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## Iron Age Fortifications in France

Sophie Krausz

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# Hillforts: Britain, Ireland and the Nearer Continent

Papers from the *Atlas of Hillforts of Britain and  
Ireland Conference, June 2017*

edited by

Gary Lock and Ian Ralston



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Cover images: A selection of British and Irish hillforts. Four-digit numbers refer to their online Atlas designations (Lock and Ralston 2017), where further information is available. Front, from top: White Caterthun, Angus [SC 3087]; Titterstone Clee, Shropshire [EN 0091]; Garn Fawr, Pembrokeshire [WA 1988]; Brusselstown Ring, Co Wicklow [IR 0718]; Back, from top: Dun Nosebridge, Islay, Argyll [SC 2153]; Badbury Rings, Dorset [EN 3580]; Caer Drewyn Denbighshire [WA 1179]; Caherconree, Co Kerry [IR 0664]. Bottom front and back: Cronk Sumark [IOM 3220]. Credits: 1179 courtesy Ian Brown; 0664 courtesy James O'Driscoll; remainder Ian Ralston.

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# 10. Iron Age fortifications in France

Sophie Krausz

## Abstract

This article provides an overview of the principal architectural models of fortification styles known in France across the span of the Iron Age, from the eighth to the first century BC. In southern France, conforming to Mediterranean styles, walls were built of stone or of unfired clay brick. Contrastingly, in temperate France, they were most usually constructed with a timber frame, infilled with earth, and sometimes incorporating a dry-stone external face. The history of their research will be considered from initial nineteenth century work through to recent developments in rescue archaeology. Thereafter, the key characteristics of the architecture of these fortifications will be considered using numerous French examples, notably from recent excavations. Finally, the question of their function will be considered. What can now be said about the *muris gallicus* style of construction or of the huge dump banks which are known from mid-first-century BC central Gaul? For these, it remains essential to consider them alongside Caesar's *de Bello gallico*, which allows connections to be made between the architecture of these fortifications and the history of Gaul.

**Keywords:** France, Iron Age, fortifications; chronology; distribution; *muri gallici*; dump ramparts

## Introduction

Ramparts are among the most spectacular features that survive from Europe's protohistoric cultures. In France as elsewhere they are still prominent in the landscape, offering a varied picture with regional preferences from the Mediterranean to the Channel.<sup>1</sup> Fortification archaeology is a favourite research theme in protohistory and has regularly provided a focus for French investigators from Napoléon III's famous work in the mid-19th century until the proliferation of scientific excavations of ramparts that has occurred since the 1950s. The earliest inventories of ramparts began in Germany, the British Isles and France from the mid-eighteenth century. The most extensive works got underway under Emperor Napoléon III in the search for the battlefields of the Gallic Wars which was approached by comparing Julius Caesar's account with what was to be seen on the ground (Napoléon III 1866). It was at this time that major sites such as *Alesia*, *Bibracte*, *Gergovia* and *Avaricum* were identified. These works set in motion systematic research into earthwork ramparts that were thereafter the subject of numerous regional inventories in France. Researchers began field survey throughout much of the country, but as elsewhere in Europe, the results were and remain patchy.

Olivier Buchsenschutz has traced the advancement of French research on fortifications from 1820 to 1980 (Buchsenschutz 1984a). During this period, archaeologists were aware that earthwork ramparts cannot be straightforwardly dated: they could not readily distinguish between protohistoric ramparts, Roman camps and medieval defences. It was only after

the 1960s that these could finally be told apart. In the late 1970s a new generation of European archaeologists – including John Collis and Ian Ralston in Britain, Gilbert Kaenel in Switzerland and Olivier Buchsenschutz in France – started new excavations of ramparts and fortified settlements and began using the results of new prospecting techniques: first air photography and soon after that geophysical methods. The main reference work on fortified settlements for France is Olivier Buchsenschutz's doctoral thesis of 1984 (Buchsenschutz 1984b). In it he mapped 600 Iron Age fortifications in northern France and identified phenomena that have been by and large confirmed over the subsequent forty years. In the Neolithic, the Bronze Age and the early Iron Age, the proportions of fortifications of different sizes remained the same: most enclosures extended to areas of 2 to 6 ha and only a few exceeded 20 ha. From the second century BC onwards, both the number of fortifications and the size of their enclosures grew: almost half of them exceeded 20 ha by the late La Tène. In this period, the average area of *oppida* was about 25 ha, but many sites are known which exceeded 50 ha and some which enclose over 100 ha. *Bibracte* in Burgundy covers 200 ha and *Villejoubert* in Limousin, 300 ha.

This trend can be confirmed today (Figure 10.1). Although the overall spatial distribution of late La Tène ramparts has not changed radically between 1984 and 2018, they have trebled in number in thirty years (67 known ramparts in 1984 against 200 in 2018). This increase is related both to the reclassification of a number of protohistoric ramparts as Iron Age and the inclusion of fortifications in the Mediterranean part of France. Likewise, the number of ramparts with internal timberwork has doubled between 1984 and 2018, from 33 examples to 67. This change can be attributed to new

