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FISH IN SWISS LAKE DWELLING SITES

BY

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ABSTRACT

Fish in Swiss lake dwelling sites.- This paper presents the fish identified at the moment from the Swiss lake dwelling sites, so as my preliminary study of the ichthyofauna of Hauterive-Champréveyres, a Bronze Age village on the shore of the lake of Neuchâtel.

Key-words: Switzerland, lake dwelling sites, Neolithic, Bronze Age, fish, bones.

INTRODUCTION

Between approximately 4280 and 850 BC, hundreds of villages have been built on the shores of Swiss lakes, especially on the Geneva, Neuchâtel, Biemme, Morat, Zürich and Constance lakes. The discovery of these lake dwelling sites has strongly contributed to promoting Swiss archaeology. Exceptional conditions of preservation have permitted excavation of a great deal of remains. Fish bones and fishing tools are also a part of these findings. The Neolithic sites produced harpoons and hooks in bone or antler, plenty of notched stones (which were certainly used as net weights), net weights made of small pebbles tied up with birch bark, net floats in bark, net fragments and even pirogues. During the Late Bronze Age, hooks made of bronze are the most common fishing tools.

DISCUSSION ON ICHTYOFAUNA

Fish bones are rare because of their small size and their fragile character. All the more, when the sediment is eroded or dug up without sieving. Only 14 sites present a study of fish remains (Fig. 1 and Table 1). The presence of pike is certified in all Neolithic dwelling sites. Other species are much rarer. Perch is present in Robenhausen (RÜTIMEYER, 1861), Auvernier Brise-Lames (DESSE, 1976), Egolzwil 2 (HESCHELER & RÜEGER, 1939) and Twann (JOHANSSON, 1981; BECKER, 1981). A fragment of roach has been found in Auvernier Brise-Lames, two salmonids and some cyprinids appeared in Egolzwil 2 and remnants of catfish, common bream and unidentified cyprinids have

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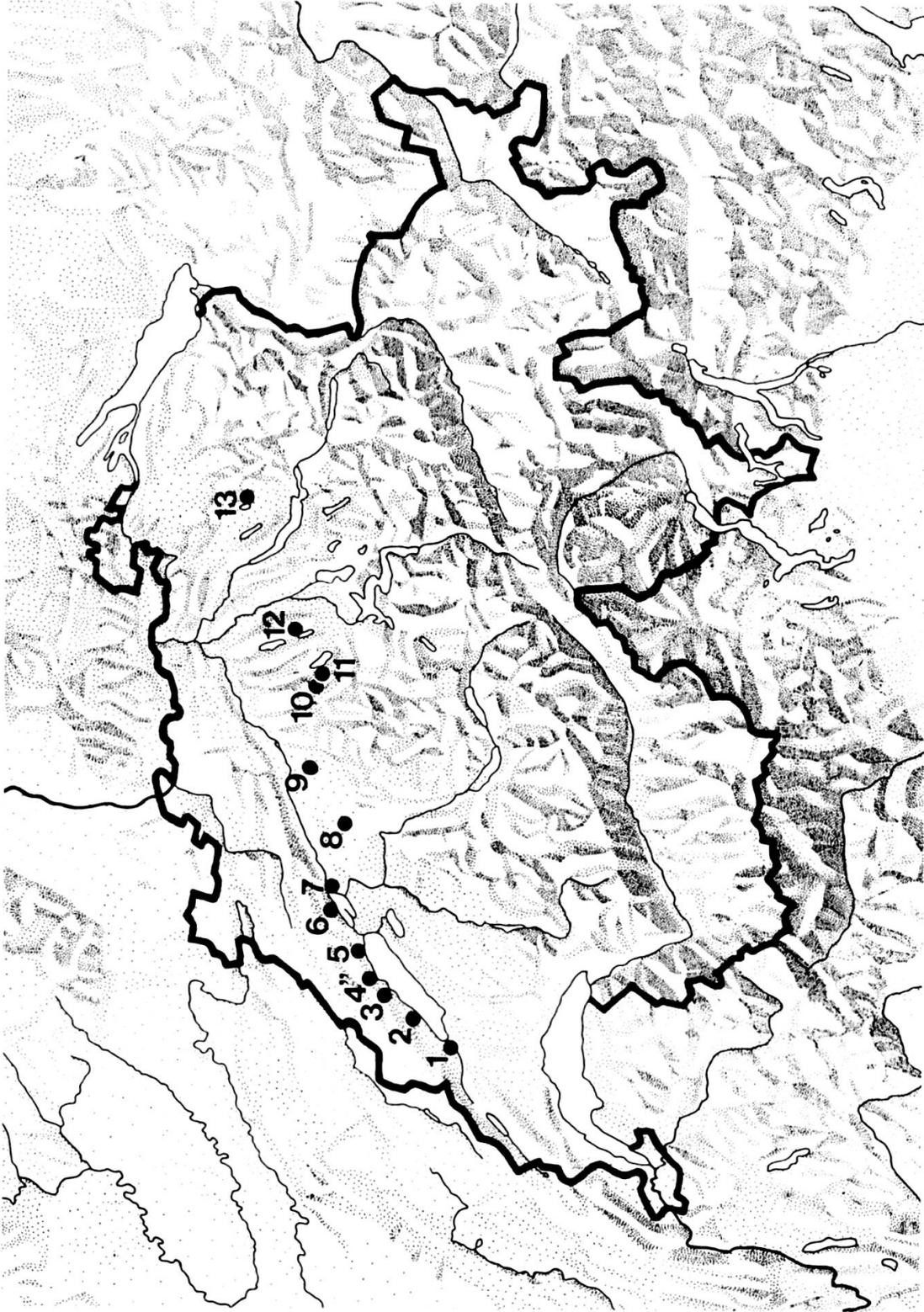


