain this system: all participants must have known and respected the trade system. The producers had to rely on the haulers who had to carry the goods to their destination and bring goods in return and haulers and tradesmen had to rely on a secure passage through foreign territory.

Some goods might not have always been available in sufficient amounts or adequate quality when tradesmen arrived, or haulers could not have carried all the goods, particularly if the volume of exchanged material differed considerably (as must have been the case with corn and salt) or if the goods were transferred from one means of transport to another (e.g. from boat to pack horses). Therefore, there must have been storage places along the way and particular economic mechanisms such as redistribution and protection systems must have been in place. Without these, the long distance trade system could not work (Eggert 1991).

We must not forget the basic transport logistics: providing the necessary daily provisions of fodder for tens or hundreds of pack horses could not have been an easy task.



Fig. 7: Deep carved ruts in the gateway of the oppidum of Hrazany: evidence of intense wagon traffic (Photo: Jansová 1965)

In more populated areas, there might have been a close connection of long-distance trade with local trade and other economic activities which provided necessary logistical support, such as fodder, food, rest, repairs and possibilities to replace pack-horses or change the means of transport.

This kind of support was particularly important in the areas near the uninhabited territories. The tradesmen also had to maintain good relations with the local elites who could guarantee protection, a free passage and eventually also direct support in terms of transport (wagons, pack- or draught-animals, boats, porters etc.). As written sources also suggest, services of this kind must have been subject to fees and duties (Dobesch 2002).

According to our calculations, several hundreds of animals moved along the corridors under study. Under these conditions, the replacement of exhausted, sick or old animals constituted a significant economic phenomenon (Bender 1978). We can presume a constant connection between haulers and horse- and cattle-breeders.

To summarise, it has been argued that every settlement unit had access (either direct or indirect) to goods imported by long-distance trade. This means that in parallel to the broad scale of settlements involved in trade relations, there was a similarly broad spectrum of people participating in the exchange network. On the one hand, the presence of imported products in small villages points towards the involvement of at least some individuals in inter-settlement relations including the exchange of objects, raw materials and agricultural products. On the other hand, specialised traders and haulers were probably located in large central settlements – the so-called production and distribution centres and oppida (Fig. 7, Salač 1993, 2005).

It is particularly amongst tradesmen and haulers working in the corridors crossing the uninhabited Frontier Mountains that a higher degree of specialisation can be assumed. As mentioned above, presumably hundreds of members of the so-called Bodenbach group (some 500 people on the Bohemian part of the canyon, Salač 2009) were involved in the river transport in the Elbe canyon and were – to a great extent – dependent on it. A similar number of people could have been involved in maintaining the connection between Bohemia and Moravia.

If we take into account the corridors between Bohemia and the outside world (Fig. 1) we may suppose that some two- to three thousand people participated in or depended upon trade networks and the connection between the Bohemian basin and the neighbouring regions. This constitutes roughly 1% of the estimated population. Many more must have been engaged in the distribution of goods or trade within territories, in particular between production and distribution centres and oppida (Fig. 2, Salač 2005).

