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Scorched earth: a posthole approach to Iron Age warfare

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ABSTRACT
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In this paper, the author presents a method to identify Iron Age (500 BC – AD 1050) warfare through farmsteads destroyed by fire. Specific fire patterns on individual houses, combined with abnormally high numbers of contemporary burnt buildings, are used as proxy for raised levels of aggression during certain periods. The Uppsala plain in East Central Sweden forms a case study. With this approach, two periods stand out with relatively high numbers of burnt farms: AD 350-425 and AD 500-575. The results are discussed in relation to some source critical factors and to their possible contribution to questions regarding Gamla Uppsala developing into a central place by the 7th century, as well as to the AD 536 event discourse.

KEYWORDS
Burnt buildings, Iron Age, Gamla Uppsala, method, war, warfare

ANDERS BORNFALK BACK

Scorched earth: a posthole approach to Iron Age warfare

Introduction

This study stems from two unproblematic premises and one analytic failure. The premises are that societies during the Iron Age in what is today Sweden (500 BC – AD 1050) engaged in warfare and that this activity has had an impact on the archaeological record[1]. The failure is that there are only two sites from these one and a half millennia on which there is a general agreement amongst archaeologists that they represent places of battle: Sandby borg on Öland and The Garrison in Birka. As these sites are out of the ordinary in terms of preservation and post-battle processes, which will be discussed below, it is methodologically ill advised to view their empiric profile as archetypal for Iron Age conflict – the bar would simply be set too high. This situation is an outcome of scholarly attitude rather than shortage of evidence. With appropriate research strategies, other sites of this place and date could undoubtedly be explored as scenes of conflict – but the fact is, they rarely are.

The implication of this lacuna is that we lack methods and approaches to recognize other than the most obvious and clear-cut violent events in archaeological data, resulting in incomplete and unrealistic reconstructions of Iron Age life. It is admittedly difficult to identify places where swords clashed archaeologically when there are no literary or pictorial sources to tell us about it, due to practices taking place after the battle affecting the empiric signature as well as the destructive and temporary character of combat itself (James 2012). In combination with the previous and to some extent still existing widespread lack of interest in conflict studies in Iron Age research (Bornfalk Back 2016), it is virtually impossible. In an effort to improve this situation, in this study I will present a method to identify periods and places of unrest based

[1] In this study, *war* is defined as organized and lethal violence between groups. Such wide definition does not restrict warfare to pitched battles involving a high number of participants, but also includes physical conflict often associated with tribal societies (such as raids, ambushes, massacres etc.), between and within political entities.

on an explicit conflict archaeological approach to houses destroyed by fire. Such approach was occasionally employed by early settlement archaeologists (e.g. Stenberger 1933:201 pp; cf. Edgren 1983) but has not been considered on regional levels since. No doubt buildings on settlements burned also of reasons other than hostile agendas, e.g. through accidents or as a way for the inhabitants to get rid of an old unwanted house. I will argue, however, that specific fire patterns on the individual houses, together with abnormal high numbers of contemporary burnt buildings, could indicate a raised level of aggression during certain periods.

The Uppsala plain in the province of Uppland in East Central Sweden is chosen as case study as this area has seen numerous development-led excavations of Iron Age settlements over the past decades (fig. 1). After a brief discussion on destruction by fire as an Iron Age strategy of war, I will introduce the Uppsala plain and some key points of the settlement archaeology of this part of Uppland. This is followed by a methodological discussion on the archaeology of burnt buildings and the results of a compilation of 57 heavily burnt houses that form the corpus of this study. The final discussion evaluates the results and the usability of this approach in Iron Age war studies in relation to some source critical aspects. The Appendix includes a catalogue of the burnt houses as well as a detailed description of the method and criteria applied to identify them in the archaeological record.

Destruction by fire as strategy of war

Despite rarely receiving scholarly attention, existing evidence strongly suggests that destruction of individual houses, settlements and fortifications by fire was an integral part of Iron Age warfare. The two sites mentioned above, on which there is no doubt that they were scenes of lethal conflict, were either wholly or partially destroyed in this way. At Birka, the Viking Age emporia in Lake Mälaren, a hall building with a distinct martial character situated next to the fortification (hence traditionally referred to as "The Garrison") was attacked and burned in the late 10th century. Through excavations it has been possible to reconstruct this event: how the aggressors came from the seaside, setting the building on fire with incinerating arrows, and fighting the defenders in close combat (Holmquist Olausson 2002:161 pp; Hedenstierna-Jonson 2006:69–70). After the battle, the dead were buried elsewhere and the site was probably searched for useful weapons and other objects, leaving only unusable fragments on the ground (Hedenstierna-Jonson 2006:69). As the hall was constructed on the rocky and barren slopes of the hill adjacent to the settlement, it has been saved from modern agrarian activities which otherwise would have destroyed much of the remains – the latter a common fate for many Iron Age settlement sites.

Recent excavations at the ringfort of Sandby borg on the island of Öland in the Baltic Sea revealed a massacre following an attack dated to c. AD 500. The research on this site is ongoing but so far skeletal remains of at least 26 individuals have been found in the streets and in the houses where they once fell, many with perimortem trauma (Alfsdotter *et al.* 2018; Alfsdotter & Kjellström 2019; Alfsdotter 2020). Around 10 % of the site has been

excavated, suggesting that the actual number of victims were likely much higher. The evidence also indicates that during the attack some houses where set on fire, alternatively caught fire accidentally during the fighting (Alfsdotter *et al.* 2018, p. 429). The dead at Sandby borg were never buried and the site seem unaffected by looting. This deviates from custom and is an important factor for the empiric character of the site. As with the Garrison at Birka, the setting of the battle (within a ring wall) has prevented modern land use and heavy ploughing, thereby conserving the remains.

Excavations on a large number of forts, strongholds and other defensive constructions dated to c. AD 400-1000 have produced evidence of heavily burnt walls and ramparts. The drystone masonry walls of Upplandic sites such as Runsa borg, Darsgärde, Lovöborgen, Broborg, Sjöhagsberget, Trollberget etc. were all destroyed when wooden framings caught fire, as indicated by burnt internal timber and heavily heated wall filling (Ambrosiani 1958; Löfstrand 1982; Olausson 1995, 1997b; Petré 1997). The rampart of the hilltop defence at Birka mentioned above was destroyed by fire two or perhaps even three times. Remains of a burnt wooden embattlement and parapet walk on top of the earthen bank marks the final stage of the construction (Holmquist Olausson 2002, pp. 160–161; Holmquist 2016, pp. 39–40). The town wall protecting the settlement and harbour was also destroyed by fire at least once (Holmquist Olausson 1993).

If accepted to contain echoes of Scandinavian Iron Age culture, the Beowulf poem provides contemporary literary support that burning of settlements was included in the *modus operandi* of first millennia warfare. A forthcoming attack and burning of *Heorot*, the great hall of the Danish king, is hinted: "The hall towered high, cliff-like, horn-gabled, awaited the war-flames, malicious burning" (vv 81-83, transl. Chickering 2006). The land and royal seat of the *Ġēatas* did not fare better: the foe "set fire to men and their houses" and Beowulf himself realised that "his own home was burnt, finest of buildings, the hall in fire-waves, gift-throne of Geats" (vv 2299-2322, transl. Chickering 2006). In the latter case the aggressor was a robbed dragon – possibly a literary metaphor or dramatization for enemies in human shape (Gräslund 2018:207–211; Jensen 1993).

The specific motives behind burning as a strategy in warfare most likely varied. Ultimately, however, it was a policy of power. Whether the direct stimuli were tactical, punitive or symbolic, it was an act of dominance reflecting political and social relations. One should nevertheless keep in mind that not all conflicts ended up with burnt buildings. At the settlement Björkgärdet in the eastern part of the Uppsala plain, a farm was completely abandoned in the 11th century probably after an attack, as indicated by the numerous arrowheads found along the façade of the main building and on the courtyard (Björck 2014:262–263, 328). This site, too, had been saved from modern agricultural activity and consequently was much better preserved than the majority of settlement sites in the present study.