FIG. 1. Distribution of the sites. 1. YGM: Yverdon-Garage Martin (CHAIX 1976); 2. Con: Concise (RÜTMEYER 1861); 3. CoE: Cortailod-Est (CHAIX 1986); 4. AuV: Auvernier (JOSIEN 1955); 4'. ALS: Auvernier La Saunerie (BOISAUBERT & DESSE 1975); 4''. ABL: Auvernier Brise-Lames (DESSE 1976); 5. Hauteville-Champréveyres (see Table 2); 6. Twb: Twann (JOHANSSON 1981); 6. Twa: Twann (BECKER 1981); 7. Stei: Steinberg bei Nidau (RÜTMEYER 1861); 8. Moo: Moosseedorf (RÜTMEYER 1861); 9. SBS: Seeberg Burgäschisee-Süd (BOESSNECK *et al.* 1963); 10. Wau: Wauwyl (RÜTMEYER 1861); 11. Ego: Egozwil 2 (HESCHELER & RÜEGER 1939); 12. SeG: Seematte-Gelfingen (HESCHELER & RÜEGER 1940); 13. Rob: Robenhausen (RÜTMEYER 1861).

been discovered in Twann. As for the Bronze Age village of Cortaillod-Est (CHAIX, 1986) it produced only two bones of pike.

The species-level identifications of salmonids (*Salmo salar*) and cyprinids (*Chondrostoma nasus*, *Cyprinus carpio*, *Leuciscus leuciscus* and *Scardinius erythrophthalmus*) made by Rütimeyer last century (1861) have to be reconsidered. We know at present that the carp (*Cyprinus carpio*) is not native of Western and Central Europe. This species diffused from a post-glacial refugium in the Danube Basin but did not reach the Swiss area before the twelfth century (HOFFMANN, 1994). Carp remains from a Swiss Neolithic site are therefore improbable. Moreover, the identification of the different species of cyprinids is not easy and is based on the morphological characters of the lower pharyngeals, as underlined by Rütimeyer himself. Thus, it is better to regroup the species and only consider the family-level (cyprinids and salmonids), excluding totally the carp.