<sup>1</sup> Translation from French to English by Christopher Sutcliffe

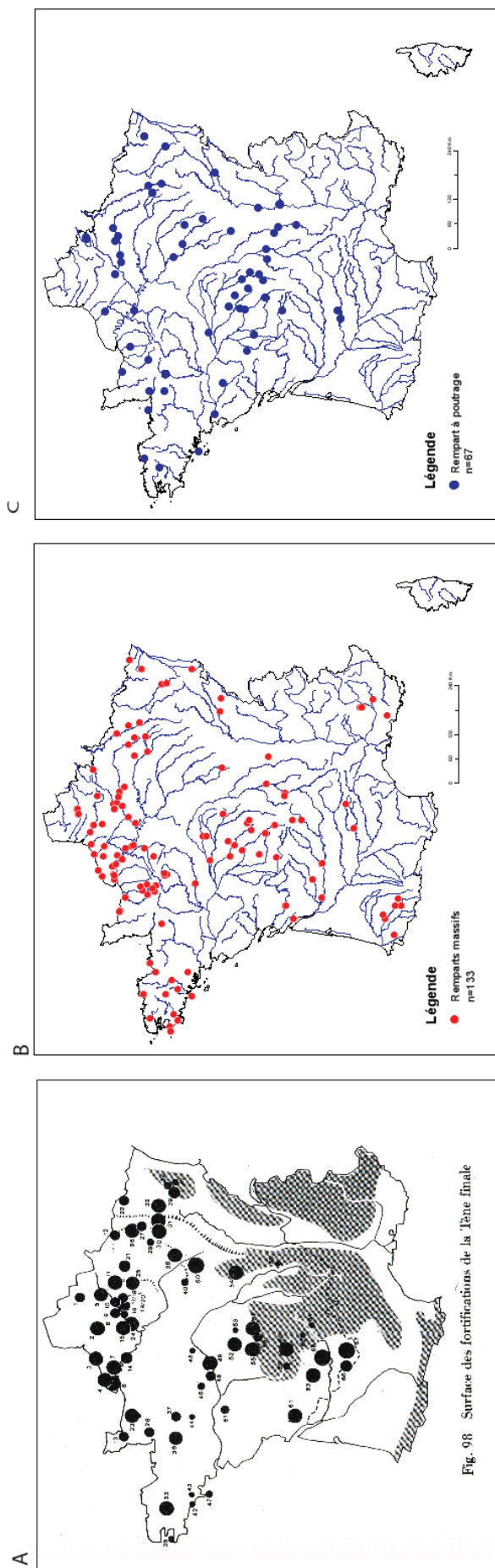


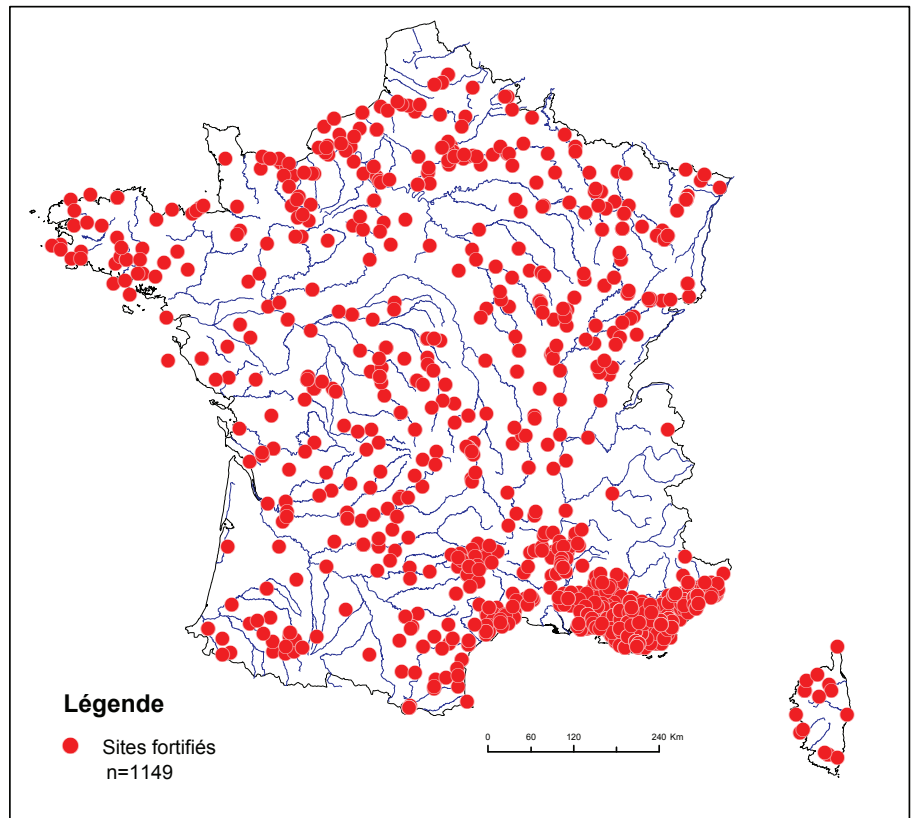
Figure 10.1 Changing numbers of Late la Tène fortifications in France: (a) the total number known in 1984 by size categories (source O. Buchsenschutz 1984); (b) dump ramparts and (c) timbered ramparts in 2018 (source: O. Buchsenschutz, Basefer, Chronocarto, AOROC, April 2018).

excavation projects and also to finds made during rescue archaeology in France.

The sites are now precisely mapped in the Iron Age atlas for which the BASEFER data base has been developed by the AOROC archaeology laboratory of the École Normale Supérieure de Paris.<sup>2</sup> This Europe-wide atlas is still being compiled and is regularly supplemented by input from colleagues in various countries. At the time of writing, the inventory for France contains 13,904 Iron Age sites including 4,879 settlements and 1,149 fortified sites (Figure 10.2). Southern France, that is the Mediterranean hinterland, numbers 528 fortifications most of which are not dated in the absence of excavations; these are attributed to the Iron Age without being more specific. Accordingly since Buchsenschutz's 1984 inventory, the development of research on fortifications has made it possible to regularly provide more detailed maps of the distribution of Iron Age sites. It must be admitted, though, that as fortification archaeology is no longer very fashionable in France, these maps may not change much in the years to come. This is especially so since rescue archaeology, which has developed in France since the mid-1980s, has only rarely concerned the major fortified sites and Iron Age ramparts. Government departments prefer to avoid undertaking major rescue excavation of ramparts both because they are too burdensome and because, as the sites are sometimes protected as historic monuments, the administrative aspects of excavations are made more complex. However, several rescue excavations have produced important finds in France in recent years. For example, Paule (Côtes d'Armor) is a major site discovered through rescue archaeology in 1985 and that has been further investigated as part of a research programme lasting several years (Menez and Arramond 1997). This programme directed by Yves Menez has led to the excavation of an aristocratic farmstead that had become an *oppidum* by the end of the Iron Age. In eastern France, the *muris gallicis* within the city of Besançon (Doubs) was excavated prior to the development of an underground car park in 2001 and 2002 (Fichtl and Vaxellaire 2010). And in a rescue excavation, the *muris*

<sup>2</sup> <http://www.archeo.ens.fr/spip.php?article1271&lang=fr> (Accessed September 2018)

Figure 10.2 Map of Iron Age fortified sites in France (source: O. Buchsenschutz, Basefer, Chronocarto, AOROC, April 2018).



*gallicus* of Metz yielded a dendrochronological date (114–112 BC) from its timbers (Bressoud 2003).

### The origin of Iron Age ramparts

Before going into detail about the types of fortifications we know of in Iron Age France, it is helpful to quickly rehearse what we know about ramparts built in earlier times. Whereas models of Neolithic ramparts are quite well known in France and identified as ceremonial or settlement enclosures, this is not the case for the early and middle Bronze Age. We have limited knowledge of fortifications for the early Bronze Age. This may be interpreted as an actual absence of fortified settlements between 2200 and 1350 BC, but it may also be part of a more general problem with detecting settlements for this period. We know from rescue archaeology that early Bronze Age sites were generally located in lowland areas in northern France and that most were compact settlements that were not fortified. Some upland sites were occupied from the early Bronze Age such as Fort-Harrouard in the north of the Centre-Val de Loire region (Krausz 2016; Mohen and Bailloud 1987). On this site, there was a large metal-working workshop in the early and middle Bronze Age but there are no traces to indicate that a rampart was built at that time. However, the complex timbered rampart built in the late Neolithic may have continued to serve a defensive role without the need to construct a new Bronze Age enclosure. From the late Bronze Age onwards, France became quite evenly covered with fortifications (Figure

10.3A). However, only 59 well-dated enclosures are included in BASEFER for this period, which seems very few. In regions where Bronze Age fortifications have been excavated, the settlements within them tend to have been occupied uninterrupted until the early Iron Age. This is the case with a series of sites in Normandy recently published by Fabien Delrieu (2013). He identified 11 upland sites that appeared in the late Bronze Age, some of which have ramparts with spaced upright timbers in their internal and external faces and a ditch. The example of Basly (Calvados) has two parallel lines of very large posts, spaced 3 m apart. The plan (Delrieu 2013: figure 4) of the excavated remains shows the layers of stone that clad the rampart faces between the posts. This structure is akin to the Altkönig-Preist type, a model of timbered rampart that was to be found later in the Iron Age.

The number of ramparts in France rose in the early Iron Age. It doubled compared with the late Bronze Age, with 108 ramparts being recorded. The map (Figure 10.3B), however, shows a large number of areas with no such features but highlights the late Hallstatt princely phenomenon that developed in eastern France. By the late Iron Age, France was covered with fortifications and their numbers exploded with 387 known occurrences for this period (Figure 10.3C). This map illustrates the situation at the end of the Iron Age, a period during which *oppida* occurred in large numbers throughout Gaul. Before that, it should be noticed that the fourth and third centuries were periods that lack ramparts,

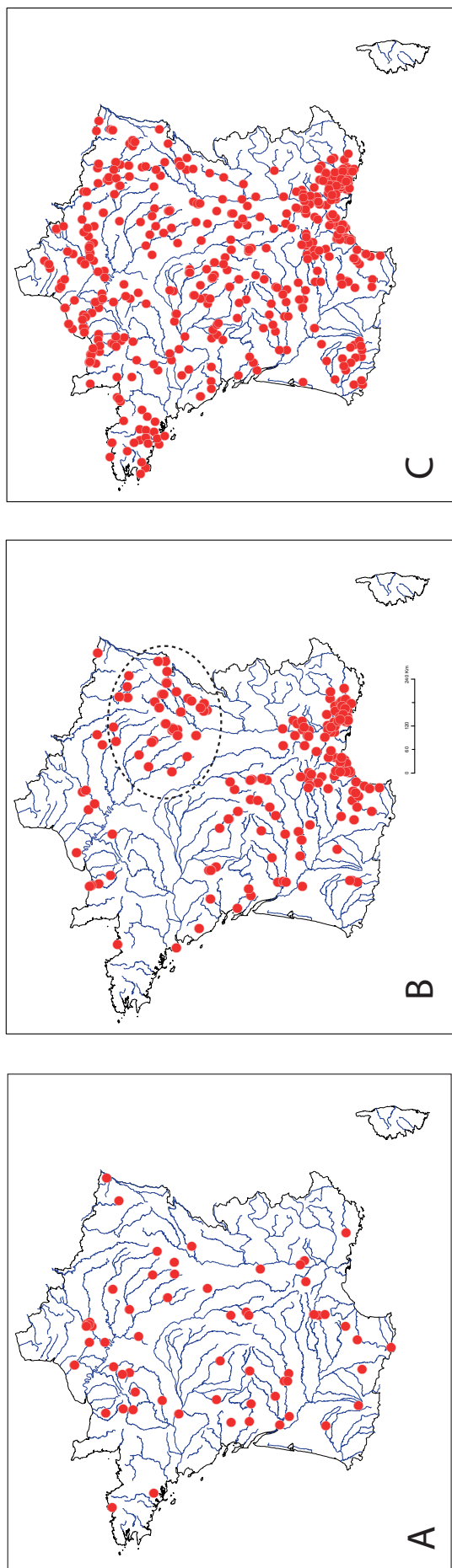


Figure 10.3 The changing pattern of the distribution of ramparts in France in (A) the late Bronze Age, (B) Hallstatt and (C) La Tène (source: O. Buchsensschutz, Basefer, Chronocarto, AOROC, April 2018).

with the rare known settlement sites being located mostly in lowland areas.