Case study: burnt houses on the Uppsala plain

In this study, the Uppsala plain is defined as the area within 30 km from the medieval Gamla Uppsala Church in all directions (c. 2800 km²) (fig. 1). This includes the large central plain with the connected valleys, which find their ways into and through the surrounding woodlands in the north, northeast and southeast. In the south, it also encompasses the area around Ekoln, the northernmost gulf of Lake Mälaren connecting the plain with the Stockholm (inner and outer) archipelago. Archaeologically, the study area contains important Iron Age sites such as Valsgärde, Vendel, Ultuna and of course Gamla Uppsala itself. By the 7th century, Gamla Uppsala had developed into the political centre of the region as the central place of the ancient Svear, as seen in monumental archaeological remains and literary sources (Sundqvist *et al.* 2013). The trajectory of this process is largely still unknown but the results of recent research-driven and development-led excavations in the area forecasts a rich field of research in the near future (e.g. Göthberg *et al.* 2014; Beronius Jörpeland *et al.* 2017; Frölund *et al.* 2017; Frölund 2019; Göthberg & Frölund 2022). The infrastructural projects that created the conditions for the settlement archaeology of the region have mainly affected the immediate edges of urban Uppsala, situated on the central plain. Consequently, there is a bias in the material towards the peripheral parts of the study area.

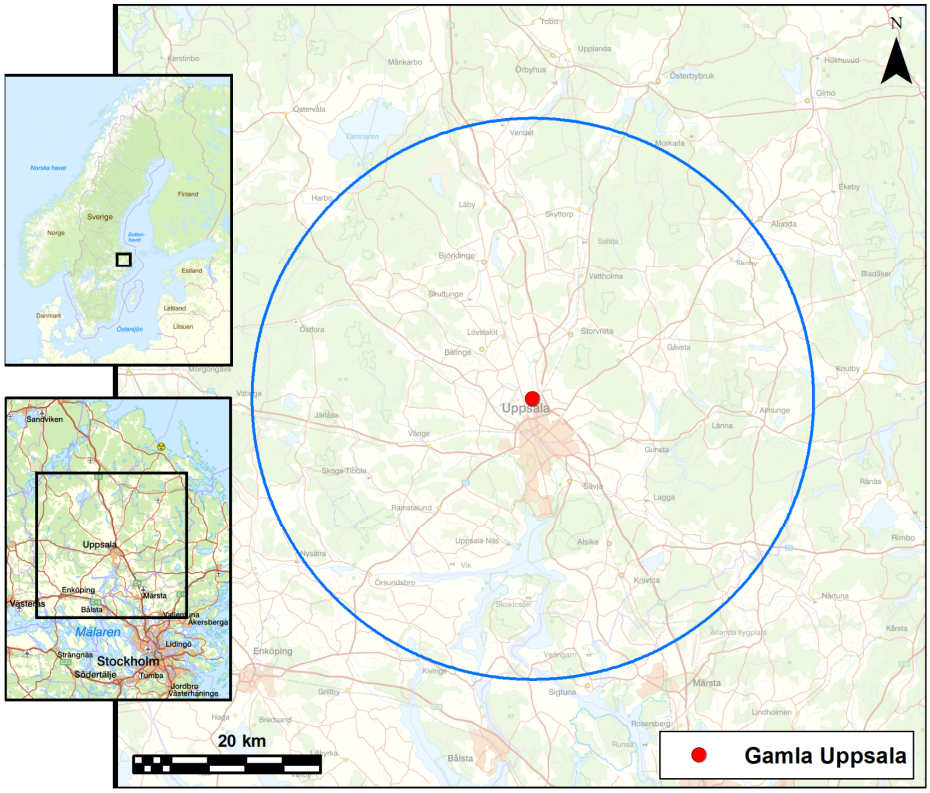


Fig. 1. The Uppsala plain in the province of Uppland in East Central Sweden forms the case study area (encircled). Map by the author. Background map: *Topografiska webbkartan*, Lantmäteriet.

IRON AGE SETTLEMENT ARCHAEOLOGY IN CENTRAL UPPLAND

Over the past 30 years or so, following the growth of the city of Uppsala as well as other large-scale infrastructural projects, development-led archaeology has dramatically increased our knowledge of Iron Age society and its organisation in central Uppland. Through the results of many hundreds of excavations of various sizes, practitioners of archaeology and neighbouring disciplines have been able to study settlement pattern, farmstead organisation, land use, house-building techniques, production and consumption on a level of detail matched by only a few other regions in Sweden. While this is not the place for a comprehensive overview of the current state of research, for the purpose of this study some aspects need to be highlighted (for synthesizing works, see Göthberg 2000, 2007b; Frölund & Göthberg 2013; Göthberg & Sundkvist 2017; Frölund 2019) .

The general chronology of Iron Age settlements in this area begins with establishment predominantly during the Late Pre-Roman Iron Age (c. 200-1 BC), sometimes on sites used in the Bronze Age. A notable expansion of settlements is evident during the Roman Iron Age (c. AD 1-375), peaking in the latter part of that period, followed by a decrease in the Migration Period (c. AD 375-550). It has been calculated that 75 % of the settlements in use in this 3rd/4th century peak had been abandoned by AD 600 (Göthberg 2007b:440–442). While some view this regression as a prolonged process of abandonment and relocation that begun already in the early 5th century (Göthberg 2000, p. 147 pp; Göthberg *et al.* 2014; Frölund 2019), others have advocated a more drastic population decline in the middle of the 6th century. In the latter scenario, the downturn is related to ruined harvests and famine in the wake of a probable volcanic eruption in AD 536 and the climatic effects it might have had (Gräslund 2008; Gräslund and Price 2012; Löwenborg 2012). The current study could shed some light on an overlooked aspect of this question, as we shall see below. Through the latter part of the Iron Age, 8th to 11th centuries, the number of settlements were stable, albeit on a relatively low level (Göthberg 2007b:440–441). However, this could in part be a consequence of the excavation bias towards locations of modern farms and villages, which tend to be situated in the same places as the Late Iron Age settlements.

Recent studies on land use have identified the late 4th/early 5th century as the starting point of a gradual shift in economic focus. For example, at the large settlement Berget and later Bredåker, animal husbandry increased at the expense of grain growing (Frölund 2019:145–146). A contemporary reorganisation of animal husbandry is visible at the adjacent settlement site in Gamla Uppsala proper as focus shifted to pigs at the expense of cattle – an unusual economic approach compared to other settlements in Uppland (Bergman *et al.* 2017:142–143). These changes in economic strategies initiated around AD 400 is potentially an important observation for the present study, and we will return to this later on.

Throughout the Iron Age of central Uppland, the farmstead was the core unit. Farms could be situated alone or in clusters of two or three, up to four times as many at certain points. There were several types of buildings used during this period, although not all present on every farm, depending on social status and wealth. Most farms consisted of 1-3 buildings. The main house could be multifunctional with a domestic section in one part and a stable, barn

or workshop in the other. Sometimes the non-domestic activities took place in another large house next to the main building. Small outbuildings used for storage, cooking and crafts were occasionally present. The hall had representational and ceremonial functions and evolved into a separate building on prominent settlements probably by AD 400. Before that, a section in the main building could have been used for such purposes (Herschend 1993, 1998 App. 1; Olausson 1997a:109; Karlenby 2007:136).