In conclusion, pike is the most common fish totalling 94%. Catfish amounts to 4%, perch to 2% and the other species occur only occasionally. Except for 4 m² in Auvèrnie La Saunerie, all these remains have been collected without sieving, which explains the abundance of the bones of pike, larger and more compact than the majority of the other species. As stressed by some authors (JOHANSSON, 1981; BECKER, 1981), this high percentage does not reflect the reality because of the loss of the smaller species.¹

Ichthyofauna from Hauterive-Champréveyres

The identification of the fish bones collected by sieving of the Late Bronze Age village of Hauterive-Champréveyres² gives a different picture of the ichthyofauna (Table 2). Perch dominates with 74% whereas pike represents only 22%. Some cyprinids (3%), catfish (1%) and four fragments of salmonids complete this result. It can be deduced that the fishermen of Hauterive-Champréveyres have caught mostly carnivorous species, as confirmed by 648 bronze hooks discovered in the site (RYCHNER-FARAGGI, 1993: 15).

Perspective

As long as the material obtained is not collected with identical methods, it is not possible to compare the results of Neolithic and Bronze Age dwelling sites. However, in theory, at least two factors point to a possible difference:

1) The fishing techniques of the two periods are not the same: during the Neolithic, the nets seemed to be the most common means of fishing, whereas hooks predominated during the late Bronze Age.

¹ A new study has just been published, concerning fish remains from Arbon-Bleiche 3, a Neolithic dwelling site on the lake of Constance (HÜSTER-PLOGMANN & LEUZINGER 1995). Whitefish and perch dominate the remains collected by sieving. Cyprinids and pike are rare.

² This work was carried out under the direction of the Archaeology Department of Neuchâtel, within the framework of the construction of the highway N 5.

TABLE. 1 Fish remains from Swiss lake dwelling sites.

Sites .Period	Rob	Moo	Wau	Stei	Con	Ego	SeG	SBS	Twa	Twb	Auv	ABL	ALS	YGM	CoE	Total	%
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
Pike	xxx	xxx	xxx	xxx	xxx	xxx	3	13	415	57	8	23	112	9	2	642	94%
Perche	x					2			4	1		3				10	2%
Catfish									22	6						28	4%
Burbot																	
Salmonids						2										2	-
Salmon	*																
Cyprinids						x			2							2	-
Common bream									1							1	-
Roach																1	-
Nase																	
Dace	*																
Rudd	*																
TOTAL						4		13	444	64	8	31	112	9	2	686	100%

See legend of Fig. 1. *: as discussed in the text (see chapter "discussion on ichthyofauna"), these identifications have to be reconsidered: *Salmo salar* should be consider as unidentified salmonids and *Chondrostoma nasus*, *Leuciscus leuciscus* and *Scardinius erythrophthalmus* as unidentified cyprinids. The carp *Cyprinus carpio*, though identified in Robenhausen and in Moosseedorf, is not mentioned in this table: the carp is not a Swiss native fish. x: presence; xxx: many.

TABLE 2. Fish remains from Hauterive-Champréveyres.

			N	%
Perch	Perche	<i>Perca fluviatilis</i>	1371	74%
Pike	Brochet	<i>Esox lucius</i>	407	22%
Roach	Gardon	<i>Rutilus rutilus</i>	44	3%
Cyprinids	Cyprinidés	<i>Cyprinidae</i>	12	
Catfish	Silure glane	<i>Silurus glanis</i>	15	1%
Salmonids	Salmonidés	<i>Salmo spp.</i>	4	–
Total identified			1853	100%
Unidentified			2074	
TOTAL			3924	

2) A possible eutrophication of the lake would have passably affected the natural presence of certain species.

The relative importance of these two arguments, or the discovery of other factors depend on a more thorough study.

I shall have the opportunity of identifying the ichthyofauna of Saint-Blaise (Neuchâtel), a Neolithic site which enjoys the same conditions as Hauterive-Champréveyres: all the sediments are sieved (\emptyset 5 mm) and every two meters reference columns are sieved down too (\emptyset 0.06 mm). The fish bones thus collected will allow a true picture of the Neolithic ichthyofauna. I shall therefore have the possibility of comparing the results of two sites, one Neolithic and the other Late Bronze Age, situated on the same lake and at a distance of about 2 km. It will then be possible to establish the significance of the factors responsible for probable difference of the two ichthyofaunas.

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The map (Fig. 1) was made by G. Roth. The text was corrected by L. Dhami.

To all of them I express my deep appreciation.