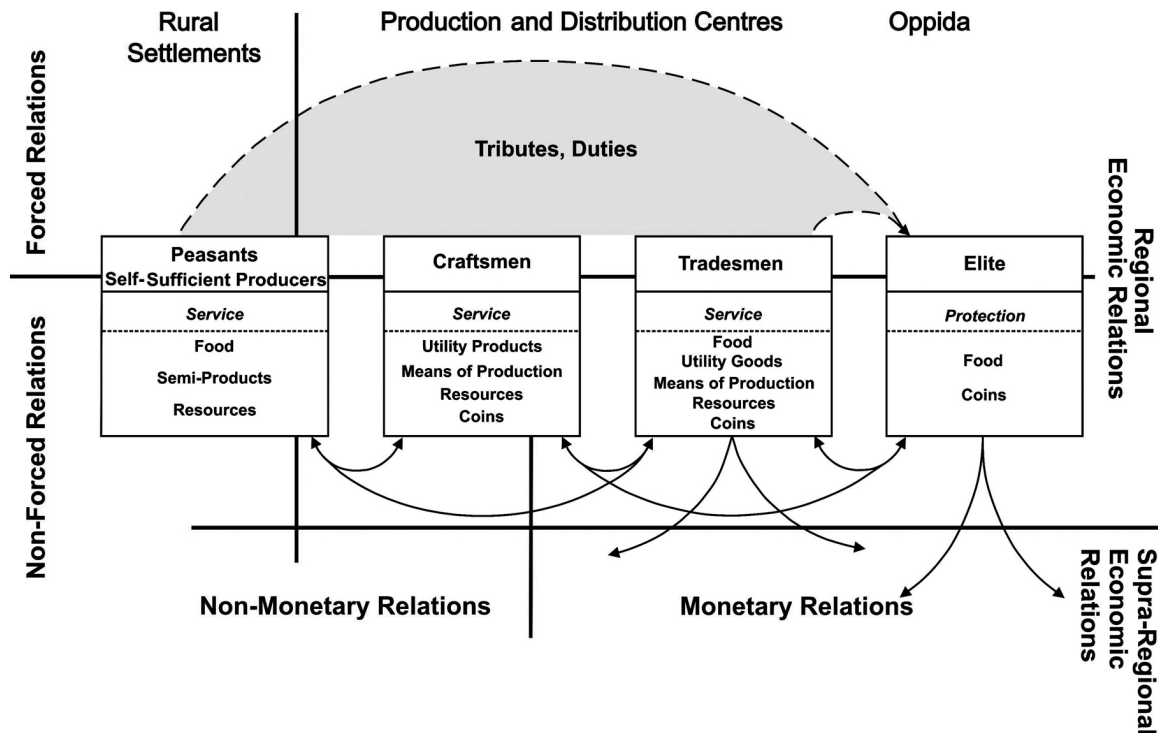


Fig. 8: Schematic overview of a possible economic system of the La Tène period in Central Europe

Based upon these considerations, we can state that roughly 5–10% of the population in Late La Tène Bohemia participated in transport and trade to varying degrees. This high rate makes trade (liberating numerous people from other activities) a significant factor of the Late La Tène economy, to the extent that these hypotheses should be subject to further investigation. For this purpose, we may turn to archaeological or written sources, ethnographical observations or economic models (Polanyi 1957, Pospíšil 1963, Polanyi 1975, Renfrew 1975, Pospíšil 1978, Köhler 1985, Eggert 1991).

The logistics of trade and transport also include the manufacture and maintenance of means of transport, such as wagons and boats. At least in the corridors connecting Bohemia with the neighbouring regions, food and fodder for the caravans must have been constantly available and this must have been a hard task for the inhabitants of less fertile regions. Added to this, in order to provide a sufficient number of healthy pack- and draught-animals, the inhabitants of the

territory must have carried out numerous other connected activities.

TRADE AND FORCED EXCHANGE

In this paper we omitted obligatory duties, booties etc. – there is, nevertheless, no doubt that these particular economic strategies also brought many objects, food resources and raw materials into circulation (Salač 1993). Obligatory duties to the elite are mentioned in written sources for the Celtic Gaul (Caesar, B.G. 1, 17,2) and can also be assumed to exist in Central Europe. It is very difficult to assess the extent of these duties and their significance for the Celtic economy and social life in terms of archaeological remains. It is only through evidence of the construction of oppida, granaries and stores (Salač 2006) that we can attempt to estimate the effective volume of duties and fees (Fig. 8). Only a society in which obligatory fees and services were the rule could create these magnificent constructions and social projects and maintain these for over a century.

ACKNOWLEDGEMENTS

This paper was supported by the GA ČR project N° 405/11/0603 “Bohemia and Central Europe 400 BC–100 AD (Celts, Germans and the Roman Empire) – synthesis and interpretation”.

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