Archaeologically, the function of a house is established through architectural elements, size and preserved archaeobotanical remains in hearths, pits and postholes. Artefacts tend not to be preserved owing to the disturbance of modern agricultural activity. However, excavation methods including a systematic metal detecting strategy, when removing the plough soil covering the sites, have occasionally produced useful artefactual materials, despite their loss of primary contexts (Lingström & Lindberg 2016).

The larger buildings were constructed as one-, two- or, most commonly, three-aisled longhouses with massive roof-bearing posts (often of pine) supporting the superstructure. Sometimes a combination of these techniques were used, making up a hybrid house (see Göthberg 2000, p. 24 pp). The walls were usually built using wattle and daube. The much smaller outbuildings were often constructed as corner-post houses with a roof-bearing post in each corner. On certain settlements predominantly from the Late Iron Age, small sunken featured buildings (*grophus*) appear as workstations, sometimes with a domestic function (Lindkvist *et al.* 2017).

Owing to modern agricultural activities, the settlements are usually in a poor state of preservation and often described as "ploughed out". Left of the houses for archaeologists to excavate are normally the lower parts of the postholes where the roof-bearing posts stood, hearths and the occasional storage pit, more rarely the smaller postholes of the wall line. Cultural layers containing artefacts, remains from the buildings or refuse from crafts or domestic activities are extremely rare. The houses are dated through ^{14}C analysis of remains of posts (found in postholes), charcoal from hearths or charred macrofossils sampled from different features. These contexts represent the construction and use of the house, not its disuse. The latter is commonly established through observations of spatial and stratigraphic relations to succeeding houses, thereby creating separate settlement phases – which are key data for the present study.

MALICIOUS BURNING OR NOT?

As indicated, there are two methodological aspects to consider with the current approach. Firstly, how can we conclude that a specific house burned because of an act of aggression? A first step is to include only buildings that were heavily burnt (i.e. destroyed) and exclude houses where the traces suggest a minor "everyday" fire. This can be determined through fire pattern: if one, several or all roof-bearing posts of an excavated house are burnt, then the building were alight for a longer period of time and hence totally destroyed. Archaeologically, this can be seen in thoroughly charred posts and/or redden soil in the postholes (not to be mistaken with posts superficially charred to prevent rot before set in the ground). This focus on roof-bearing posts follows the logic that the massive posts supporting the superstructure would not be

charred wholly or even partially, including the part set underground, because of a short-lived fire. Further, it is highly unrealistic that a single roof-bearing post could burn without the fire spreading to the whole house. The reason why the number of burnt roof-bearing posts differs between houses (ranging from one to all) is likely that lack of oxygen on certain occasions prevented the fire reaching the underground part of some posts. Also, the houses might have burnt down at different paces; if burnt too quickly, the fire would not have time to char all the posts completely. An additional possibility is that the superstructure of some houses might have collapsed at an early stage of the fire breaking some posts at the ground level, thereby preventing the fire from reaching the part of the post left underground

Experimental archaeology supports these assumptions. In the 1960s, one of the reconstructed Iron Age houses in Lejre in Denmark was burned down, sealed with soil and excavated 25 years later (Rasmussen 2007). When documenting the remains of the roof-bearing posts, it became evident that the fire had not reached the parts of the posts set underground, despite the house being alight for over an hour. The conclusion was that if the top 10-20 cm of the site had been ploughed out, no one would have archaeologically been able to tell that the house had been destroyed by fire (Bjarke Christensen *et al.* 2007, p. 94). A similar experiment on the reconstructed Vallby house in Västerås in Sweden produced an identical pattern (Ros 2016, pp. 23–24). The fire had stopped above ground level thereby leaving the bottom of the roof-bearing posts unburnt (figures 2, 3 and 4). These observations also bring to the fore the preserved but seemingly unburnt posts often documented in postholes of

Fig. 2. A reconstructed Iron Age longhouse in Vallby (Västerås) was burnt down by the fire department because of dry rot on the timber. It was later excavated. Photo by Markus Andersson/SAU (after Onsten-Molander & Wikborg 2006:132, used by permission).

Fig. 3. The reconstructed Vallby house in ruin. Photo by Anna Onsten-Molander/SAU (after Onsten-Molander & Wikborg 2006: 132, used by permission).

Fig. 4. One of the roof-bearing posts of the reconstructed Vallby house documented during the excavation. The fire had not reached the part of the post set underground. Photo by Jonas Ros/Stiftelsen Kulturmiljövård (after Ros 2016:24, used by permission).

houses in the Uppsala plain. Today, they are often seen as an indicator that the house had simply been abandoned without the building material being recycled. Evidently, it should not be ruled out that at least some are indirect indicators that the house was burnt down (the presence of larger amounts of charred archaeobotanical remains could support such conclusion, for example). Accordingly, in this study, a burnt roof-bearing post equals a heavily burnt house. It should be noted that a large majority of the houses included in this study had several or all roof-bearing posts burnt (see Appendix). Excluded are thus houses with other fire patterns, such as burnt wall posts or burnt floor surfaces, since these could potentially be from partial or temporal brief fires.

Buildings being completely destroyed by accidental fires is not very likely as a structural phenomenon. The house-building technique employed during the Iron Age was one stretching back to the Neolithic and fire safety was undoubtedly embedded in this tradition, since destruction of domestic houses, barns or storage buildings would put the inhabitants at great peril.

What we need to account for, however, is that old houses with no useful building material to recycle could have been burnt down as a way to get rid of it. An illustrative example of this might be the burnt House 18 (an outbuilding) at the settlement Brillinge, where an analysis of the preserved posts showed that they had been old and infested by insects by the time of destruction (Ölund 2010, p. 74). Still, as timber has a lengthy lifespan, and was in short supply on the plain, disassembly for reuse was probably the standard procedure whenever possible. Related to this is the possibility that some buildings could have been ritually burnt down by the inhabitants as an act of closure before the farm was abandoned (cf. Herschend 2009:151–152). This will be considered below.

TIME OF BURNING

The second question to consider is how do we establish the point in time when each house burnt? In the absence of dateable contexts from destruction events, the interpreted settlement phases presented in the excavation reports are crucial. These phases set limits for how long a house could have been in use before other activity was established on the location. As mentioned, the phases are constructed through probability reasoning based on ^{14}C-analysis, house and

artefact typology, spatial relations and stratigraphic observations. Naturally, on sites settled for longer periods of time there is a greater chance of intersecting buildings and consequently a better basis for phasing. At the same time, houses constructed on the same location could partially destroy or disturb contexts of earlier activity, thereby complicating the dating and phasing process. The accuracy of the phases and how they have been reported varies, depending on site-specific conditions and documentation practices, the latter having changed over time and differs between excavation units. To be able to compare time of destruction of burnt houses from the whole Uppsala plain, excavated over several decades by numerous companies, these differences need to be assessed and harmonized for each building.

As illustrated in figure 5, there have been four ways to describe the chronology of the phases in the excavation reports, often related to the character of the site: 1) with start and end *time spans*; 2) with fixed start and end *points*; 3) through *cultural-historic periods*; and 4) only using the ^{14}C dating range (when other means were absent). The present author firmly believes that the dating methods we have in our hands in Iron Age settlement archaeology prevent us from establishing phases with fixed start and end points. Only through coins and dendrochronology of samples in sound contexts would that be possible, neither of which exists within the case study area. Instead, the uncertainty of when one phase ends and the other starts should be described, discussed and illustrated as time spans within which the destruction and subsequent construction took place. A rare but excellent example of this is found in the excavation report of the burnt plateau buildings in Gamla Uppsala (Frölund *et al.* 2017). Accordingly, in the present study, when the phase of a burnt house is expressed with fixed end points, a plus/minus 25 years end time span will be added within which the destruction event is estimated to have taken place.

