Plant macro-remains from a late Iron Age well at Schaeffersheim (Bas-Rhin, Alsace)

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INTRODUCTION

Several late Iron Age archaeological sites in northern and north-eastern France have been analysed by archaeobotanists recently (e.g. Bouchette 1999; Matterne 2001; Wiethold 1993; 1996; 1999; 2002; 2009) and some research was done in neighbouring Germany (Bouchette 1999; 2009; Bouchette, Rösch 1996; Körber-Grohne 1982; 1999) but only a few revealed waterlogged deposits of plant material (Wiethold 1993; 2002; 2009; Bouchette 1999; Körber-Grohne 1982; 1999; Martinoli, Brombacher 1999). Uncarbonised seeds and fruits generally preserve in waterlogged sites, in contrast to dry sites where only charred objects are preserved. This means that on dry sites there is a bias towards plants which are more likely to come in contact with fire, i.e. seeds of cultivated and used plants which were cooked or prepared in some way near the hearth. In waterlogged sediments the bias is quite the opposite: wild plants of the surrounding environment predominate. Furthermore, wetland sites (or sites which yield some waterlogged deposits) generally have more preserved seeds and fruits than dryland sites.

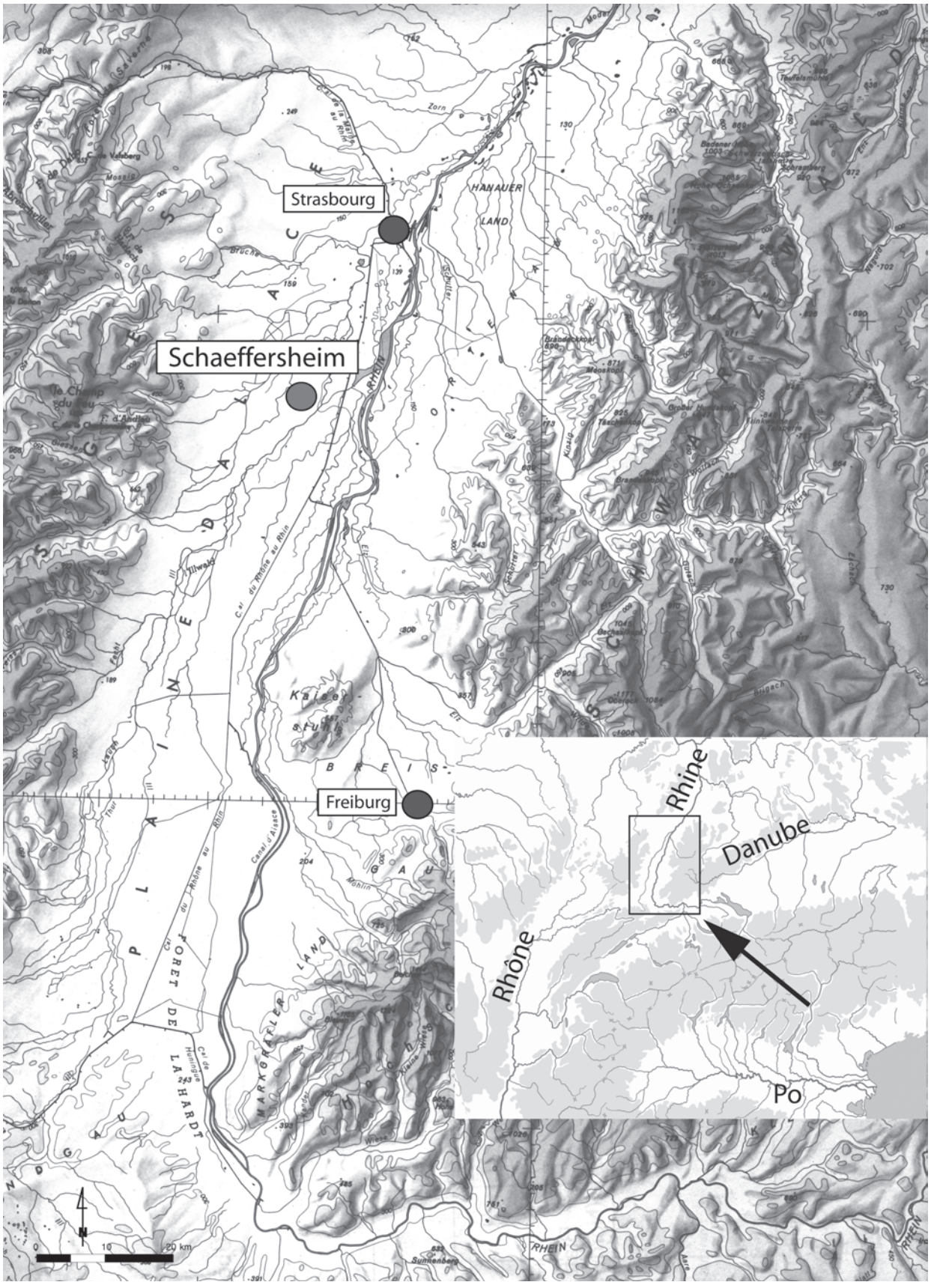
THE SITE

Schaeffersheim lies in the Alsace, Dép. Bas-Rhin, France, in the wide Rhine valley (ill. 1). The mountains of the Vosges in the west are only 15 km away, the Black Forest to the east 30 km. Today the village is located at the small