### The types of Iron Age ramparts in France

Different types of rampart are known in France and their distribution patterns are related to topography and geology. Ramparts fall into three main types: dry-stone walls, timbered ramparts and dump ramparts. A fourth category that is less well known in France comprises vitrified or calcined ramparts.

#### Dry-stone wall ramparts

In France, dry-stone walls are highly characteristic of the Mediterranean hinterland (Figure 10.4), but the map shows they are also to be found in more northerly parts of the country. Stone was used in the Neolithic and the Bronze Age in regions where the material was naturally available. Between the Neolithic and the Iron Age, there was little change in the way stone was used and it is usually found employed in single, double or multiple facings that improved the wall's cohesion or supported a walkway. For example, in Burgundy at the Châtelet d'Étaules (Côte d'Or), the superimposition of several stone ramparts between the eighth and third centuries BC gave rise to a series of stepped platforms on its inner face (Nicolardot 2003). At its top, the final stage of this rampart is 2 m wide and reinforced by timber beams chocked by stones. On the Mediterranean coast, stone ramparts were built from Neolithic times on. Although some ramparts certainly had Greek influences after the foundation of Marseilles as a colony around 600 BC, even so stone-built fortifications in that region represented a very long-standing regional tradition. Among the most famous examples recently excavated is the rampart of the fortified settlement of Pech Maho (Figure 10.5) examined by Éric Gailledrat (Gailledrat and Beylier 2009; Gailledrat 2014). This site belongs to the Ibero-Languedocian culture that is now well known on both sides of the Pyrenees. The material culture and funerary rites identified on either side of these mountains are very much alike and inscriptions in the Iberian language have been found at Pech Maho. The fortification occupies a small triangular limestone hill standing at 29 m above sea level. This spur is barred by a rampart on its south-western side, enclosing an area of 2 ha. In the Iron Age it stood on the edge of a lagoon which has gradually silted up since that time. Founded around 550 BC, Pech Maho was created *ex nihilo* and soon became the entry point to the

Figure 10.4 Distribution pattern of dry-stone ramparts in France (source: O. Buchsenschutz, Basefer, Chronocarto, AOROC, April 2018).

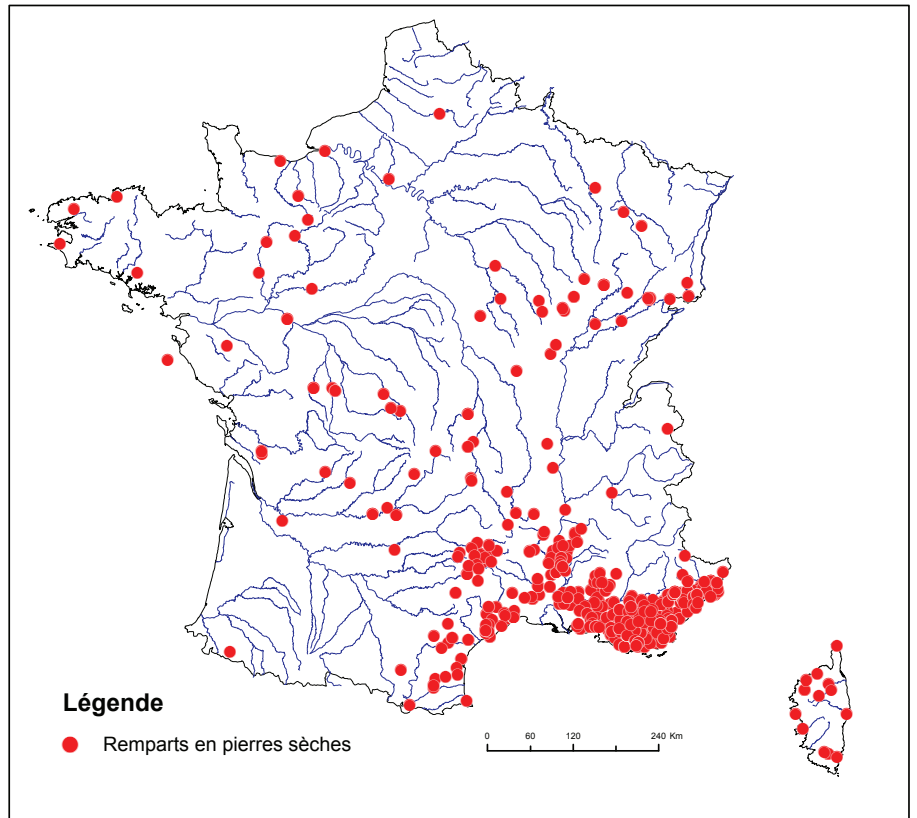


Figure 10.5 Plan of the fortification of Pech Maho beside the R. Berre (Sigean, Aude). Phase III (325/200 BC), ©Eric Gailledrat.



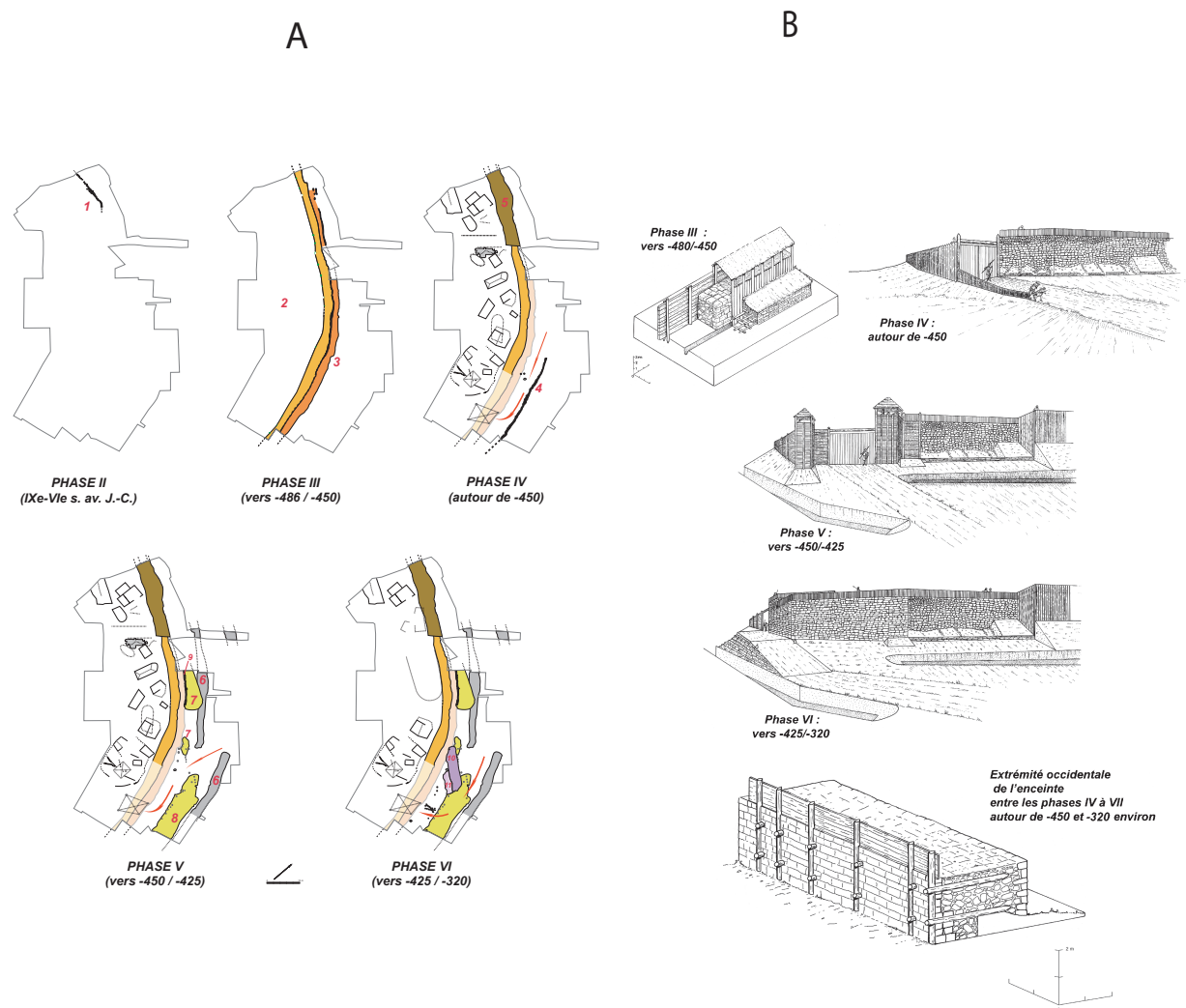


Figure 10.6 Puech de Mus (Aveyron). (A) Plans of the ramparts from phases II to VI. (B) Reconstructions of the successive ramparts. ©Philippe Gruat.