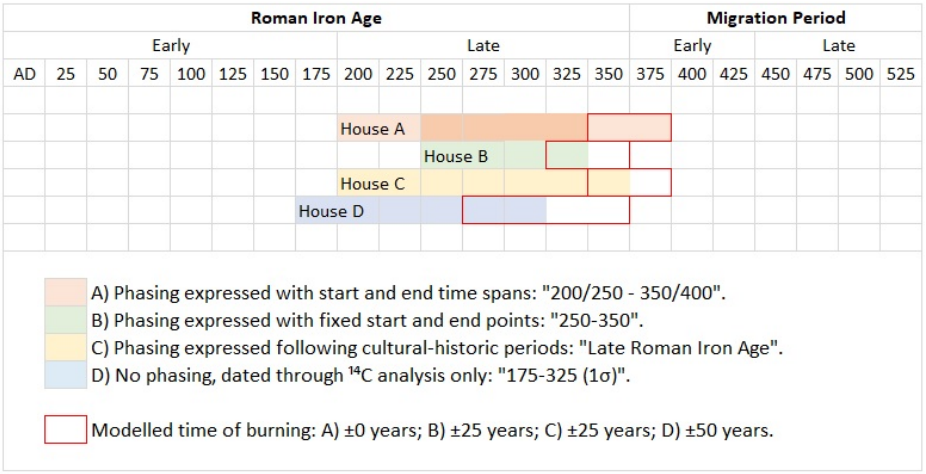


Fig. 5. In order to harmonize the different ways settlement phases have been expressed in archaeological reports over the years, end time spans of ±25 or ±50 years have been added to some houses depending on original phasing method, during which the time of burning is estimated to have taken place (see text for discussion). In this illustrative example, the modelled destruction of Houses A-D correlates in the period AD 350-375.

Describing phases using the cultural-historic periods (e.g. "Roman Iron Age", "Migration Period", "Viking Period" etc.), and sometimes a mix of them (e.g. "Late Pre-Roman Iron Age/Early Roman Iron Age"), is ambiguous and imprecise. In addition, the risk of only reaffirming the known wider trajectories at the expense of the unknown peculiarities is evident. In these instances too, a plus/minus 25-year end time span will be added in order to model the time of burning.

Finally, establishing the lifespan of a specific building only by one or two ^{14}C-dated samples is commonplace on small-scale excavations, when complementary stratigraphy is absent. In the present material, it was usually the remains of a post that was sampled for dating. The range of the dates received (e.g. AD 175-325) only specifies when the tree subsequently used as timber for the building was cut down – not when the house was built and even less when it burned. This and other source critical aspects of using ^{14}C-dating in settlement archaeology has been widely discussed over the years, for instance age of the sample, calibration plateaus and spikes, how long the houses were in use etc. (Göthberg 2000:19–20; e.g. Kyhlberg & Strucke 1999). While it is theoretically possible that the time of construction took place anywhere within the range received, it is generally set at the middle and late part of the range (in this example c. AD 225-325), to account for the age of the sample itself and the possible distance in time between cutting the tree and using it for timber. Although some houses could be in use for a longer period of time, normally the lifespan of a building is set to 1-3 generations, i.e. up to c 75 years (Hjulström 2009; Göthberg *et al.* 2014:249–250; Göthberg & Sundkvist 2017:40). The burning should therefore have taken place before that. Thus, in this study, in the cases when phasing only relies on ^{14}C-dating the time of burning is modelled to have taken place within a plus/minus 50 years' time span from the *very end* of the ^{14}C-dating range (in this example AD 325±50 or AD 275-375). A time span of one hundred years is frustratingly long but without any stratigraphy, that is as close to the destruction event as we normally can get.

With the accumulative nature of archaeological data, not least within development-led archaeology, it is vital to incorporate legacy data in contemporary analysis. However, this need to be conducted without jeopardising the quality of the data or the integrity of the original post-excavation analysis. To harmonise the differences in documentation practices and data properties in the way described above is a respectful compromise: it follows the phasing of the excavation reports complemented with "time spans of uncertainty" deemed appropriate for the present study.

RESULTS

Within the study area, 57 heavily burnt houses were identified on 24 settlement sites, which could include one or several farms (see Appendix for detailed information on sites, phasing and references). These should be seen as a minimum of the actual number of burned houses in this area, since traces of fire are not always preserved, as discussed above.

In figure 6, the modelled time spans of burning of every individual house is illustrated on a time scale specifying every 25 years period. The same data are

displayed as a graph in figure 7. As seen, there is an uneven distribution of burnt houses over time. Few or none of them belong to the Pre-Roman Iron Age and Viking Age, while the periods in-between are clustered to various degrees. To some extent, this pattern is a consequence of the total sum of excavated houses from each period, as will be discussed below.

Notably, two periods stand out with abnormal high numbers of burnt buildings: AD 350/375-400/425 and AD 500/525-550/575. More precise dating frames are not possible with the current material. Not all houses in each anomaly burned in a single event but within one or possibly two generations. For example, at Solhem in the Gamla Uppsala area, the two succeeding phases of the same farm (from the 6th century anomaly) were both burned down. In theory, it could have been the same family or even the same individual that suffered both these events.

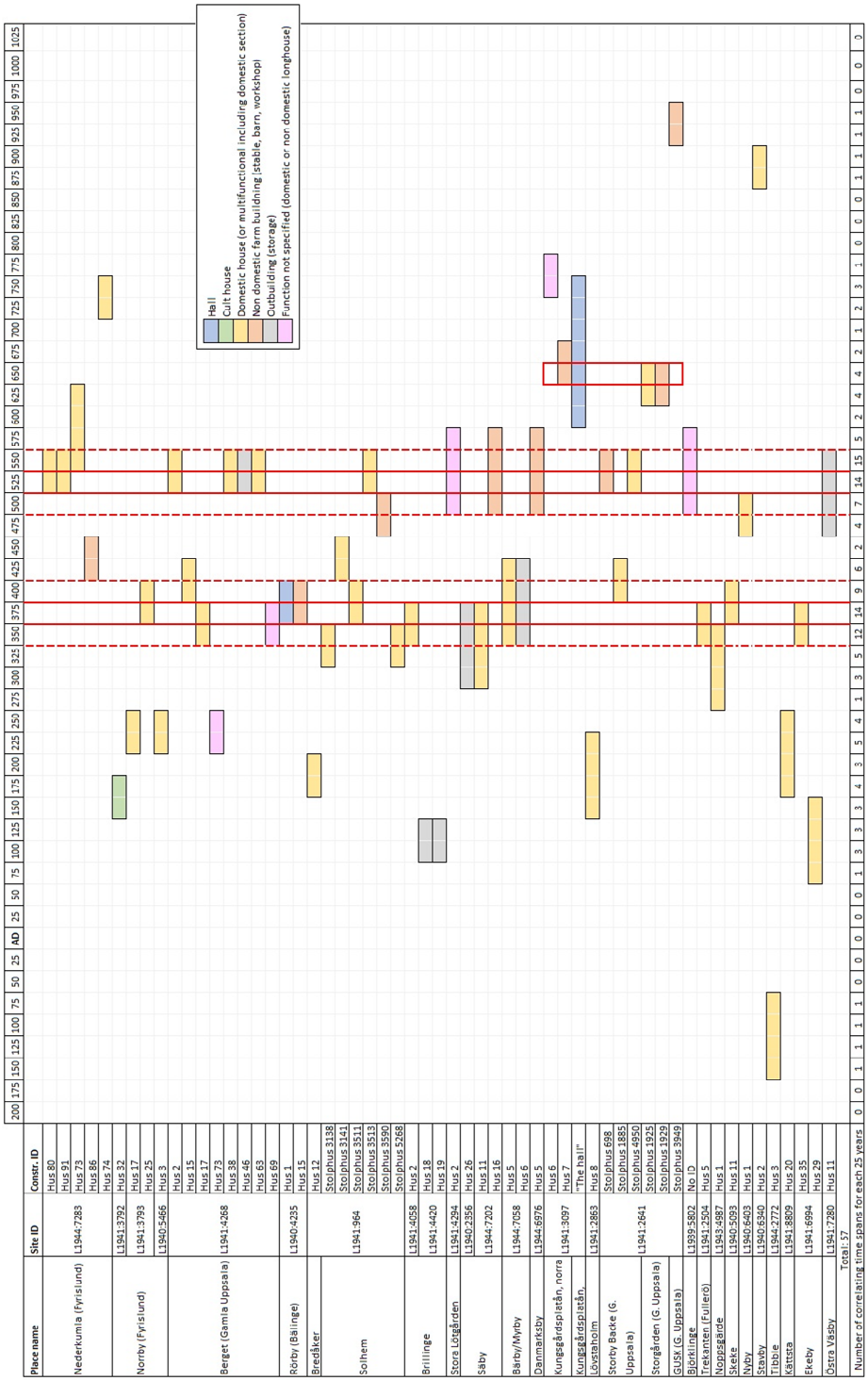
A third period worth mentioning is AD 650-675 when at least one but possibly both of the plateau buildings of Gamla Uppsala burnt down, conceivably simultaneously with two houses (belonging to one farmstead) from the nearby settlement Storgården only some 300 metres away. This suggest a single event and is a reminder that numbers are not everything and that a qualitative approach to every single house could in fact reveal local and temporal restricted events.