river Scheer, about seven to eight kilometres from the Rhine. About 65 km to the south lies the city of Freiburg im Breisgau, Germany, while in the north it is only about 25 km to Strasbourg, France. In 2003 the archaeological site « La Chênaie », dating to the Iron Age was excavated there by the *Institut National de Recherches Archéologiques Préventives* (Inrap Grand-Est sud), Alsace, under the direction of E. Boës (ill. 2). Next to a burial field of the Hallstatt period in the south of the area lies a settlement of middle and late La Tène age (Boës 2008). One of the structures in the late Iron Age settlement turned out to be a well with partially well preserved wooden constructions and waterlogged sediments at its bottom. Unfortunately most of the wood consisted of species that are not datable by dendrochronology. Just one oak plank was found but sadly even this was unsuitable for dating. Therefore the well can only roughly be dated to the late La Tène period due to the archaeological findings. From the very bottom of this well a sediment sample of 2.6 litre volume was taken and submitted to the archaeobotanical analysis. The results of the analysis of this sample will be presented in this article.

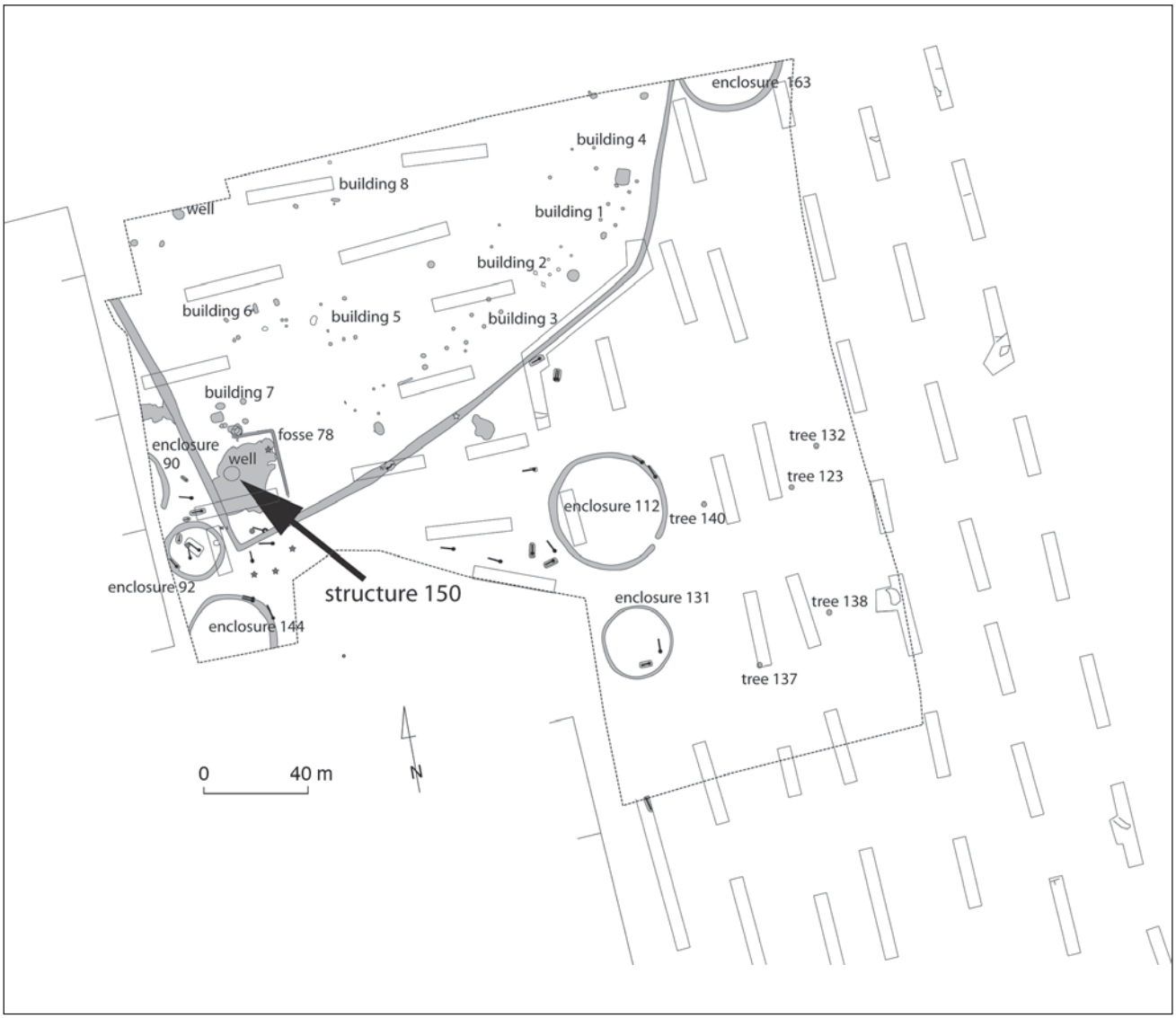
MATERIAL AND METHODS

The sample consisted of fine pale-grey loamy sediment which showed already by the naked eye some botanical macro-remains. The whole sample was wet-sieved using sieves with mesh-sizes of 4.0, 2.0, 1.0, 0.5 and 0.25 mm. Organic and inorganic parts