Narbonnais area for Greek, Etruscan, Iberian and Punic goods that were traded via the Gulf of Lions. The site was fortified several times, with towers and a *chevaux de frise*, although these are very different from those found in the Iberian Peninsula. The upright stones of the *chevaux de frise* at Pech Maho are not very high. They are widely spaced and above all they do not protect the main gate (Gailledrat and Moret 2003). Stratigraphic observations suggest the *chevaux de frise* may have been installed in the fourth century (Pech Maho phase 2 or 3) but this is uncertain.

Among the famous *oppida* in southern Gaul, *Ambrussum* is an upland *oppidum* located along the *via Domitia* linking Italy to Spain. The rampart was built in the second half of the fourth century BC and the enclosure incorporates 26 round towers (Fiches 2011; Fiches 1987). Another famous *oppidum* in Provence is that at Saint-Blaise (Arcelin and Cayot 1984). Located near the sea, it was occupied from the sixth century BC;

it comprises an upper and a lower town, surrounded by the initial rampart. The second rampart here, of Hellenistic type, was built around 200 BC.

Moving north we come to the Larzac Plateau set some 75 km back from the Mediterranean. In the department of Aveyron, the *oppidum* of Puech de Mus was excavated from 1995 to 2006 by Philippe Gruat (Gruat 2010; 2009; Gruat et al. 2007; Gruat et al. 2003). Set on the edge of the plateau, the site covers a small area of about 1 ha at an elevation of 842 m. The rampart was reconstructed at least four times (Figure 10.6) and is of a highly original design. The first rampart (erected during phase 3 of the site in the 5th century BC) was composed of two back-to-back walls with a sort of outer cladding made of wood. From phase 4, a rampart laced with internal beams was constructed, associated with an overlapping entrance (*porte en chicane*). This rampart is of the Celtic *Pfostenschlitzmauer* model, that is, a rampart with spaced vertical posts in its outer face. The Puech de

Mus rampart is the most southerly confirmed example with internal timber-lacing. Before this excavation, this type was only known in temperate continental Europe. It remains the only one of its kind today, and represents a half-way house between typical Celtic timbered walls and Mediterranean dry-stone ramparts.

### Timbered ramparts

These are part of a long tradition of continental models that can be traced back to the late Neolithic. Since that period, ramparts have been constructed whose basic element were timber frames as at Moulins-sur-Céphons (Indre) where the *Kastenbau* box-type fortification (Duval and Buchsenschutz 1979) was probably the work of the Atenacians, a culture of builders of long houses and complex ramparts found in western central France (Krausz 2016: 199–202). These constructions belong to the diverse series that includes walls built of different materials, timber, stone and earth. Ian Ralston explains that timber-framed or -laced walls first appeared in the Neolithic period and diversified in temperate Iron Age

Europe (Ralston 2006: 49). The *Kastenbau* type, which forms a wall of timber and earth, is known at the late Bronze Age site of Wittnauer Horn in Switzerland and for the Iron Age at Biskupin in Poland. This type of model is the forerunner of the timber-laced rampart and it may be the ancestor of the *murus gallicus* that was to be highly successful in continental Europe in the late Iron Age. There are many variants on timbered ramparts in the Celtic world, from temperate Europe to the Iberian Peninsula (Figure 10.7); with internal horizontal beams and stone cladding on its internal and external faces (Ehrang type), a sloping ramp to the rear (*murus gallicus*) or spaced posts in the external wall face (*Pfostenschlitzmauer*). Among these models of ramparts, many regional types are found that may be related to the availability of natural resources of stone and timber or to cultural preferences.

In France today 59 *muri gallici* have been identified, spread across the northern three-quarters of the country (Figure 10.8a). The two main types of timbered ramparts display a particularly clear regional pattern

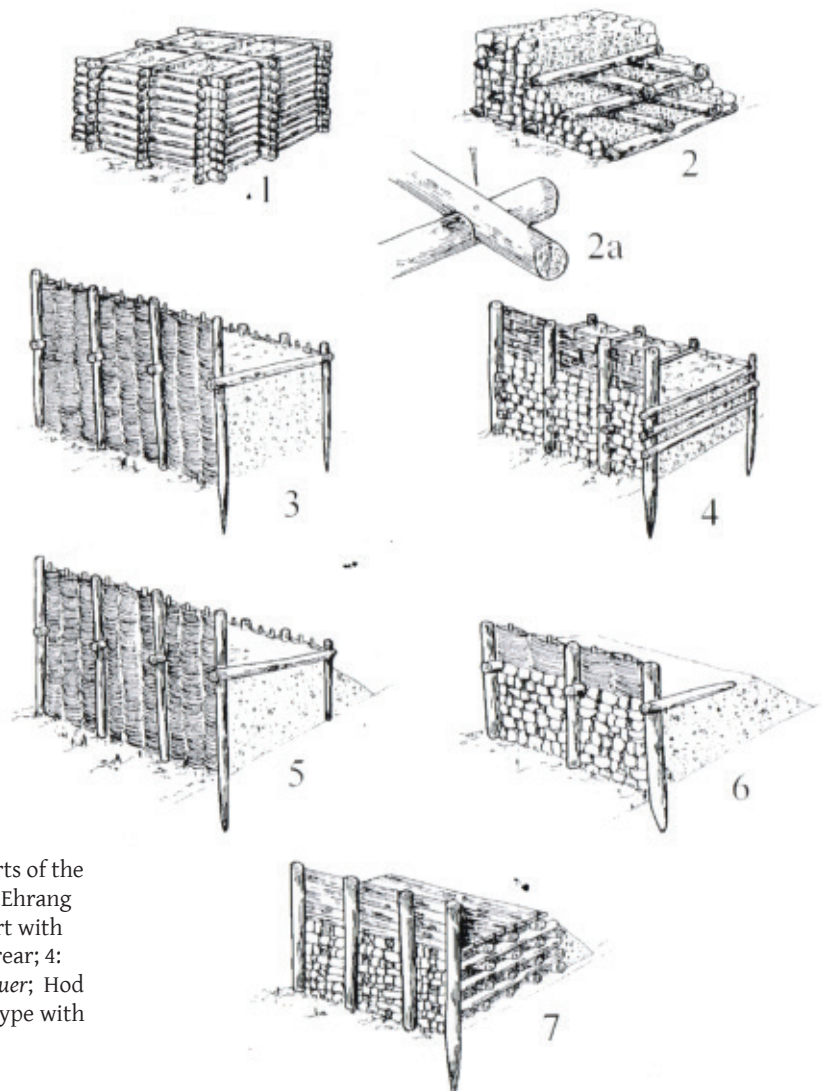


Figure 10.7 Models of timbered ramparts of the Iron Age in Europe: *Kastenbau* type; 2: Ehrang type; 2a: *Murus gallicus*; 3: box rampart with earthfast vertical timbers front and rear; 4: Altkönig-Preist type or *Pfostenschlitzmauer*; Hod Hill variant; 6: Kelheim type; 7: mixed type with timber-framing and -lacing. (source: Ralston 2006, 49).

