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Medieval fish weirs: the archaeological and historical evidence

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ABSTRACT: In medieval times fish was of essential importance to the new towns as lenten food and protein supply. Archaeoicthyological research has shown that the demand for fish was satisfied by marine as well as inland fisheries. Although the marine fishing industry with its herring and stockfish trade was very important, the share of freshwater fish was consistently very high (about 50%). Despite this importance there is only very sparse archaeological evidence of fishing tackle. In Germany only some fish hooks, gorges and remains of netting tools, such as floats and sinkers, have been discovered. One has to consider other, more effective, means of catching fish, for instance fish weirs. These installations are only rarely excavated because of poor preservation conditions. Examples are only known from England and France. Their existence and their frequency in Germany, therefore, has to be determined with the help of charter evidence.

KEYWORDS: GERMANY, MEDIEVAL AGES, FRESHWATER FISH, FISHING TECHNIQUES, FISH WEIRS, ARCHAEOLOGY, HISTORY, CHARTERS

RESUMEN: Durante el Medioevo, el pescado resultó ser un alimento esencial en las nuevas ciudades como elemento esencial de las vigilias y como aporte proteico. La arqueoictiología evidencia que tal demanda fué cubierta tanto con pesquerías marinas como continentales. Si bien las industrias asociadas con las especies marinas, como el arenque y bacalao, siempre fueron importantes, los aportes de las pesquerías continentales no parecen haber bajado nunca de la cota del 50%. A pesar de tal importancia, la evidencia arqueológica sobre útiles de pesca es muy escasa. En Alemania tan sólo algunos anzuelos, dobles puntas y restos de artes de red, como flotadores o plomadas, han sido descubiertos. Artes alternativas, más efectivas, caso de las presas artificiales deberían asimismo tenerse en cuenta. Estas instalaciones aparecen muy ocasionalmente sin duda como resultado de las pobres condiciones de conservación. Sólo conocemos ejemplos de éstas en Inglaterra y Francia. Su existencia y frecuencia en Alemania, por tanto, debe inferirse con ayuda de la cartografía.

PALABRAS CLAVE: ALEMANIA, MEDIOEVO, PECES DULCEACUÍCOLAS, TÉCNICAS DE PESCA, PRESAS PARA PESCA, ARQUEOLOGÍA, HISTORIA, CARTOGRAFÍA

INTRODUCTION

Unlike today, fish was of essential importance for medieval towns and monasteries. Although recent research still cites it as the main reason, the ban of meat, mentioned in chapter 39, 2 of the rule of St. Benedict (Benedicti Regula, 1969: 100), cannot be the sole explanation for the immense demand for fish.

Recent archaeological research at Ralswiek, Hitzacker, Menzlin, Mecklenburg, Alt-Lübeck, Scharstorf and other German sites has proven that fish, especially sturgeon and herring (Benecke, 1983), were vital suppliers of protein in the non-christian settlements of the Slavonic area. In times of rapid population growth and the emergence of new centres the food supply was based on this valuable and easily accessible food.

Archaeozoological investigations have shown that the demand for fish was satisfied by coastal as well as by inland fishing industries. Until now, research has focused on coastal fisheries; the herring fishery at Rügen, in Pomerania and Scania, and the stockfish trade with Bergen have been the subject of many papers, usually in connection with research on the Hansa. However, the analysis of fish

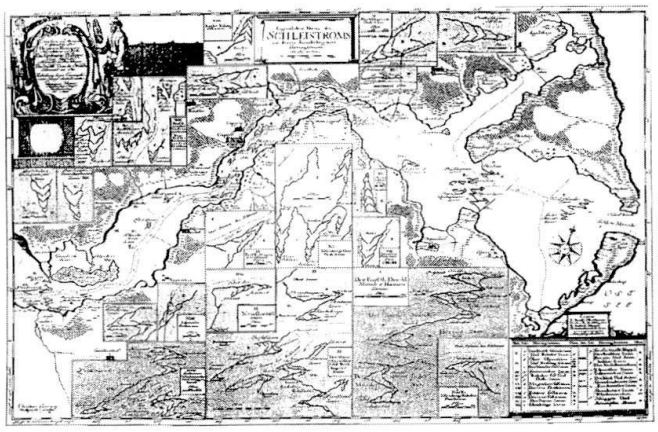

FIGURE 1

Herring fences in the Schlei, Drawing J. Mejer (after Radke, 1977).