In the final part of this study, I will discuss the two major anomalies in relation to some source critical aspects.

Discussion

The validity of the main results of this study – that there are two periods in the late 4th/early 5th century and early/middle 6th century respectively of remarkably high numbers of burnt houses – depend on the accuracy of the original settlement phasing presented in the excavation reports and my attempt to harmonize them, as discussed above. As seen in figure 8, the different phasing methods employed are quite evenly represented within the anomalies, with the notable exception of the lack of phasing expressed as time spans. Even if some of the phases probably are products of coarse dating or unreflective adoptions of cultural-historical periodization, the variety of phasing methods combined support the legitimacy of the anomalies as actual phenomena.

Another aspect to be considered when evaluating this method is the matter of excavated house/burnt house ratio: are the two anomalies merely natural outcomes of overall high numbers of excavated buildings from these specific periods? As mentioned, during the Roman Iron Age the number of settlements expanded and peaking in c. AD 200-400, after which a decline is visible (Göthberg 2007b, pp. 440–442). Reasonably, this also reflects the number of houses excavated, but to my knowledge there is no up-to-date statistics available of the total number of excavated houses for each period in the Uppsala area. However, a summary of that data for the three largest settlements excavated support the assumption that more houses from AD 200-400 have been excavated than from the periods before or after (fig. 9). Any



Place name	Site ID	Constr. ID
Nederkumla (Fyrisund)	L1944:7283	Hus 80
		Hus 91
		Hus 73
		Hus 86
		Hus 74
Norrby (Fyrisund)	L1941:3792	Hus 32
	L1941:3793	Hus 17
		Hus 25
	L1940:5466	Hus 3
Berget (Gamla Uppsala)	L1941:4268	Hus 2
		Hus 15
		Hus 17
		Hus 73
		Hus 38
		Hus 46
		Hus 63
		Hus 69
Rörby (Bälinge)	L1940:4235	Hus 1
		Hus 15
Bredåker		Hus 12
Solhem	L1941:964	Stolphus 3138
		Stolphus 3141
		Stolphus 3511
		Stolphus 3513
		Stolphus 3590
		Stolphus 5268
Brillinge	L1941:4058	Hus 2
	L1941:4420	Hus 18
		Hus 19
Stora Lögården	L1941:4294	Hus 2
Säby	L1940:2356	Hus 26
	L1944:7202	Hus 11
		Hus 16
Bärby/Myrby	L1944:7058	Hus 5
		Hus 6
Danmarksby	L1944:6976	Hus 5
Kungsgårdsplatån, norra	L1941:3097	Hus 6
Kungsgårdsplatån,		Hus 7
Lövstaholm		"The hall"
Storby Backe (G. Uppsala)	L1941:2863	Hus 8
	L1941:2641	Stolphus 698
		Stolphus 1885
		Stolphus 4950
		Stolphus 1925
Storgården (G. Uppsala)		Stolphus 3929
GUSK (G. Uppsala)		Stolphus 3949
Björklinge	L1939:5802	No 10
Trekanten (Fullerö)	L1941:2504	Hus 5
Noppsgärde	L1943:4987	Hus 1
Skeke	L1940:5093	Hus 11
Nyby	L1940:6403	Hus 1
Stavby	L1940:6340	Hus 2
Tibble	L1944:2772	Hus 3
Kattsta	L1941:8809	Hus 20
Ekeby	L1941:6994	Hus 35
		Hus 29
Östra Våsby	L1941:7280	Hus 11
	Total: 57	
Number of correlating time spans for each 25 years		

Fig. 6. The modelled time spans of destruction (burning) of each house. The time of construction and use of the houses are not included. The number of time spans correlating with every 25 years period is specified in the bottom row, which is also displayed in a graph in figure 7.

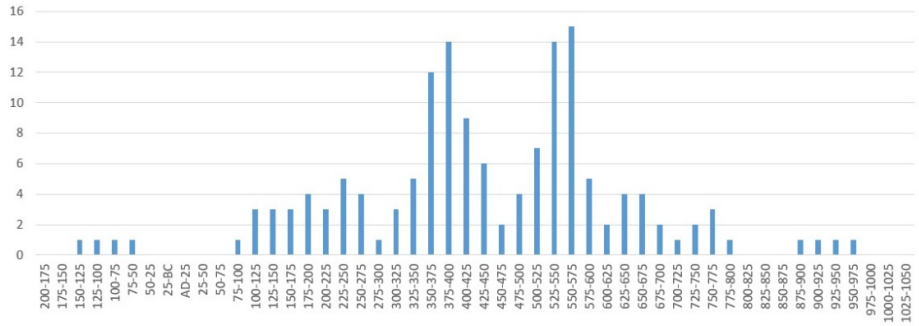


Fig. 7. The number of modelled time spans of burning for every 25 years period (note that the graph does *not* display the number of burnt houses for each 25 years: the modelled destruction time span of one single house could stretch over a longer period).

Original phasing method	AD 350-425	AD 500-575
Time span	-	1
Fixed point	8	7
Cultural-historic period	6	4
14C-dating only	5	5
	Total: 19	Total: 17

Fig. 8. The original phasing methods of the burnt houses that fall within the two anomalies

Old Uppsala (OKB)	Total: 151	300 BC-AD 100	AD 100-400	AD 400-650	AD 650-1050
		6	53	28	65

Berget	Total: 90	200-1 BC	AD 1-200	AD 200-400	AD 400-600
		3	20	45	22

Bredåker	Total: 96	200-1 BC	AD 1-200	AD 200-400	AD 400-600
		20	22	30	24

Fig. 9. Number of Iron Age houses from each period from the three largest excavated settlements within the study area (sunken featured buildings excluded). Statistics from Göthberg & Sundkvist 2017:21 (OKB) and Frölund 2019:127-128 (Berget and Bredåker).

precise estimation of the proportions between periods would be unwise owing to the limited material, as site-specific conditions could have a distorting impact. A general conclusion would nevertheless be that the late 4th/early 5th century anomaly is less dramatic than it appears (albeit still existing) while the prominence of the early/middle 6th century anomaly hold water. Worth highlighting is that the relatively low numbers of burnt houses from the other periods could in fact represent a considerably part of the total sum of excavated buildings in these eras.