A

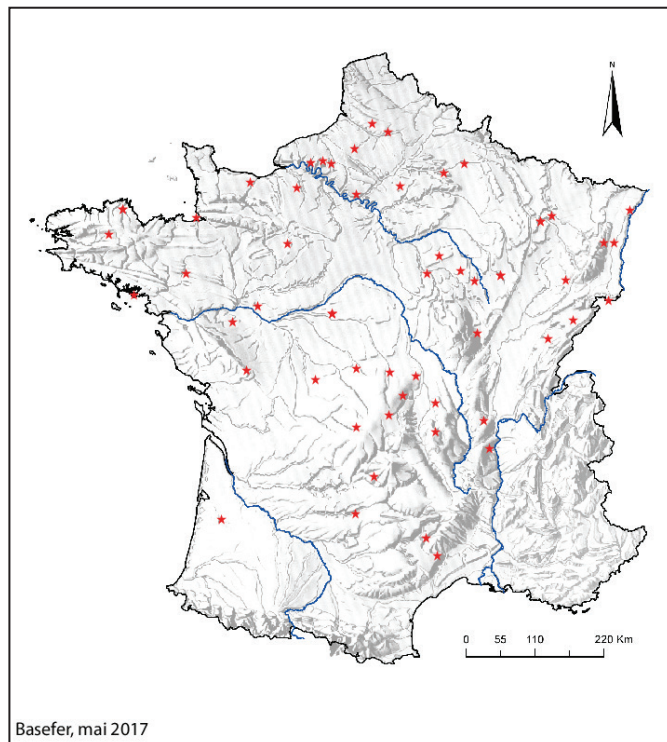
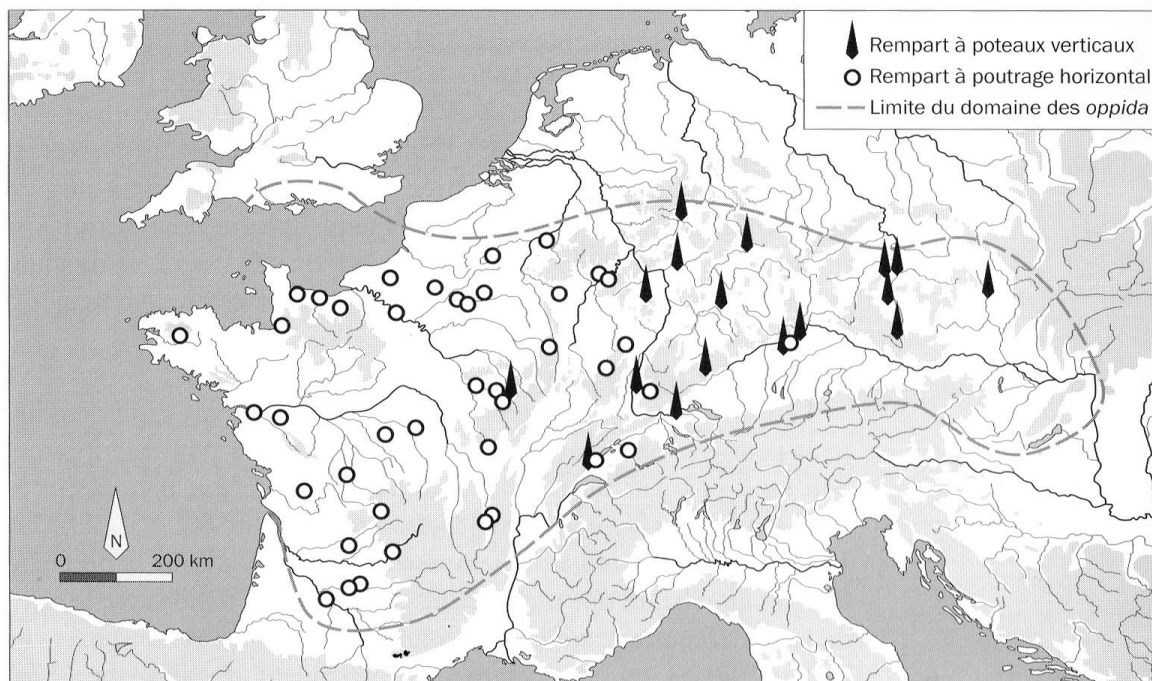


Figure 10.8 The distribution of timbered ramparts in France.

(A) *muri gallici* (source: O. Buchenschutz, Basefer, Chronocarto, AOROC, May 2017). (B) ramparts with horizontal timbers (open circles) and vertical posts (filled lozenges) (source: Fichtl 2005, 49).

B



(Figure 10.8b): the *murus gallicus*, which only deployed horizontal timber-lacing, was built throughout much of France, from the west to the centre, while *Pfostenschlitzmauer*-style walls with upright posts in the external wall-face are clearly concentrated in the east of the country. The *murus gallicus* is the emblematic

rampart of the late Iron Age, partly because it was widespread and partly because it was commented on by Julius Caesar who gave a detailed description of it in the course of the siege of *Avaricum* (*de Bello Gallico*, VII: 23). It is a model of rampart that came with many variants and which was successful in much of temperate Europe

from the late second century BC to the beginning of Roman times. Many authors have claimed that ramparts with internal beams were militarily mediocre, especially the *murus gallicus*. They do have a number of flaws or weaknesses such as being only 4 to 6 m high, and generally lack a ditch in front of them. As well as not being high walls, they were complex to build because they required multiple materials (timber, earth, stone) supplemented by several tens of thousands of iron spikes that would have meant a tremendous collective investment (Buchenschutz and Ralston 2014). Their ostentatious character has often been pointed out and the presence of very wide gates that were difficult to defend as at Bibracte is a feature of some examples. And yet some *muri gallici* had very elaborate defensive gates such as the long inturned passages called *Zangentore*. Similarly, while the presence of towers is only attested in rare instances as at Mont-Vully in Switzerland (Kaenel and Curdy 2010), such basic military features must have been very common.

Some *muri gallici* are famous, like that at Bourges (*Avaricum*) which Caesar went to the trouble of describing (BG,VII, 23), although archaeologists have not yet found any trace of it within the present-day city. By contrast, that of the oppidum of *Alesia* in Burgundy, the site of the famous siege of autumn 52 BC,

was excavated by Anne Colin in 1986 (Colin 2010). The square apertures for the beam-ends are clearly visible in the carefully constructed outer cladding (Figure 10.9). Vercingetorix and his army may have been protected by a *murus gallicus* at *Alesia*, but it was not this one! The excavations led by Anne Colin showed that this rampart was built between the late first century BC and the first third of the first century AD. If there was a *murus gallicus* at *Alesia* when Caesar besieged it, it was another example; this one was reconstructed after the Roman conquest, although the model used was clearly part of the Gaulish heritage and tradition of the Celts.

Again in Burgundy, the rampart of Mont-Beuvray was built by the *Aedui* for their capital of *Bibracte*. The enclosure is bounded by two successive fortifications. The outer rampart A is probably the older one and encloses 200 ha. Rampart B (the inner one) is continuous over a length of 5.25 km and encloses 135 ha (Figure 10.10). Fifteen gates allow entry through the two walls and are of two types: *Zangentore* and overlapping (*porte en chicane*) gates. Both ramparts are of the *murus gallicus* type and one of the main entrances was excavated by Olivier Buchenschutz, Jean-Paul Guillaumet and Ian Ralston between 1984 and 1996 (Figure 10.11) (Buchenschutz et al. 1999). The Rebout entrance is of *Zangentor* type, an imposing entry point



Figure 10.9 Excavation of the *murus gallicus* of *Alesia*: the external wall-face showing beam-holes (Photo: Anne Colin).

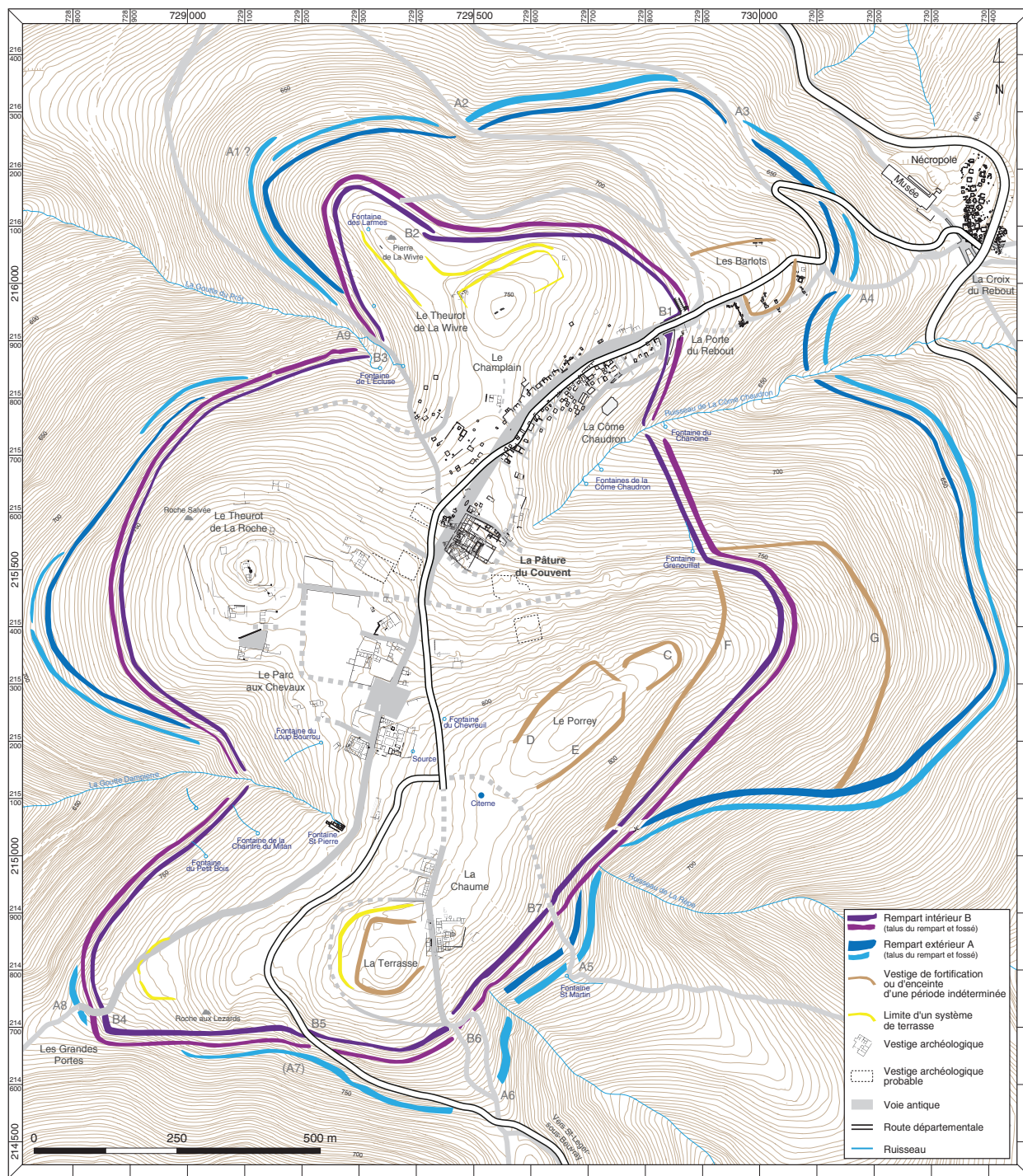


Figure 10.10 General plan of the oppidum of Bibracte with the main lines of the fortifications, A (external) and B (internal), and gates (source: DAO A. Meunier © Bibracte).