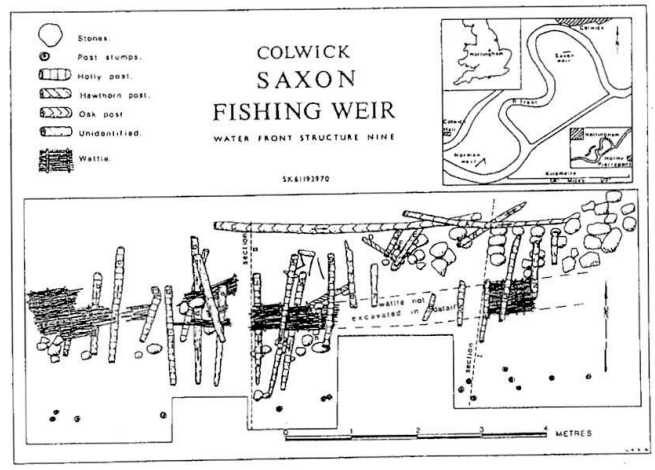

FIGURE 2

Anglo-Saxon fish weir: Plan of the main part of the excavation (after Losco-Bradley & Salisbury, 1988).

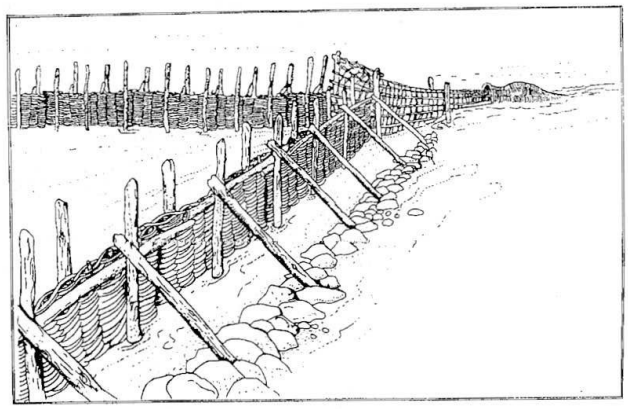

FIGURE 3

Reconstruction of the Anglo-Saxon fish weir (after Losco-Bradley & Salisbury, 1988).

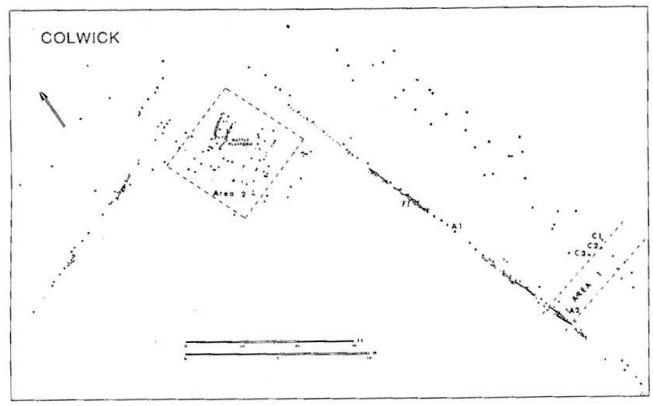

FIGURE 4

Plan of the Norman fish weir (after Losco-Bradley & Salisbury, 1988).

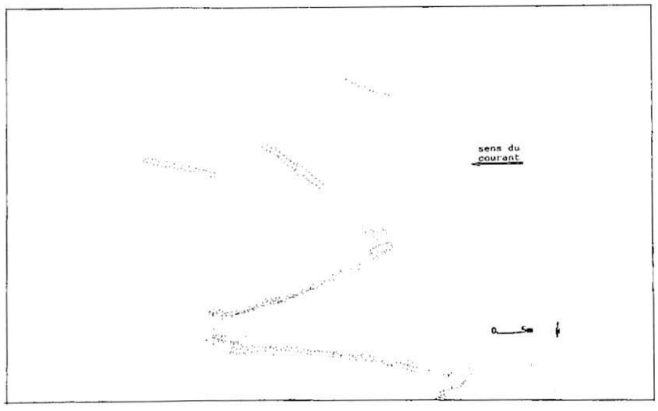

FIGURE 5

Plan of the fish weir «L'Ile', Beynac et Cazenac, Castelnaud-la-Chapelle (after Nowacki-Breczewski, 1989).