An additional matter to consider is the profile of the burnt houses and their contexts: what types of houses burned, how many settlements and individual farms were affected and where were they situated within the study area? With the unequal ratio in mind, a comparison between the two anomalies show some similarities but also some differences (fig. 10). The 19 burnt houses from the AD 350-425 anomaly were part of 18 individual farms, the exception being Bärby/Myrby where two houses burnt possibly belonging to the same farm (Häringe Frisberg *et al.* 1998; for a reinterpretation see Göthberg 2007a:45–46). During the AD 500-575 anomaly, there were two instances

when more than one house burnt on a single farm: Storgården in Gamla Uppsala and Nederkumla in Fyrislund (fig. 11). Notably, there were more domestic houses that burned during the 4th century anomaly whereas barns, stables and workshops were destroyed to a larger extent in the 6th century. Combined, this could indicate a higher tendency of complete destruction of farms during the AD 500-575 anomaly. However, even if only one of the main buildings were burned down on a farm (which, as mentioned, often consisted of only 1-2 large houses), in practice the farmstead as an economic and social unit would be totally ruined. The burning of a smaller outbuilding used for storage of e.g. grain or fodder could have severe implication for the subsistence of humans and animals alike over time.

	AD 350-425	AD 500-575
Burnt houses, total	**19**	**17**
Domestic (or multifunctional with domestic section)	*14*	*9*
Non-domestic (barn, stable, workshop)	*1*	*4*
Small outbuildning (storage)	*2*	*2*
Function not specified (domestic or non-domestic)	*1*	*2*
Hall	*1*	-
Settlement sites	**12**	**10**
Farms	**18**	**15**

Fig. 10. A comparison between the two anomalies: number of burnt houses (specified by function) and number of settlement sites they appear on and farms they belong to.

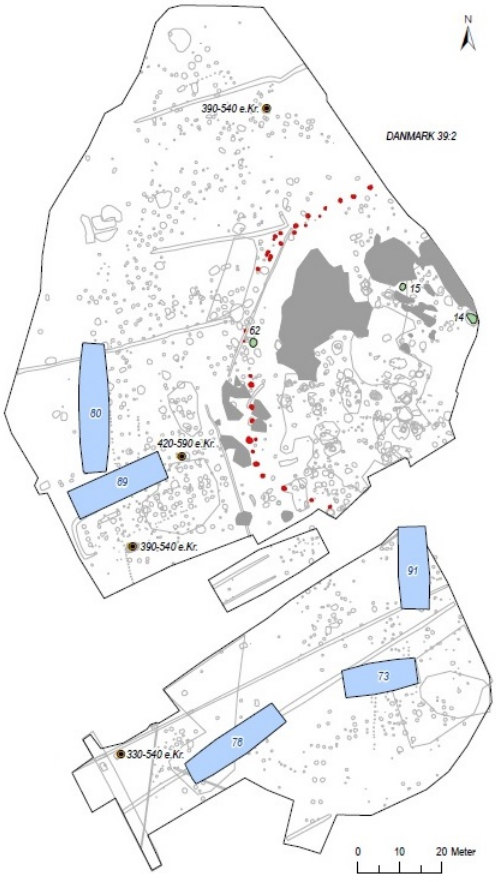


Fig. 11. Two adjacent farms in Nederkumla burned during the early/middle 6th century anomaly, most likely in a single event. House 80 (northern farm) and Houses 73 and 91 (southern farm) burned, as did parts of the row of massive posts demarcating the grave field in the east (red). Plan modified from original (after Hed Jakobsson *et al.* 2019:197, used by permission).

Geographically, the burnt farms of the two periods are similarly distributed (fig. 12). The two clusters in the north and southeast borders of present urban Uppsala represent the settlements in the extensively excavated Gamla Uppsala area and Fyrislund/Sävja respectively. Though it should be noted that on the settlements excavated in the southern and western part of Uppsala (e.g. Berthåga, Stenhagen, Ultuna, Librobäck, Rickomberga etc.), not a single heavily burnt house was documented. This suggests that the frequent occurrence of burnt farms in the north and southeast is not solely a result of these areas have undergone more excavations, but possibly a pattern of conflict (as in rivalling settlement districts 6-8 km apart, or that these settlements were more exposed to external threats owing to landscape setting or social status).

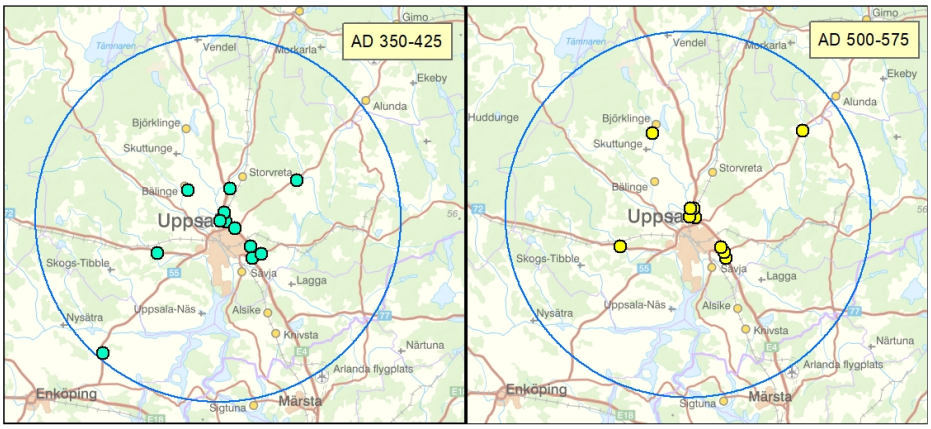


Fig. 12. The distribution of burned farms of the two anomalies.

While it is beyond the scope of this study to explore in depth the variety of patterns identified above, a couple of observations can nevertheless be made. The two anomalies, set apart by 3-5 generations, are likely the results of two separate circumstances but possibly within one common process: Gamla Uppsala developing into a political, social and religious central place, consolidated c. AD 600. The burnt houses of the AD 350-425 period are contemporary with the beginning of the shift in agrarian focus recently observed at some settlements in the Gamla Uppsala region, as mentioned above. At the large settlements Berget and Bredåker, these changes have been suggested to indicate a tributary system of surplus production, perhaps centered in the settlement of Gamla Uppsala proper (Frölund 2019). A centralisation process of this kind, set in the tribal context of Iron Age Scandinavia, was hardly an entirely peaceful project. Archaeologically, such process would likely include traces of competition and conflict, perhaps in the form of burnt farms.

The high number of burnt houses in the early/middle 6th century would undoubtedly fit within the AD 536 event discourse: climatic deterioration caused failed harvests and famine with social discontent and a raised level of aggression in the society as one consequence. Such interpretation could effortlessly be set within the extended centralisation process described above, as a catalyst or delay. However, from the present material it is not possible to conclude if the houses burned before, after or right through AD 536. With the potential methodological pitfall of using a fixed event to explain chronological

adjacent but coarsely dated trajectories as a one-for-all solution in mind (Näsman 2012; Moreland 2019), is there another way to understand this anomaly? Supposing the early/middle 6th century generation was not extra careless with fire, what comes to mind as an alternative explanation is that of a gradual and planned settlement relocation. As mentioned above, by AD 600 a majority of the previous occupied sites had been abandoned, but the process and cause of this change is largely unknown. Could the burnt houses signify the final act of inhabitants "closing" the farm and leaving their ancestral lands? Probably not: as seen in figure 13, a higher proportion of the farms were rebuilt rather than abandoned after the fire (see Appendix for references to excavation reports). This suggests that a planned burning prior relocation cannot explain the high number of destroyed farms during this period. Perhaps one should not rule out two parallel processes resulting in burnt farms, of which one could be the aforementioned, but one single process seem more likely. From the horizon adopted in this study, warfare is the main candidate – triggered by the AD 536 event or not.