at least 24 m long located in the north-eastern part of the inner enclosure. It has a distinctively monumental appearance, composed of two bastions some 20 m apart. This ambitious excavation explored an area of nearly 1500 sq m. Something never attempted before ... or since!

A number of ramparts have recently been excavated in France, in particular that of Pons (Charente-Maritime)

explored in 2009 by Guilhem Landreau of INRAP (Houdusse and Landreau 2010; Landreau 2012). Pons was one of the largest oppida in western Gaul with a rampart enclosing an area of 100 ha. Rescue excavations showed that this rampart was reconstructed several times (Figure 10.12): the first rampart was erected between 120 and 90 BC and was a variant of the Ehrang type with two vertical stone facings, one on the inside and one on the outside. The core of the rampart is composed



Figure 10.11 The Rebout gate at Bibracte.  
Upper: reconstruction of the Rebout  
*Zangentor*. Lower: excavation of the  
northern bastion of the Rebout gate  
(Photos A. Mailler © Bibracte).

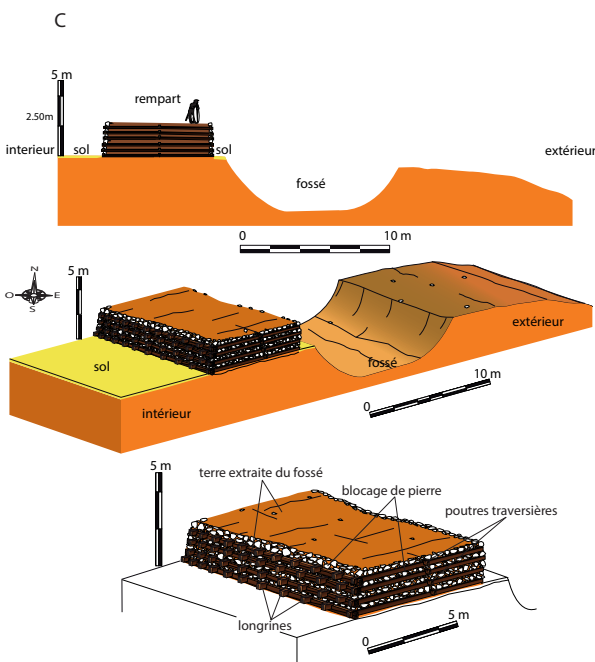
of a mass of clay and stone, reinforced by horizontal timber-lacing. The second rampart converted this one into a *murus gallicus* as is indicated by the large iron nails discovered.

The most recently excavated *murus gallicus* in France was explored at Moulay in Mayenne by Elven Le Goff of

INRAP in 2010. It is the westernmost of the *muri gallici* known in France today (Le Goff 2016: 126). Two ramparts were built to cut off the promontory (Figure 10.13): a *murus gallicus* to the north, isolating an area of 135 ha (Petit Mesnil rampart) and an inner rampart (delimiting the smaller, Bourg enclosure). It has not been proved that the two ramparts were contemporaneous and the second might be a massive dump rampart forming an



Figure 10.12 The rampart of the oppidum at Pons (Charente-Maritime): A and B, showing location of former horizontal timbers set in the internal wall-face; C, reconstruction drawing of the wall and ditch (source: A: photo G. Landreau, INRAP; B: photo B. Houdusse; C: F. Bambagioni, INRAP).



inner enclosure or a military redoubt. As for the outer rampart, it runs for 1200 m and links the valleys that flank the promontory on each side. It is a *murus gallicus* with spaced vertical posts in its external vertical face, thus forming a mixed model between the classical *murus gallicus* and the *Pfostenschlitzmauer* type.

Most of the *muri gallici* mentioned in this paper are very elaborate large ramparts that fortified capitals of the *civitates* of Gaul. This model of a prestigious rampart was chosen by the designers of *oppida* for its aesthetic and monumental character and it was well adapted to the economic, social and political supremacy embodied by the capitals of the Gaulish states (Krausz 2016: Ch. IV). But the *murus gallicus* was not exclusive to those capitals or indeed to large *oppida*. In 1999, Olivier Buchsenschutz excavated the ramparts of three small sites in Berry, Meunet-Planches (Indre), Luant (Indre) and La Groutte (Cher) (Figure 10.19 below). He discovered that all three had *muri gallici*. These small sites were not *oppida*, but farmsteads or aristocratic residences (Buchsenschutz et al. 2010). Luant and Meunet-Planches are very small

enclosures of just 1.5 ha (Figure 10.14 upper and lower). Their *muri gallici* are similar in all regards to those of the great *oppida* and Luant even has a *Zangentor*. This discovery showed that the *murus gallicus* was not reserved for capitals or major towns. It is a model that was fashionable throughout much of Europe in the first century BC. It was used to fortify various types of sites, small and large without distinction as to their political standing. This observation is confirmed by a major discovery at Bibracte (site PC15) in 2016. Philippe Barral and his team discovered a *murus gallicus* that is not a free-standing rampart but the underpinning of a terrace (Guichard 2017: 205–270). In constructing the wall, the builders used the *murus gallicus* technique with beams, large iron nails and an outer stone cladding.

**Vitrified ramparts**

Calcined or vitrified ramparts are a miscellaneous category and raise numerous technological and chronological problems. They were widespread in Europe from Sweden to Portugal and of varied types



Figure 10.13 The *oppidum* of Moulay (Mayenne). A: General topographical plan of the *oppidum* of Moulay (Excavation E. Le Goff © Inrap, E. Bourhis); B: reconstruction of the external Petit Mesnil rampart (after Le Goff, 2016, 126); C and D: aerial views of the excavation of the Petit Mesnil rampart (Excavation E. Le Goff © Inrap, G. Leroux).

depending on the materials of which they were composed. In France, vitrified ramparts are known in the crystalline areas of the ancient mountain ranges from Brittany to Alsace (Figure 10.15) (Ralston 2006: 143-163). The distribution shows a particularly high concentration in the Limousin, Allier and Loire regions. Few such ramparts have been excavated in France and the absence of precise data complicates interpretation of them. Although current data are imprecise, it seems that vitrified ramparts date from the early Iron Age, as for example at Le Camp d’Affrique at Messein in Lorraine (Ploquin et al. 1993) or the rampart at Bègues in the Auvergne which is tentatively dated to Hallstatt D (Vernioles 2007).