WIETHOLD (J.) dir. — *Carpologia. Articles réunis à la mémoire de Karen Lundström-Baudais*. Actes des rencontres d'archéobotanique organisées par Bibracte, Centre archéologique européen, et le Centre de Recherches Archéologiques de la Vallée de l'Oise, 9-12 juin 2005, Glux-en-Glenne. Glux-en-Glenne : Bibracte, 2011, p. 51-60 (Bibracte ; 20).



1. Location of Schaeffersheim (Bas-Rhin, Alsace, France).



2. Schaeffersheim « La Chênaie » (Bas-Rhin, Alsace). Excavation 2003. Plan of the site and situation of the well (DAO P. Girard, E. Boës, Inrap).

of the fractions were not separated. The fractions 4, 2 and 1 mm were sorted completely while only 25 % of the 0.5 mm-fraction and 10 % of the 0.25 mm-fraction were analysed. For sorting and identification a Zeiss "Stemi 2000-C" binocular with magnifications from 8x to 50x was used. Nomenclature and ecological classification follows Oberdorfer (1990).

RESULTS

The sieved sample comprised mostly sand and small stones with a lot of wood and bark fragments as well as some charcoal and roots. Fragments of insects, bones and molluscs were also found. The concentration of seeds and fruits was quite high with 3143 whole or fragmented seeds and fruits per litre. Altogether 8241 botanical macro-remains were found, belonging to 117 different taxa (*infra*, ill. 7). This must be a minimum number of species because some taxa could only be identified to genus level. Only 30 objects or 0.4 % of all seeds were charred, the others were preserved uncarbonised because of the good conservation conditions.

CULTIVATED PLANTS

Only 297 (4 %) of all macro-remains derive from cultivated plants, most of them from cereals. Such a small number is characteristic for wet preserved sediments.

Cereals

Five different species were identified. Chaff fragments of *Panicum miliaceum*, the broomcorn millet, were most numerous (217 remains). All of these fragments were uncarbonised. For the most part, only the lemma bases survived, though in some cases these were found with parts of the glumes. These lemma bases are very characteristic and can easily be identified. No grains or grain-fragments were found. This is the case with *Triticum monococcum* as well, but the spikelets and glume bases were found in carbonised and uncarbonised states. From *Hordeum distichon/vulgare* one carbonised and one uncarbonised rachis segment were identified. They were badly preserved; hence the two species could not be distinguished. However, it is highly probable, that it is *H. vulgare* as *Hordeum* macro-remains in other late Iron Age sites are generally attributed to this species. From a naked wheat species (*Triticum aestivum* s.l./*durum*/*turgidum*) and from *Triticum dicoccum* one charred grain each was found. Moreover, the sample yielded chaff glume wheats and not identifiable cereals.

Panicum miliaceum is a well known cereal in France since the Bronze Age. Only a few grains have been identified from earlier periods (Marinval 1992). Its chaff is often found in waterlogged archaeological sites. If these preservation conditions exist, this is often the most frequently found species in the Iron Age, such as at Fossé des Pandours near Schaeffersheim (Wiethold 2002) and Saint-Julien-du-Sault, Yonne (Bouchette 1999).

Hordeum vulgare is found with a high frequency at almost all La Tène age sites and sometimes it plays an important role. This can be seen in northern France (Matterne 2001) and western Germany, such as Riedlingen (Bouchette, Rösch 1996; Bouchette 2009). At Riedlingen the number of charred grains is very high, while chaff lack in some samples completely. Regarding the sample of Schaeffersheim with its few carbonised remains (and therefore few grains), the two findings of barley thus maybe do not reflect the real importance of this cereal in the daily life of the population in the Iron Age.