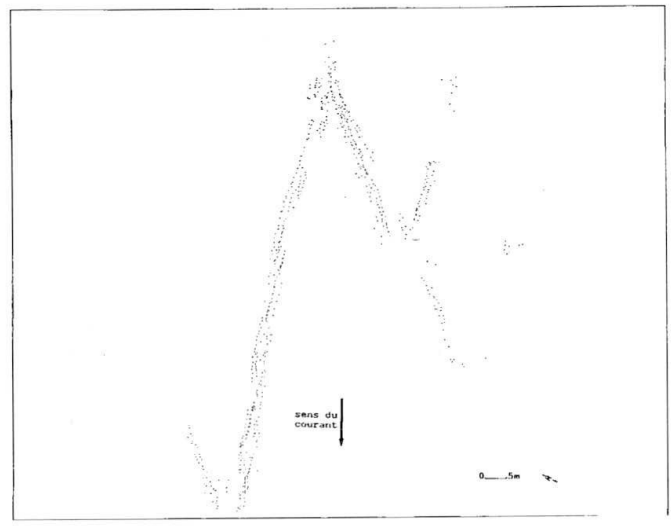

FIGURE 6

Plan of the fish weir «Sous les Milandes», Castelnaud-la-Chapelle, St. Vincent de Cosse (after Nowacki-Breczewski, 1989).

remains has shown that even in trading places like Haithabu, Schleswig or Lübeck, the share of freshwater fish was consistently very high (about 50%). This freshwater fish was probably caught in local inland waters.

The examination of this inland fishing industry has been neglected until now, although the medieval charters show that fisheries existed almost everywhere and were systematically used as a source of revenue. We therefore have to examine how this inland fishery was organized.

On the one hand, fish was bred in ponds; in the Western Empire *vivarias* or *piscinas* are usually mentioned in connection with water mills. The waters which were dammed to run the mills were used simultaneously as fish reservoirs. In this context, one cannot speak of fish farming in the strict sense. The construction of fish ponds reached its climax in the late Middle Ages with the introduction of carp breeding (Currie, 1991; Hoffmann, 1995).

It follows that, especially in the early and high Middle Ages, an additional technique of inland fishing must have been used, but so far there is only very limited archaeological evidence of fishing tackle. In Germany only some fish hooks, gorges and remains of netting tools, such as floats and sinkers, have been discovered (Brinkhuizen, 1983; Szabó *et al.*, 1985; Steane & Foreman, 1989). The number of artifacts is surprisingly small, even if one takes into account loss through weathering and destruction. One has to consider other, more effective, means of catching fish, for instance fish weirs.

ARCHAEOLOGICAL EVIDENCE FOR FISH WEIRS

Christian Radke (1977) suggested that this fishing technique must have been in use at Haithabu; this cannot be verified for the early Middle Ages, but is known from early modern times in the Schlei (Figure 1). Such herring fences or fish weirs, have not been found in Germany but are known from England and France.

In England many rivers have been surveyed for fishing tackle and river fisheries in the last twenty years. Several fish weirs were found in the Trent (Salisbury, 1981), in the Witham and its tributaries (White, 1984), and in the Severn (Panett, 1988).

These fish weirs are structures with two wings and a small enclosure in the centre to trap the fish. The most thoroughly excavated and reconstructed weir, a fishery in the Trent (Figure 2), had a double row of posts that had collapsed towards the north (Losco-Bradley & Salisbury, 1988). Between the posts there was a series of wattle hurdles. The post alignment was examined over a length of 14 metres. The posts were made of oak and were 2.4 metres high. They had been set 1 meter deep into the ground. Towards the north the structure was secured by a stone wall. The weir can be dated into the 8th or 9th century by dendrochonology.