### The massive dump rampart: the ultimate Celtic model

The massive dump rampart is a bank of earth or stone with many variants, the archetype being the Fécamp type rampart, in front of which is a wide flat-bottomed ditch, defined by Mortimer Wheeler and Katherine Richardson in 1957 (Wheeler and Richardson 1957). Stone banks are common in the British Isles, being low but grouped in multivallate systems as at Maiden Castle (Wheeler 1943). Multivallation is rare in France and is found in a small series of Armorican sites, for example in Finistère where Wheeler drew attention to similarities with enclosed sites in Britain. Ian Ralston has shown that massive dump ramparts occur throughout Celtic Europe but in France two main areas of concentration are apparent (Figure 10.16): one in north-eastern France around the Seine valley and the other in central

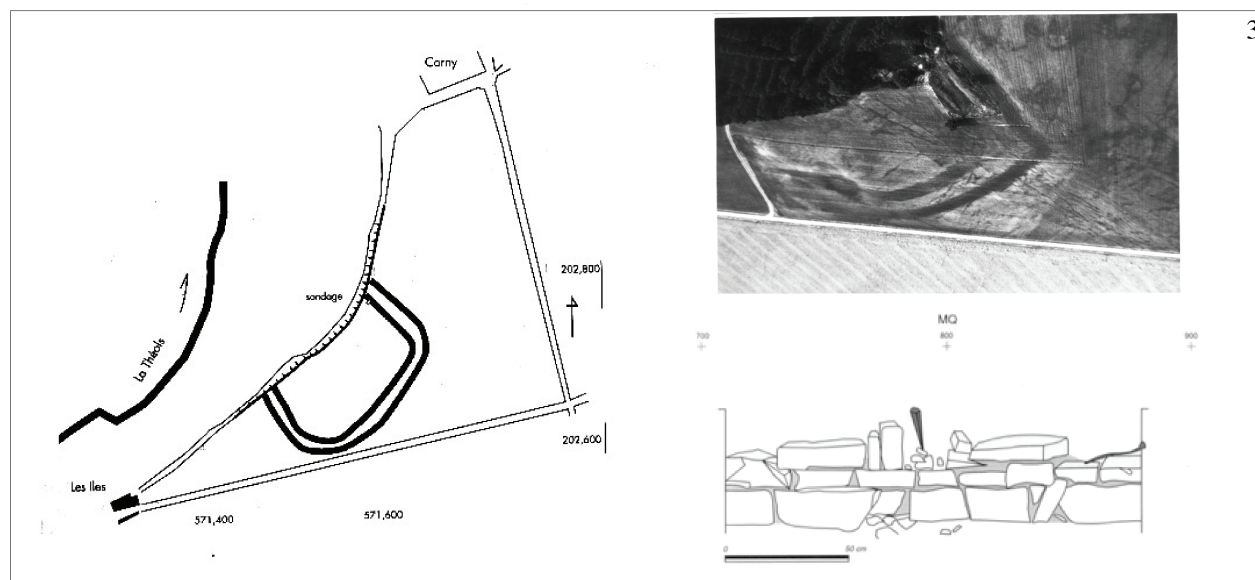
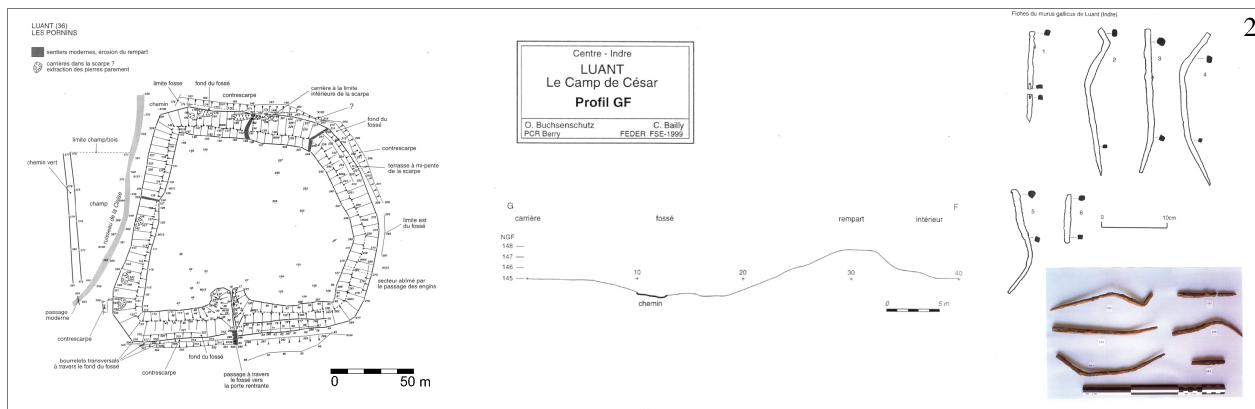


Figure 10.14. upper - Luant, Camp de César (Indre), plan of the fortification, profile and iron nails (source: O. Buchsenschutz). lower - Meunet-Planches, Camp de Corny, plan of the two ramparts/ditches (source: O. Buchsenschutz), aerial photograph (source: D. Jalmain, 1976) and surviving wall-face with iron nail.

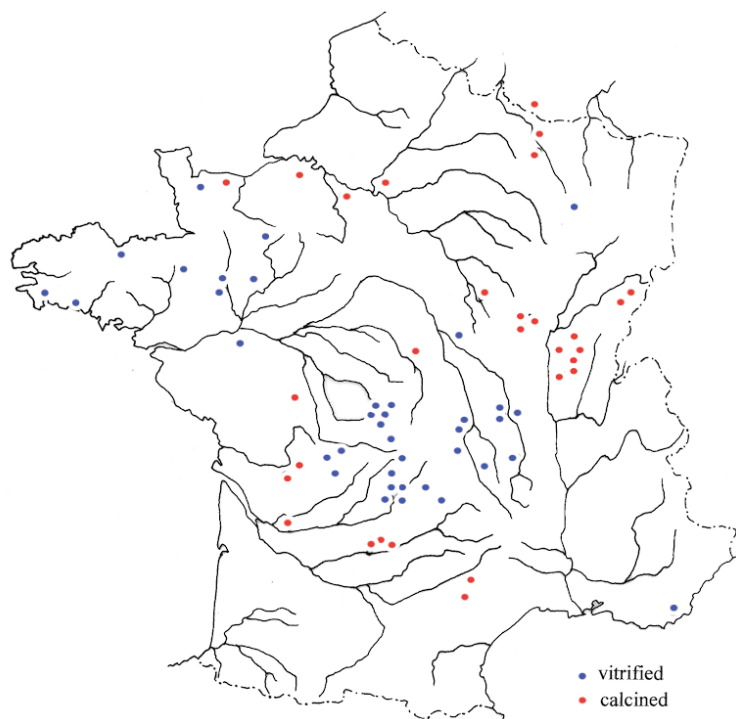


Figure 10.15: The distribution of vitrified (blue dots) and calcined (red dots) ramparts in France (source: Ralston 2006, 145).

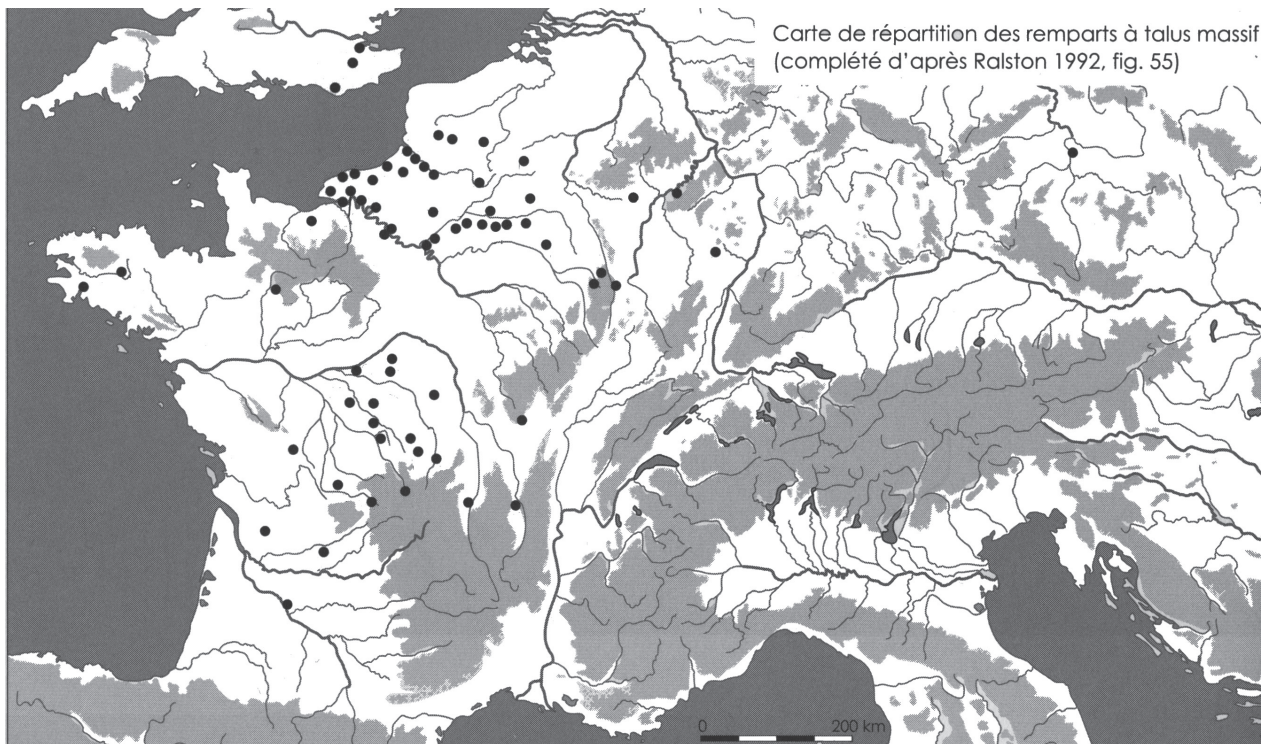


Figure 10.16 The distribution of massive dump ramparts in France (source: Fichtl 2010, 326 updated from Ralston 1992).