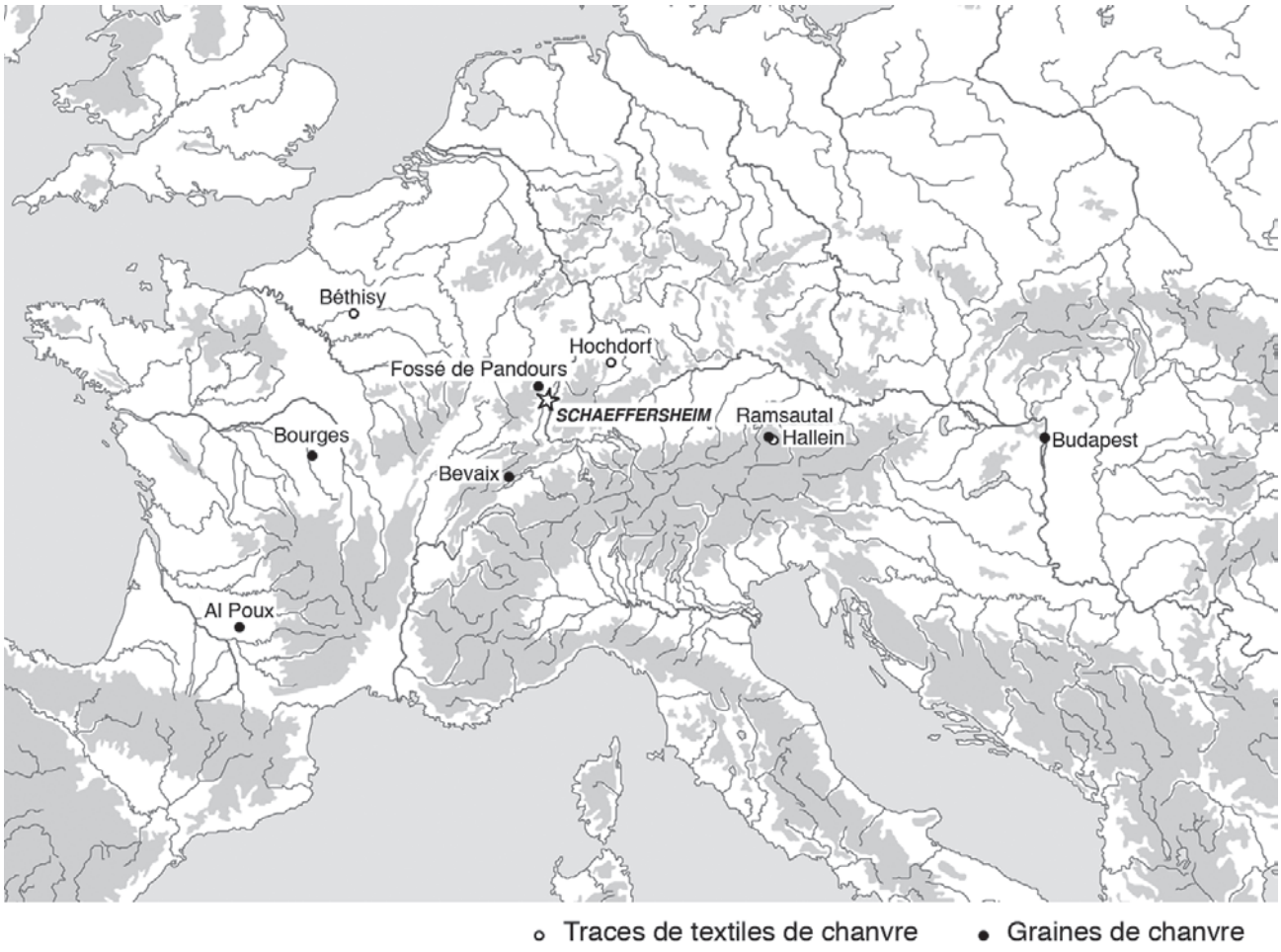
Triticum monococcum was identified very frequently in the pre-Roman Iron Age, but usually not in great quantities (Bouchette 1999; 2009; Bouchette, Rösch 1996; Matterne 2001; Wiethold 1993; 2002; 2009). In Matzenheim, in a distance of only 5 km from Schaeffersheim, it is the most numerous cereal (Martinoli, Brombacher 1999). In modern times it was planted in spring as compensation when proper winter crop was damaged during cold winters (Körber-Grohne 1987). In Schaeffersheim this species was represented by 13 identifications which means that it is the second most numerous cereal. It probably had a relatively high importance in this settlement but it is not possible to determine if it was planted as a regular crop or in spring as substitution for lost winter crop. Wiethold (2002) proposes that its growth in Iron Age spelt fields is as a tolerated impurity. However, at Schaeffersheim no spelt was found.

It is not possible to estimate the significance of *Triticum aestivum* s.l./*durum*/*turgidum* and *Triticum dicoccum* at Schaeffersheim, but in other contemporaneous sites in northern and eastern France the latter is one of the most important cereals while naked wheats occur in small quantities or not at all (Matterne 2001; Wiethold 1993; 1996; 2009). In the nearby *oppidum* Fossé des Pandours « Barbarakopf » (Wiethold 2002) only few remains of *Triticum dicoccum* were found, in Saint-Julien-du-Sault « Les Boulins » (Bouchette 1999) and in Riedlingen « Klinge 1 » (Bouchette, Rösch 1996; Bouchette 2009) both taxa in small quantities.

All cereals are therefore well known from other Iron Age sites in the neighbouring areas of south-western Germany and eastern or northern France. It is worth mentioning that no spelt (*Triticum spelta*) was identified in Schaeffersheim. In botanical analyses of Iron Age settlements in this region this glume wheat species often plays an important role (Bouchette, Rösch 1996; Körber-Grohne 1999; Martinoli, Brombacher 1999; Matterne 2001; Vitali, Wiethold 1996; Wiethold 1993; 1996; 2002; 2009). However the lack of spelt in Schaeffersheim may be accidental due to the sparsity of cereal remains in total.