Although the archaeological evidence only uncovered one row of posts, this structure definitely is a preserved part of a fish weir. This was confirmed by the discovery of a second fish weir about 400 metres further west (Losco-Bradley & Salisbury, 1979, 1988). This second fish weir can be dated into the 12th century and is constructed in the same way as the Anglo-Saxon weir (Figure 3). In addition to the fences, a foundation was probably used as a working platform in the centre of the two wings.

In France, Nowacki-Breczewski (1987) analysed the economical importance of four fish weirs in the Dordogne and Charente (Figures 4 & 5). The four weirs discovered there were very large; the wings of the Milandes weir, for example, were 150 metres long and 7 metres wide (Figure 6). The fish weirs in the Dordogne and Charente were essentially all constructed in the same way but there were small differences due to local conditions: all structures consisted of 'V' –shaped fences with wicker baskets with nets or enclosures at their centre to catch the fish. The wings consisted of rows of posts or blocks of limestone with wattle walls.

The orientation of these weirs demonstrates that each device was specialized towards different species of fish. Usually they consisted of two wings which pointed in the direction of the current but there were also large structures which consisted of several pairs of wings. With these weirs one was able to catch fish moving both downstream and upstream.

EVIDENCE FROM CHARTERS

The archaeological evidence for the structure and function of fish weirs corresponds with the

evidence provided by historical sources. Although no medieval weirs have been excavated in Germany so far, it is thus nevertheless possible to prove the existence of fish weirs in this country. Like in England and France, weirs were sold, leased or given to someone and such legal transactions can be corroborated or confirmed with the help of written charters.

The terminology for «weir» changed during the Middle Ages and depends on the language. Apart from such general terms as the Latin *piscaria* or *piscatoria* or the Middle High German *vischenze,* which can also denote fish weirs, there are numerous terms which clearly can only mean fish weir: Merovingian charters usually use *venna* or *banna* (Pertz, 1872: 7, Nr. 5) while the late Carolingian and Ottonian diplomata go over to use different, more general terms, mainly *vadum ad piscandum,* which means ford. Other terms are *clusa* and *septa* (enclosure), *gurgustium* (weir) and *palum* (fence). Apart from these Latin terms there are also vernacular ones, for example *ghistellis* (stand/fence) or *wer.*

Fish weirs sometimes had a very long life; the fish weir in Lübeck, which belonged to the count, can be traced back in charters for a period of more than 50 years. A fish weir in the river Weser belonging to the monastery of Corvey, Lower Saxony, can be traced back even longer (Wilmans, 1867: 30f). It is first mentioned in a diploma of Louis the Pious from 832, where it is called *hocwar* by the locals. In the 12th century this fish weir reappears as the object of a lawsuit between the monastery and the Saxon earl. Again it is called *huqver.* In 1158 the weir is still mentioned in a list of gifts, presented to the monastery of Corvey (Hausmann, 1969: 24ff, Nr. 133; Diestelkamp & Rotter, 1988: 177, Nr. 239).

With the help of fish weirs one usually caught anadromous fish, which swim into the rivers during the spawning season. The previously mentioned example from the Dordogne indicates that weirs were constructed for special species of fish. Charters from Mecklenburg and Pomerania mention such special weirs: eel traps (*seran*) and salmon weirs (*Salmwege)* (Rödel, 1992: 177, Nr. 252).

The medieval charters show that fish weirs existed in coastal areas but they may have been more numerous in the interior. The construction and maintenance of these big fences must have required a huge expenditure in terms of both labour and finances from the owners.

In the various town charters for Lübeck the citizens were granted the right to fish by the local sovereigns, while the weirs belonging to the counts of Holstein are expressly exempted from that rule. In this case the sovereign (*Landesherr*) was the owner of the fish weirs. That was also the case in Mecklenburg and Pomerania and it was related to the fact that in the newly settled areas east of the river Elbe the *Landesherren* usually held the royal right for fishing.

Towns, monasteries or private individuals could also own fish weirs. Often the usufruct was split up into several single rights and sold; the knightly family Montevedule, for example, sold the right to fish with their weir in the river Bille at Hamburg for single nights (Archiv der Hansestadt Hamburg, 1911-39: 26f, Nr. 38; 40f, Nr. 56 & 101, Nr. 154). This is observed quite often and indicates that some weirs were primarily operated during night time.