RÉSUMÉ

Dans les sites pré- et protohistoriques situés en bordure de lacs ou de marais, la pêche est une activité importante, comme en témoignent de nombreux artefacts, tels les hameçons ou les restes de filets. Il est ainsi paradoxal de ne dénombrer que 14 stations

pour lesquelles une étude de l'ichtyofaune a été réalisée. Le brochet est omniprésent et s'impose comme l'espèce la plus fréquente (94%), alors que les poissons plus petits comme la perche ou les cyprinidés ne sont que rarement signalés. Ces résultats sont obtenus à partir d'un matériel récolté sans tamisage ou dans des couches érodées: ils ne reflètent donc pas l'importance effective des différentes espèces pêchées.

A Hauterive-Champréveyres, village daté de l'âge du Bronze final et situé au bord du lac de Neuchâtel, près de 4000 restes de poissons ont été soigneusement récoltés par tamisage. L'identification de ces vestiges donne une nouvelle image de la pêche: la perche domine avec 74%, devant le brochet (22%), les cyprinidés (3%), le silure (1%) et les salmonidés. Les pêcheurs d'Hauterive-Champréveyres ont ainsi capturé principalement des poissons carnassiers, comme le confirment les centaines de hameçons en bronze découverts dans le site.

Mots-clés: Suisse, sites littoraux, Néolithique, âge du Bronze, poissons, ossements.

REFERENCES

- BECKER, C. 1981. *Die neolithischen Ufersiedlungen von Twann. Tierknochenfunden* 16. Bern.
- BOESSNECK, J., J.-P. JÉQUIER & H. R. STÄMPFLI. 1963. *Seeberg Burgäschisee-Süd. Die Tierreste. Acta Bernensia*, 2. Bern.
- BOISAUBERT, J.-L. & J. DESSE. 1975. Une accumulation locale de restes de poissons sur le site néolithique de la Saunerie à Auvernier (Neuchâtel, Suisse). Résultats préliminaires. *Bulletin de la Société neuchâteloise des sciences naturelles*, 98 : 195-201.
- CHAIX, L. 1976. La faune de la fouille Yverdon-Garage Martin, pp. 181-233. In : La fouille du "Garage Martin-1973" (G. Kaenel). *Cahiers d'archéologie romande*, 8.
- CHAIX, L. 1986. La faune, pp. 47-73. In: *Cortailod-Est : un village du Bronze final. Nature et environnement*. (Archéologie neuchâteloise, 4).
- DESSE, J. 1976. *La faune du site archéologique Auvernier Brise-Lames*. Thèse, Université de Poitiers.
- HESCHELER, K. & J. RÜEGER. 1939. Die Wirbeltierreste aus dem neolithischen Pfahlbaudorf Egolzwil 2 (Wauwilensee) nach den Grabungen von 1932 bis 1934. *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich*: 307-330.
- HESCHELER, K. & J. RÜEGER. 1940. Die Wirbeltierreste aus den Pfahlbauten des Baldeggersees nach den Grabungen von 1938 und 1939. *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich*: 59-70.
- HOFFMANN, R. C. 1994. Remains and verbal evidence of carp (*Cyprinus carpio*) in medieval Europe. *Fish exploitation in the past*. Proceedings of the 7th meeting of the ICAZ Fish Remains Working Group. W. Van Neer (ed.). *Annales du Musée Royal de l'Afrique Centrale, Sciences Zoologiques*, 274 : 139-150.
- HÜSTER-PLOGMANN, H. & U. LEUZINGER. 1995. Fischerei und Fischreste in der jungsteinzeitlichen Seeufersiedlung in Arbon (TG). *Archéologie suisse* 18, 3: 109-117.
- JOHANSSON, F. 1981. Fische, pp. 85-88. In: *Die neolithischen Ufersiedlungen von Twann. Tierknochenfunde* 11 (C. Becker and F. Johansson).
- JOSIEN, Th. 1955. Station lacustre d'Auvernier (Lac de Neuchâtel). Etude de la faune de la station. *Bulletin de la Société Préhistorique Française* 52, Paris: 57-75.
- RYCHNER-FARAGGI, A.-M. 1993. *Métal et parure au Bronze final*. Hauterive-Champréveyres 9, *Archéologie neuchâteloise* 17.
- RÜTIMEYER, L. 1861. *Die Fauna der Pfahlbauten in der Schweiz*. Basel.