Cannabis sativa

Only one other cultivated species was identified in the sample of Schaeffersheim, i.e. hemp (*Cannabis sativa*). Unripe seeds and damaged halves of ripe seeds in an uncarbonised state were found. Today this plant is widely known for its medical or drug purposes but formerly it was widely grown as an oil or fibre plant. In Germany its cultivation was only prohibited in 1981 (Körber-Grohne 1987). For a long time *Cannabis sativa* was seen as a cultivated plant introduced in Medieval times to the central and western European area (Hegi 1981), but seeds were detected in settlements of this region already in the Roman period (Rösch 1999), e.g. at Neuß and Butzbach, Germany

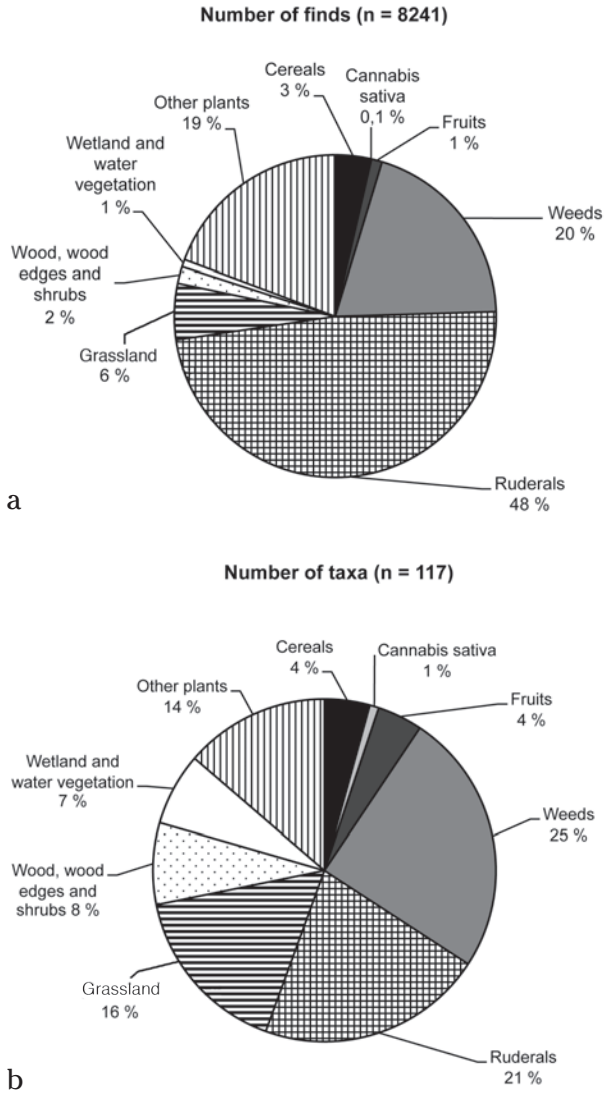


*3. Archaeological sites of the Iron Age in Central and Western Europe with **Cannabis sativa**-remains.*

(Knörzer 1973). Some even earlier findings of textiles exist, but until recently no seeds were found from the pre-Roman Age. Textiles were identified at two sites dating to the Hallstatt period (ill. 3). At Hochdorf in Germany several woven fragments in the tomb of a "Celtic prince" were unearthed and in Hallein, Austria, a part of a rope (Körber-Grohne 1985) was found in a mine. Additionally a La Tène-time string was detected in Béthisy-Saint-Martin (Oise) in France (Matterne 2001). Meanwhile sporadic evidence of *Cannabis sativa*-seeds derive from the pre-Roman Iron Age (see Fig.3). The oldest Cannabis-seeds originate from an excavation of a La Tène A-settlement at Bourges « 35, rue de Sarrebourg » in central France, where mineralized specimens came to light (Pradat 2006). In the Ramsautal, Austria, charred seeds dating to the La Tène B2-period (Swidrak, Schmidl 2002) were identified but all others are from late La Tène contexts. The findings from Budapest « Corvin tér » (Dálnoki, Jacomet 2002) are charred as well. The other sites Bevaix, Switzerland (Akeret, pers. comm.), Al Poux (Fontanes, Lot) in southern France (Bouby 2002) and Fossé des Pandours (Wiethold 2002) contained hemp-seeds which were preserved in waterlogged conditions and therefore survived uncarbonised. This compilation shows that in more than half of the excavations *Cannabis*-seeds in the pre-Roman Iron Age derive from waterlogged assemblages. Probably these seeds are underrepresented in dry deposits where only charred plant material can survive. Therefore, as Laurent Bouby (2002) proposed, the absence of hemp-seeds in these early contexts may easily be a result of preservation conditions given that only very few sites with waterlogged sediments of this time are known.