Fish weirs were also leased out against a rent which was paid either in money or in kind - that is, fish. The example is taken again from the edition of the charters of Hamburg in which weirs play an important role. Here it was usually the town who owned the fish weirs or «fences». In the year 1309 the town leases out a weir to three persons for 60 Mark. After two years the lease is renewed, again for a period of two years but now not against the payment of a money rent but for half of the amount of fish caught (Archiv der Hansestadt Hamburg, 1911-39: 146f, Nr. 230). In this case the town acts as a procurer of fish. The payment in kind is preferred probably in order to improve the fish supply for the town. The lease holders are obliged to dismantle the wooden posts of the fence and return them to the city at the end of the two years. An exception is made when the fence should be too large and heavy to be dismantled by four men (*Sed aliquem palum, que, quatuor viri supratrahere non possent, stare facerent,* ...). At least in this case the timber of the weir was «recycled». Perhaps this explains the lack of archaeological evidence.

The fish weirs excavated in the Dordogne and in the river Trent and described in many charters were very large structures. Their «V» –shaped wings narrowed the rivers and sometimes even barred them. Sometimes there were several weirs constructed behind each other thus impeding the passage of

ships. The owners of fish weirs therefore inevitably came into conflict with ship owners. Legal disputes between fishermen and ship owners find their expression in charters. There are numerous examples for the high and late Middle Ages.

In a diploma from 979, emperor Otto II decided in a dispute between the abbots of Fulda and Hersfeld, two very important monasteries in Hessen (Sickel, 1888: 237, Nr. 209):

> *«[...] eo quod ipse iam dictus abbas Gozbertus in fluvio quodam Hursilla vocato qui fluit in Lupinzgovve, a ripa ad ripam sine spatii intermissione gurgustium percutiendo hominibus sue ecclesie ac sibi navalis cursus transmeatum vetaret.»*

The conflict was caused by the erection of a fish weir by abbot Gozbert of Hersfeld, which interfered with navigation in the river Hörstel. The abbot of Fulda, Werinhar, complained about the weir because his ships could not pass this point of the river. After sending legates to the locals who informed him about the situation, Otto decided in favour of Werinhar. He told abbot Gozbert of Hersfeld to open the weir in order to make space for the passage of two ships. The ships should touch neither each other nor the posts which were fixed at the banks of the river:

> *«[...] ac viam fluminis fractione gurgustii pandere iubentes, ut deinceps per illud navigantibus tantum spatii in itinere pateat quod due naves tripedalem mensuram in fundo habentes, ut neutra neutram tangat sibi invicem, sine palorum utrimque fixorum etiam tactu occurrere possint [...].»*

Charters which verify conflicts between the fishing industry and ship owners are known throughout Germany. Usually in this context the weirs are called *obstaculum* or *offendicula* (obstacle or offence). Frequently the sovereign had to interfere in order to reconcile conflicting interests. The rulers tried to solve the problem by granting the right of fishing and the right of shipping to only one recipient. During the Middle Ages rivers were the most important traffic arteries of the empire. The link between grants of fishing rights and shipping tolls helped to control the rivers. The rivers stayed navigable, thus ensuring trouble-free transport of goods and persons.

CONCLUSIONS

Charters shows that during the Middle Ages fish weirs were commonly and intensively used to catch fish. This widespread use of fishing with the help of weirs explains why so few other kinds of fishing tackle are found. Unfortunately, these structures are only rarely preserved, therefore their existence and their frequency has to be determined primarily from charters.

On medieval estates weirs constituted a valuable possession. Many charters show that they had a long lifespan and that they were carefully maintained. When the towns began to flourish, more and more private persons and cities used them. The city council of Hamburg profited considerably from its weirs.

The construction of fish weirs got so out of control that even shipping was endangered. This is when the sovereigns interfered to ensure that rivers could continue to be used as traffic arteries; this could be one of the causes of a decline in weirs. Another reason was the increased mechanization and spread of coastal fishing since the 17th century which made inland fishing with weirs unprofitable.

Unfortunately, this very important fishing instrument has not yet been excavated in Germany. A more intensive look at medieval riverbeds is needed in order to obtain archaeological evidence for fish weirs.

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