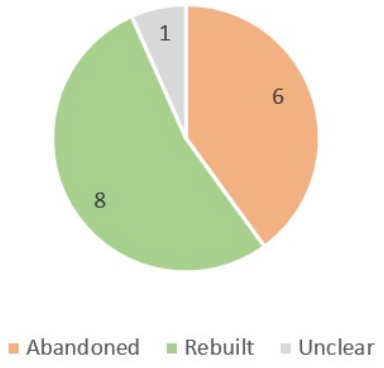


Fig. 13. The ratio between abandoned and directly rebuilt farms of the early/middle 6th century anomaly.

Conclusion

Houses destroyed by fire as proxy for Iron Age war is a method accompanied with numerous source critical factors: what are the archaeological traces of a burnt house, when did it catch fire, who was responsible and what agenda did they have? As shown in the case study, with an approach combining qualitative and quantitative analysis of fire patterns of the individual houses with identified periods of relatively high numbers of contemporary burnt buildings, these caveats can be overcome. To fully understand the complex empirical signature of a burned building, future research into this topic would benefit from experimental and comparative approaches, as well as from collaborations with forensic fire investigation professionals. The latter was recently conducted successfully on the burned entrance of the Viking Age ring fortress Borgring in Denmark (Ljungkvist *et al.* 2021).

The two anomalies of abnormally high numbers of burnt farms in the late 4th/early 5th century and early/middle 6th century are strong indicators of processes out of the ordinary. At present, two separate periods of social turbulence and conflict is the most likely explanation. As a hypothesis for future studies, these periods could be explored as pivotal in the process of

Gamla Uppsala emerging as a central place around AD 600. Adopting the approach presented in this study on other regions with a rich settlement archaeological material – e.g. Gotland, Öland, western Östergötland and Scania – could reveal whether the anomalies of the Uppsala plain were local in character, or part of regional or supraregional trajectories.

With the ongoing accumulating of data from development-led excavations in the Uppsala plain, the results of this study could be refined or challenged. On several sites to be developed, first step evaluation excavations have observed burnt constructions that future full scale excavations might confirm as parts of buildings (e.g. Celin and Lindkvist 2014:19; Sundin 2015:18; Frölund 2021 App. 1). To be able to draw on the full potential of this information, developing methods to harmonize data produced during various times by different practices is a crucial task in contemporary archaeology.

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Appendix

This appendix is a catalogue of 57 Iron Age houses destroyed by fire situated within 30 km from Old Uppsala church. As there is no compilation of all settlements excavated within the study area, a database was constructed with data exported from the register of ancient remains (*Kulturmiljöregistret)* including sites classified as "Settlement" (*Boplats*), "Settlement remains other" (*Boplatslämning övrigt*), "Settlement area" (*Boplatsområde*) and "Grave and settlement area" (*Grav- och boplatsområde*). Each site in the database was manually checked in the search engine (*Fornsök*) of the National Heritage Board, which includes information on past excavations and publications. The burnt houses were subsequently identified in the excavation reports.

The criteria for buildings to be included was that at least one of the roof-bearing posts supporting the superstructure was effected by fire, as seen by remnants of a throughout charred post and/or reddened soil in the posthole, as this indicates that the building was heavily burnt. The small amounts of burnt clay (possibly daube) or fire-damage stone (post support) often found in postholes, and sometimes seen as indicators of burning, are in this study not considered as conclusive evidence of that. Omitted from the catalogue are also houses with other fire patterns (e.g. wall or floor fires) as well as sunken featured buildings (*grophus*). In the cases the documentation in the reports was ambiguous of the character of the fire pattern, the house was not included.

The catalogue includes *Place name* of the archaeological site, *Site ID* of the present (KMR) and previous (RAÄ) register and *Building ID* of the individual houses in the reports. A short *Description* of the type and function of the burnt building as it is interpreted in the report is given, followed by a comment on the character of the *Traces of burning*. The *Phase* of each house as it was presented in the report is included. In those cases when no or very imprecise phasing were expressed, the ^{14}C dates (1σ) of the houses form the basis for the modelled destruction time, as described in the text. The *Reference* specifies the excavation report of each house.

Site name	Site ID (KMR/RAÄ)	Building ID	Description	Traces of burning	Phase	Reference
Nederkumla (Fyrislund)	L1944:7283/ Danmark 39:2	Hus 80	Three-aisled longhouse. Multifunctional: domestic (south) and barn (north).	Total. All (excavated) roof-bearing posts were burned.	AD 450-550	Hed Jakobsson et al 2019.
		Hus 91	Three-aisled longhouse. Domestic.	Partial. At least two roof-bearing posts in the northern gable were burned.	AD 450-550	
		Hus 73	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	AD 450-550/650	
		Hus 86	Three-aisled longhouse. Non domestic farm building.	Partial. At least one roof-bearing post was burned. The (unexcavated) opposite roof-bearing posthole show traces of a possible burned post in the surface.	AD 350-450	
		Hus 74	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts in the west were burned.	AD 650-750	
Norrby (Fyrislund)	L1941:3792/ Vaksala 298:1	Hus 32	Three-aisled cult house.	Extensive. Several roof-bearing and wall posts were burned. The destruction filling of a gable ditch contained large amount of charcoal and burned clay (daub?).	AD 0-175	Larsson et al 2018
	L1941:3793/ Vaksala 299:1	Hus 17	Three-aisled longhouse. Multifunctional: domestic (west) and storage (east).	Partial. At least one roof-bearing post in the west was burned.	AD 175-250	
		Hus 25	Three-aisled longhouse. Multifunctional: domestic (center and east) and work area/storage (west).	Partial. At least one roof-bearing post in the center was burned.	AD 325-400	
	L1940:5466/ Danmark 216	Hus 3	Three-aisled longhouse. Multifunctional: domestic (north) and storage (south).	Extensive. Several roof-bearing posts in the south were burned.	AD 100-250	
Ekeby	L1941:6994/ Vänge 76:3	Hus 35	Three-aisled longhouse. Domestic?	Extensive. Several roof-bearing posts were burned.	"Late Roman Iron Age"	Fagerlund et al 1999
		Hus 29	Three-aisled longhouse. Multifunctional with domestic section.	Extensive. Several roof-bearing posts were burned.	14C: 2000±75 BP (Ua-14297)	
Östra Väsby	L1941:7280/ Vänge 231:1	Hus 11	Corner post house? Outbuilding? (Only partially excavated).	Total. All roof-bearing posts were burned.	14C: 1660±60 BP (Ua-13672)	

Berget	L1941:4268/ Uppsala 614:1	Hus 2	Three-aisled longhouse. Multifunctional: domestic and work area.	Extensive. Several roof-bearing posts in the center were burned.	"Migration Period"	Göthberg et al 2014
		Hus 15	Three-aisled longhouse. Multifunctional: domestic and work area.	Partial. At least two roof-bearing posts were burned.	"Late Roman Iron Age/Early Migration Period"	
		Hus 17	Three-aisled longhouse. Multifunctional: domestic and work area.	Partial. At least three roof-bearing posts were burned.	"Late Roman Iron Age"	
		Hus 73	Two-aisled longhouse with three-aisles in the north (hybrid).	Partial. At least two roof-bearing posts were burned.	"Early Roman Iron Age/Late Roman Iron Age"	
		Hus 38	Three-aisled longhouse. Multifunctional: domestic and work area.	Extensive. Several rood-bearing posts were burned.	"Migration Period"	
		Hus 46	Corner-post house. Outbuilding.	Partial. At least one roof bearing post was burned.	"Migration Period"	
		Hus 63	Three-aisled longhouse. Multifunctional: domestic and work area.	Partial. At least one roof bearing post was burned.	"Migration Period"	
		Hus 69	Three-aisled longhouse? (Only partially excavated).	Partial. At least one roof bearing post was burned.	"Late Roman Iron Age"	
Rörby (Bälinge)	L1940:4235/ Bälinge 446:1	Hus 1	Three-aisled longhouse. Hall building.	Extensive. Several roof-bearing posts were burned.	AD 350-400	Larsson & Hamilton 2016
		Hus 15	Three-aisled longhouse. Non-domestic farm building.	Extensive. Several roof-bearing posts were burned.	AD 300-400	
Bredåker	L1941:964/ Uppsala 134:4	Hus 12	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	"Early Roman Iron Age"	Frölund & Schutz 2007 (ed); Frölund 2005a
Solhem		Stolphus 3138	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	AD 230-350	Göthberg 2017 (ed)
		Stolphus 3141	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	AD 340-450	
		Stolphus 3511	Three-aisled longhouse. Multifunctional: domestic in the west.	Extensive. Several rool-bearing posts were burned.	AD 300-400	
		Stolphus 5268	Three-aisled longhouse. Domestic. (Only partially excavated).	Partial? At least two roof-bearing posts were burned.	AD 250-350 (based on stratigraphy)	
		Stolphus 3513	Three-aisled longhouse. Multifunctional: domestic in the west.	Partial. At least three roof-bearing posts were burned.	AD 440-540	
		Stolphus 3590	Three-aisled longhouse. Non domestic farm building.	Partial. At least two roof-bearing posts were burned.	AD 380-500	