FRUITS AND NUTS

As expected no cultivated fruits were detected. Fruit cultivation only started in Roman times in



4. Schaeffersheim « La Chênaie » (Bas-Rhin, Alsace). Late Iron Age well. Proportion of ecological groups a) by number of findings, b) by number of taxa (DAO T. Märkle).

Central Europe (Knörzer 1991). Indeed, only a few wild fruits and nuts are documented in the sample: *Corylus avellana*, *Fragaria vesca*, *Prunus* cf. *spinosa*, *Pyrus* sp. and *Sambucus nigra/racemosa*. Fruits of these plants are edible and could have played an important role in the nutrition of the settlers at Schaeffersheim, even if only a few specimens were found. Most numerous are the hard *Sambucus*-seeds followed by small *Fragaria vesca*-fruits. All these species may have grown in nearby wood or at wood margins.

OTHER USEFUL PLANTS

The other identified plant species were most probably brought to the site and deposited in the well unintentionally. However, some of these other plants have uses, such as consumable produce in salad or as a vegetable, as medical or fibre plant or for colouring purposes. As an example, *Urtica dioica* can be employed in different ways, for the production and dyeing of textiles, as vegetable or salad and it has medical qualities as well (Maurizio 1927; Oberdorfer 1990; Hegi 1981). The seeds of *Hyoscyamus niger* may have been utilised for its medical purposes as well (Oberdorfer 1990), while those of *Chenopodium album* are occasionally mentioned in connection with nutrition in hard times (e.g. Maurizio 1927). Leaves of *Chenopodium album* and *Prunella vulgaris* serve as salad or vegetable (Maurizio 1927; Hegi 1975); leaves of the latter and *Stellaria media* may be applied as medicine (Hegi 1979), *Thymus* sp. as flavouring (Hegi 1975). It is not possible to determine if these plants were actually brought into the settlement on purpose. Probably one or the other species was used in the Iron Age households at Schaeffersheim, but it is not to say which one and in which degree.

*5. Schaeffersheim « La Chênaie » (Bas-Rhin, Alsace). Late Iron Age well. **Orlaya grandiflora**; scale 1 mm (cf. cahier couleur, n°7). (Photo T. Märkle).*

*6. Schaeffersheim « La Chênaie » (Bas-Rhin, Alsace). Late Iron Age well. **Caucalis platycarpos**, fragment; scale 1 mm. (Photo T. Märkle).*

WEEDS

Weeds in archaeobotanical analyses are identified according to their present ecology. Limits and problems of this method derive amongst others from anthropogenic changes in the landscape (e.g. Behre, Jacomet 1991) and should be applied not too strictly.

Many weeds are represented in the sample; regarding the number of taxa (29) it is even the largest group (ill. 4). Weeds grow together with cultivated plants, especially with cereals, on agricultural land. Typical weeds are e.g. *Valerianella rimosa* and *Papaver argemone*. Most species found are non-specific concerning soil conditions, few tend towards more acid farmland like *Anthemis arvensis* or *Papaver argemone*, but both of them can even grow on basic ground. The finding of some extremely specialized weeds growing today in the *Caucalido-Adonidetum flammeae*, an association of the *Caucalidion*: *Orlaya grandiflora* (ill. 5; cahier couleur, n° 7) and *Caucalis platycarpos* is very interesting (ill. 6). Only fragments were found of *Caucalis platycarpos*, but they are very characteristic and easy to determine. These are relatively early proof of both species; *O. grandiflora* becomes more important only in the Roman Age while *Caucalis platycarpos* appears more often even later in the Early Medieval times. Few older finds exist, for instance, from Konstanz-Staad « Hörlepark » at Lake Constance in Germany (*C. platycarpos*) (Günther 2005), Hauterive-Champréveyres in western Switzerland (*C. platycarpos*; Jacquat 1988) and from Wiesloch, southern Germany (*O. grandiflora*; Rösch, pers. comm.). All of these date to the late Bronze Age Urnfield culture. *Orlaya grandiflora* is known from La Tène Age-sites like nearby Fossé des Pandours (Wiethold 2002) and Matzenheim (Martinoli, Brombacher 1999) and from Fellbach-Schmiden, Germany (Körber-Grohne 1999). Today these plant communities are almost extinct in Central Europe. They used to grow on special calcareous, clayey or loamy soils at warm hillside situations with summer dryness. Such conditions are not found today in the immediate surrounding of Schaeffersheim and therefore it is not easy to explain where these seeds come from. Whether they were contained in imported cereals, whether the Iron Age farmers of the village also had some fields in areas farther away or whether these plants found their ecological niches in the landscape of that time in different situations than today – all those possibilities should be taken into account for explaining the occurrence of these plants at Schaeffersheim.

Another interesting species found is the Red Horned Poppy, *Glaucium corniculatum*. This plant also grows in *Caucalidion*-associations but it is not as specialized as the formerly mentioned species for it is found in ruderal places as well. Originally it is native to Mediterranean areas but nowadays it is also found in central Europe. In this region it is a rare plant, but one of its appearances today is in the Rhine valley (Oberdorfer 1990). It has only been identified a few times within archaeological contexts, for instance at the late La Tène site of Matzenheim and the Roman site of Biesheim-Kunheim. These sites are located 5 km and 45 km respectively south of Schaeffersheim in the Alsace (Martinoli, Brombacher 1999; Vandorpe *et al.* 2003). Red Horned Poppy is also found on Bronze Age sites in Hungary and Medieval sites in the Czech Republic (Willerding 1986).

Given that there are only few macro-remains of cereals in the well, it must be assumed that weeds did not exclusively arrive in the sediment together with them. Several species, e.g. *Chenopodium album* and *Ch. hybridum* are not only confined to grain fields but can also grow at ruderal places. So probably they grew in these kinds of habitats which were certainly found near the well inside the settlement and thus could easily arrive in the sediment (see below).

RUDERALS

Ruderals are plants which grow in disturbed places e.g. at road- or waysides, at dams and dumps. Even if they are not cultivated or supported directly by men they take advantage of anthropogenic activities and their disturbance of nature. The immediate vicinity of the well was surely characterized by these kinds of habitats and ruderal plant species certainly prevailed. Most macro-remains found in the sample belong to this group (3967 items; 25 taxa). Very numerous were the seeds of *Urtica dioica,* whose small seeds were possibly transported by the wind into the well. *Polygonum aviculare*, which is quite resistant to trampling and indicates wet soil conditions as well as *Verbena officinalis* or *Plantago major*, may have grown directly at the well. Several species point towards drier and warmer places like *Nepeta cataria, Onopordum acanthium*, *Reseda luteola* or *Hyoscyamus niger*. These were most likely to be found inside the settlement but in some distance of the well. Some of the taxa can also derive from other habitats like *Urtica urens* and *Polygonum aviculare*, which grow in fields and gardens as weeds, too, or *Plantago major* in pastures.

GRASSLAND

Nineteen taxa of grassland species were detected in the sample, but some of them, such as *Arenaria serpyllifolia* and *Rumex acetosella,* can grow in ruderal places and in fields as well. Some species like *Sanguisorba minor* or *Chrysanthemum*

Taxa	absolute numbers whole items	fragments
Cereals		
Cerealia, charred	1	11
Cerealia, glume bases	4	
Cerealia, rachis internodes	15	
Hordeum, rachis internode	1	
Hordeum, rachis internode, charred	1	
Panicum miliaceum, base	208	
Panicum miliaceum, chaff		8
Triticum aestivum /durum/turgidum, charred	1	
Triticum dicoccum, charred	1	
Triticum monococcum, glume base, charred	1	
Triticum monococcum, spikelet base	3	
Triticum monococcum, spikelet base, charred	7	
Triticum sp., glume wheat, glume base	22	
Triticum sp. , glume wheat, glume base, charred	6	
Triticum sp., glume wheat, spikelet base	1	
Other cultivated plants		
Cannabis sativa	3	4
Fruits		
Corylus avellana		6
Fragaria vesca	28	
Prunus cf. *spinosa*		2
Pyrus sp.	1	
Sambucus nigra/racemosa	45	8
Weeds		
Aethusa cynapium	6	36
Amaranthus cf. *blitum*	16	
Anagallis cf. *arvensis*	2	4
Anthemis arvensis	67	1
Anthemis cf. *austriaca*	1	
Capsella bursa-pastoris	284	
Capsella bursa-pastoris, charred	4	
Caucalis platycarpos		14
Chenopodium album	463	
Chenopodium hybridum	50	65
Euphorbia exigua	13	
Euphorbia helioscopia	3	
Fumaria cf. *officinalis*	8	10
Galeopsis cf. *angustifolia/ladanum*	5	
Glaucium corniculatum	2	
Lapsana communis		4
Orlaya grandiflora	1	1
Papaver argemone	132	
Papaver dubium/rhoeas	72	
Fallopia convolvulus	7	59
Polygonum lapathifolium/persicaria		5
Polygonum persicaria	3	
Setaria verticillata/viridis, chaff	16	
Sinapis arvensis, vegetal part	1	
Solanum nigrum	38	
Sonchus asper	4	
Stachys annua	5	
Stellaria media agg.	174	8
Thlaspi arvense	2	16
Valerianella dentata	26	
Valerianella rimosa	1	4