Brillinge	L1941:4058/ Vaksala 305:1	Hus 2	Three-aisled longhouse. Domestic.	Extensive. Several rood-bearing posts were burned.	"Late Roman Iron Age"	Fagerlund 2003
	L1941:4420/ Vaksala 291:1	Hus 18	Corner-post house. Outbuilding.	Total. All roof-bearing posts were burned.	AD 0-130	Ölund 2010 (ed)
		Hus 19	Three-aisled house (small). Outbuilding.	Total. All roof-bearing posts were burned.	Not dated. Spatial relation to burned Hus 18 suggested contemporaneity.	
Stora Lötgården	L1941:4294/ Uppsala 618:1	Hus 2	Three-aisled longhouse.	Partial. At least one roof bearing post was burned.	14C: 1605±70 BP (LuS 5986)	Frölund 2005b
Säby	L1940:2356/ Danmark 193	Hus 26	Corner-post house. Outbuilding.	Total. All roof-bearing posts were burned.	14C: 1775±40 BP (Ua-37058); 1885±50 BP (Ua-37068)	Hennius 2012 (ed)
	L1944:7202/ Danmark 162:1	Hus 11	Three-aisled longhouse. Domestic (or non-domestic farm building).	Total. All roof-bearing posts were burned.	14C: 1815±45 BP (Ua-37164); 1775±35 BP (Ua-37159)	
		Hus 16	Three-aisled longhouse. Non-domestic farm building?	Total. All roof-bearing posts were burned.	14C: 1605±35 BP (Ua-37139)	
Bärby/Myrby	L1944:7058/ Danmark 156:1	Hus 5	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	Not dated. Spatial relation to burned Hus 6 suggested contemporaneity.	Häringe Frisberg et al 1998; cf. Göthberg 2007a: 45-46
		Hus 6	Corner-post house. Outbuilding.	Partial. At least one roof-bearing post was burned.	14C: 1725±55 BP (Ua-6390)	
Danmarksby	L1944:6976/ Danmark 153:1	Hus 5	Three-aisled longhouse. Non-domestic farm building (or domestic).	Partial. At least one roof-bearing post was burned.	14C: 1630±75 BP (Ua-16998)	Göthberg et al 2002
Kungsgårdsplatån, norra (G. Uppsala)	L1941:3097/ Uppsala 263:1	Hus 6	Three-aisled longhouse on artificial plateau (only partially excavated).	Extensive. Several roof-bearing posts were burned. A wall ditch contained burned materials from the building	AD 650-750/800	Frölund et al 2017; Hedlund 1993
		Hus 7	Three-aisled longhouse on artificial plateau (only partially excavated). Workshop (e.g. garnets, ironwork, combs).	Extensive? A wall ditch contained burned materials from the building	AD 625/650-650/700	
Kungsgårdsplatån, södra (G. Uppsala)		"The hall"	Three-aisled longhouse on artificial plateau. Hall building.	Extensive. Several roof-bearing and wall posts were burned. A wall ditch contained burned materials from the building	AD 550/610-610/770	

Lövstaholm	L1941:2863/ Uppsala 531:1	Hus 8	Three-aisled longhouse. Multifunctional: domestic (center and southwest) and storage (northeast).	Extensive. Several roof-bearing posts were burned.	14C: 2020±35 BP (Poz-7328); 1900±50 BP (Ua-27550)	Häringe Frisberg et al 2007
Storby Backe (G. Uppsala)	L1941:2641/ Uppsala 605:1	Stolphus 698	Three-aisled longhouse. Non domestic farm building.	Extensive. At least three roof-bearing posts and an internal sleeper beam were burned.	AD 410-560	Göthberg 2017 (ed)
		Stolphus 1885	Three-aisled longhouse. Domestic (and multifunctional?).	Partial. At least one roof-bearing post was burned.	AD 330-420	
		Stolphus 4950	Three-aisled longhouse. Multifunctional: domestic and workshop?	Extensive. Several roof-bearing posts were burned.	AD 360-540	
Storgården (G. Uppsala)		Stolphus 1925	Three-aisled longhouse. Multifunctional: domestic (northwest) and workshop (southeast).	Extensive. Several roof-bearing posts were burned.	AD 430-640	
		Stolphus 1929	Three-aisled longhouse. Non-domestic farm building.	Extensive. Several roof-bearing posts were burned.	Not dated. Spatial relation to burned Hus 1925 suggested contemporaneity.	
GUSK (G. Uppsala)		Stolphus 3949	Three-aisled longhouse. Non domestic farm building?	Extensive. Several roof-bearing posts were burned.	AD 800-950	
Björklinge	L1939:5802/ Skuttunge 342	No ID	Three-aisled longhouse? (Only partially excavated).	Partial? At least one roof-bearing post was burned.	14C: 1564±29 BP (Ua-57971)	Lucas 2018
Trekanten (Fullerö)	L1941:2504/ Uppsala 602:1	Hus 5	Three-aisled longhouse. Multifunctional: domestic and barn.	Extensive. Several roof-bearing posts were burned.	"Late Roman Iron Age"	Onsten-Molander & Wikborg 2006
Noppsgärde	L1943:4987/ Fröslunda 99:1	Hus 1	Three-aisled longhouse. Multifunctional: domestic (west) and barn (east).	Extensive. Several roof-bearing posts were burned.	14C: 1845±70 BP (Ua-6842)	Aspeborg 2005 (ed)
Skeke	L1940:5093/ Rasbo 669	Hus 11	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	AD 300-400	Larsson 2014 (ed)
Nyby	L1940:6403/ Stavby 212	Hus 1	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	AD 400-500	Larsson & Englund 2016
Stavby	L1940:6340/ Stavby 214	Hus 2	Three-aisled longhouse. Domestic.	Total. All roof-bearing posts were burned.	"Early Viking Age"	Lindberg & Seiler 2016
Tibble	L1944:2772/ Björklinge 318:1	Hus 3	Three-aisled longhouse. Domestic.	Extensive. Several roof-bearing posts were burned.	14C: 2155±50 BP (Lus 6090; 67,4%); 2215±45 BP (Lus 6092)	Åberg & Svensson 2006
Kättsta	L1941:8809/ Ärentuna 56:1	Hus 20	Three-aisled longhouse. Multifunctional: domestic (east) and storage (west).	Extensive. Several roof-bearing posts were burned.	14C: 1880±30 BP (Poz-7482); 1845±30 BP (Poz-7485)	Gustafson et al 2005