Taxa	absolute numbers whole items	fragments
Ruderals		
Arctium sp.	1	5
Arctium minus/tomentosum	19	2
Artemisia cf. *vulgaris*	8	
Carduus cf. *crispus*	8	
Carex cf. *hirta*, charred	1	
cf. *Sisymbrium officinale*	12	4
Conium maculatum	4	27
Cyperus fuscus	20	
Descurainia sophia	231	
Hyoscyamus niger	32	4
Juncus bufonius	10	
Juncus inflexus/macer	60	
Lamium album/maculatum	7	
Malva sylvestris	1	
Marrubium vulgare	128	
Nepeta cataria	9	
Onopordum acanthium	13	9
Pastinaca sativa	1	
Plantago major	126	
Polygonum aviculare agg.	179	17
Ranunculus cf. *repens*	9	
Reseda luteola	8	
Sisymbrium cf. *altissimum*	8	
Urtica dioica	2844	
Urtica urens	8	
Verbena officinalis	144	8
Grassland		
Arenaria serpyllifolia agg.	150	
Ajuga cf. *genevensis*	2	8
Daucus carota	5	8
Daucus cf. *carota*	10	
Senecio erucifolius	4	
Thymus sp.	4	
Campanula cf. *glomerata*	4	
Euphorbia cf. *cyparissias*	1	
Sanguisorba minor	17	32
Chrysanthemum leucanthemum agg.	42	4
Silene vulgaris	6	
Potentilla reptans	4	
Ranunculus cf. *acris*	9	
Bellis perennis	10	
Cerastium cf. *fontanum*	44	
Prunella vulgaris	9	
Linum catharticum	4	
Lythrum salicaria	16	
Rumex acetosella agg.	5	
Scirpus sylvaticus	66	
Wood, wood edges and shrubs		
Agrimonia eupatoria	2	
Alnus glutinosa	1	
Calamintha clinopodium	8	
Carex muricata agg.	1	
Clematis vitalba	1	
Hypericum perforatum	42	10
Origanum vulgare	46	
Sambucus ebulus	25	1
Solanum dulcamara	1	

Taxa	absolute numbers whole items	fragments
Wetland and water vegetation		
Alisma sp.	10	
Eleocharis cf. *palustris* agg.	16	
Lycopus europaeus	20	
Typha latifolia	10	
Carex cf. *vulpina*	1	
Oenanthe fistulosa	1	1
Ranunculus flammula	1	
Nuphar lutea	1	
Other plants		
Agrostis sp.	20	
Apiaceae	1	39
Atriplex patula/hastata	63	
Atriplex/Chenopodium		412
Brassica/Sinapis	5	4
Bromus sp.	2	
Bryophyta, moss		7
Carex sp., bicarpellat	4	
Carex sp., tricarpellat	8	
Caryophyllaceae		16
Chenopodium sp.	12	
Chenopodium sp., charred	4	
Cirsium sp./*Carduus* sp.	18	3
Echinochloa crus-galli/Setaria sp., chaff		10
Epilobium sp.	30	
Galium sp., small charred	4	
Juncus sp.	70	
Lamiaceae	18	
Lamium sp.		4
Papaver sp.	10	10
Ranunculus Subgen. *Ranunculus*	8	49
Rumex sp.	40	
Rumex conglomeratus/sanguineus	6	
Rumex sp., flower		5
Sambucus sp.		88
Silene sp.	4	18
Solanum sp.		80
Torilis sp.	1	25
Poaceae	16	12
cf. *Achillea* sp.	10	
Characeae	31	
Chenopodium ficifolium/polyspermum	37	
Poa pratensis/trivialis	42	
Verbascum sp.	18	
Juncus acutiflorus/articulatus	90	
Juncus conglomeratus/effusus	180	
Poa nemoralis/palustris/compressa	56	
Sum in 2.6 litre	7053	1188
Sum per litre	2690	453

7. Schaeffersheim « La Chênaie » (Bas-Rhin, Alsace). Late Iron Age well. Plant remains. Uncharred seeds if not mentioned otherwise. Number of objects in the subsamples of the 0.5 mm and 0.25 mm-fraction are calculated to sample size.

leucanthemum are characteristic grassland species of relatively dry sites. Others, like *Linum catharticum* and *Scirpus sylvaticus*, indicate also wetter places in the surrounding area. Grassland species may have arrived at the settlement in different ways, together with straw, hay and fodder or dung. Perhaps for this reason they are quite numerous in the sample.

WOOD AND WOOD MARGINS

Only few taxa of this group were found in the sample which seems logical for it is not so easy to explain their existence in the sediment. It may be that some of the documented species were brought into the settlement intentionally. For instance, *Calamintha clinopodium* and *Origanum vulgare* can be used as spices. Also, *Hypericum perforatum*, *Agrimonia eupatoria*, *Solanum dulcamara*, *Hypericum perforatum* and *Sambucus ebulus* have medical properties.

CONCLUSION

One sediment sample of a well in Schaeffersheim, dating to the late La Tène period, yielded a rich array of archaeobotanical evidence. The wet condition of the well provided ideal preservation conditions. This is an unusual situation for the Iron Age. The spectrum of plant species is broad and interesting. Only a few cultivated plants could be identified. However many wild plant species were identified, and the origins of these can be attributed to both natural and cultural depositional circumstances. The plant species composition leads to the conclusion that people living in Schaeffersheim in the Iron Age did not intentionally fill the well with leftovers of meals or of dung (see Fellbach-Schmiden ; Körber-Grohne 1982 ; 1999). No spoiling of the well can be proved. In fact it was kept very clean, at least in the stratum from which this sample originated.

ACKNOWLEDGEMENTS

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