France. The highest banks are to be found in the cluster in central France, in Berry and Limousin, some of them exceeding 10 m. There are usually ditches in front of them, generally flat-bottomed ditches. But at Bourges an enormous V-shaped ditch had been excavated in the late Iron Age; it now lies beneath the present-day town hall, Figure 10.17 (Krausz and Ralston 2009). This ditch is all that remains of a massive dump rampart which has disappeared through later developments. Reconstructing it involves calculating the number of cubic metres of sediment extracted per linear metre of ditch.<sup>3</sup> This reveals that the ditches of Bourges and of Châteaumeillant (considered below) yielded similar volumes per linear metre (Figure 10.18), suggesting that the accompanying banks were of the same height in both cases (Krausz 2014). Comparison of these two *oppida* shows that the shape of the ditch depends upon the topography of the site. In Bourges, there was not enough space for a ditch more than 25 m wide whereas there were no such constraint at Châteaumeillant. What mattered in the end was the height of the bank; the shape of the ditch does not seem to have been a priority. Lastly, massive dump ramparts seem to have been ramparts designed principally to block the easiest access to a site, unlike most of the *muri gallici*. This difference is probably related to their strictly defensive

function and the urgent need for protection of the weakest points at the moment they were built.

#### ***The massive dump rampart at Châteaumeillant***

Châteaumeillant (Figure 10.19.4) was one of the main *oppida* of the *Bituriges*, towards the southern limit of their territory on the edge of the Massif Central. Châteaumeillant has the highest surviving rampart in central France, still standing to 12 m in places. This *oppidum* is built on a low promontory that rises to 10 m at most above its surroundings. Its Latin name *Mediolanum*, meaning ‘in the middle of the plain’, may be related to its situation between two near-parallel rivers (Figure 10.20). The promontory itself covers an area of 60 ha, but the fortification encloses just 24 ha at the southern end of the plateau. The site was excavated in the nineteenth century, and again in the 1950s and 1960s. In 2001, the writer resumed excavations at the fortifications and the Gallic settlement (Krausz 2009). Massive dump ramparts are unusual in that they combine two inseparable elements: a huge bank and a very large ditch. The bank is usually made up of the material dug out from the ditch, the rampart is therefore the positive counterpart of the excavated ditch.

At Châteaumeillant, excavation of the ditch in 2002 revealed that it was 3 m deep, 45 m wide, and that it had a flat bottom, Figure 10.21 (Krausz 2007). The rampart now stands to a height of 10–12 m, but as it

<sup>3</sup> At Bourges the v-shaped ditch is 25 m wide by 10 m deep. At Châteaumeillant, excavation of the ditch in 2002 showed it was 45 m wide and 3 m deep, with a flat bottom.

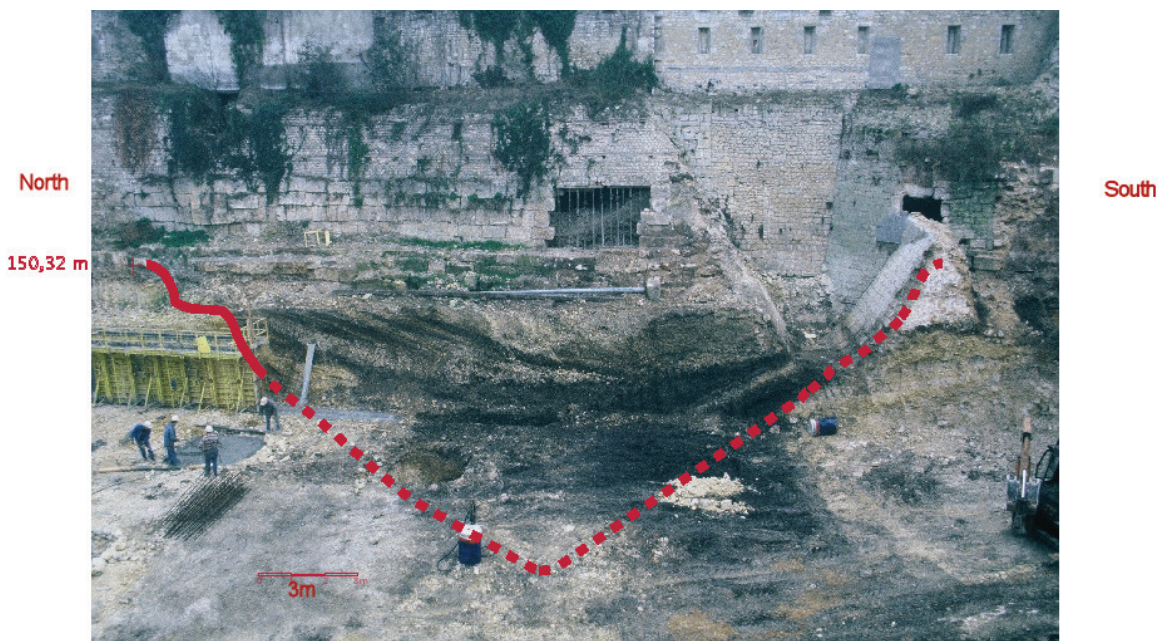
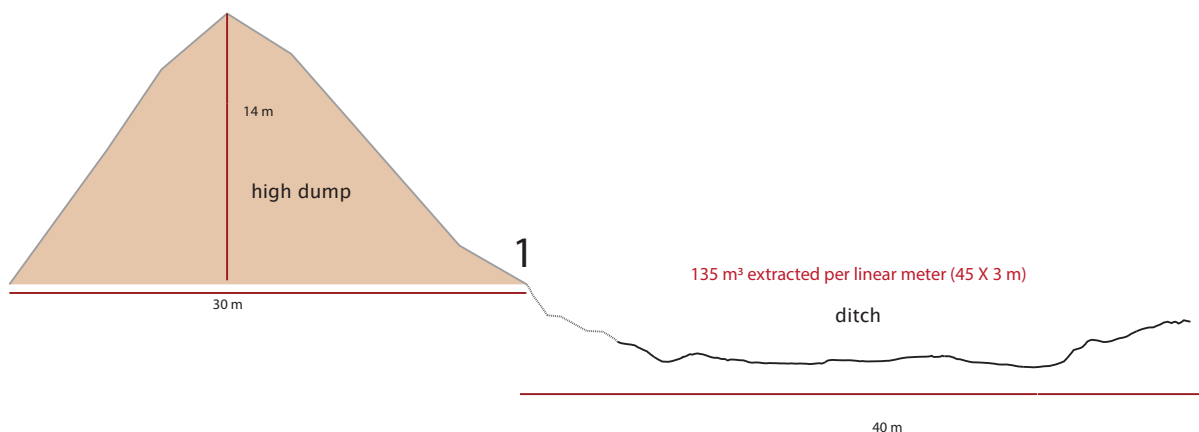


Figure 10.17 Reconstructed profile of the ditch at the top of rue Moyenne in Bourges (Cher). Solid line: the profile surveyed in 1987 (source: J. Troadec 1987). Dashed line: proposed southern slope (graphical reconstruction: author). Photo: J. Troadec, 1987.

1. Châteaumeillant-Mediolanum



2. Bourges-Avaricum

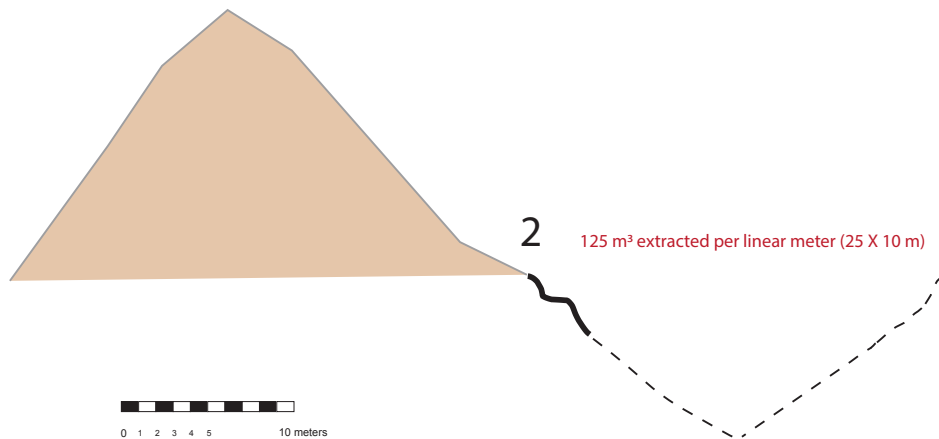


Figure 10.18 Reconstructed profiles of massive dump ramparts with their ditches at (1) Châteaumeillant and (2) as proposed at Bourges (source: author).

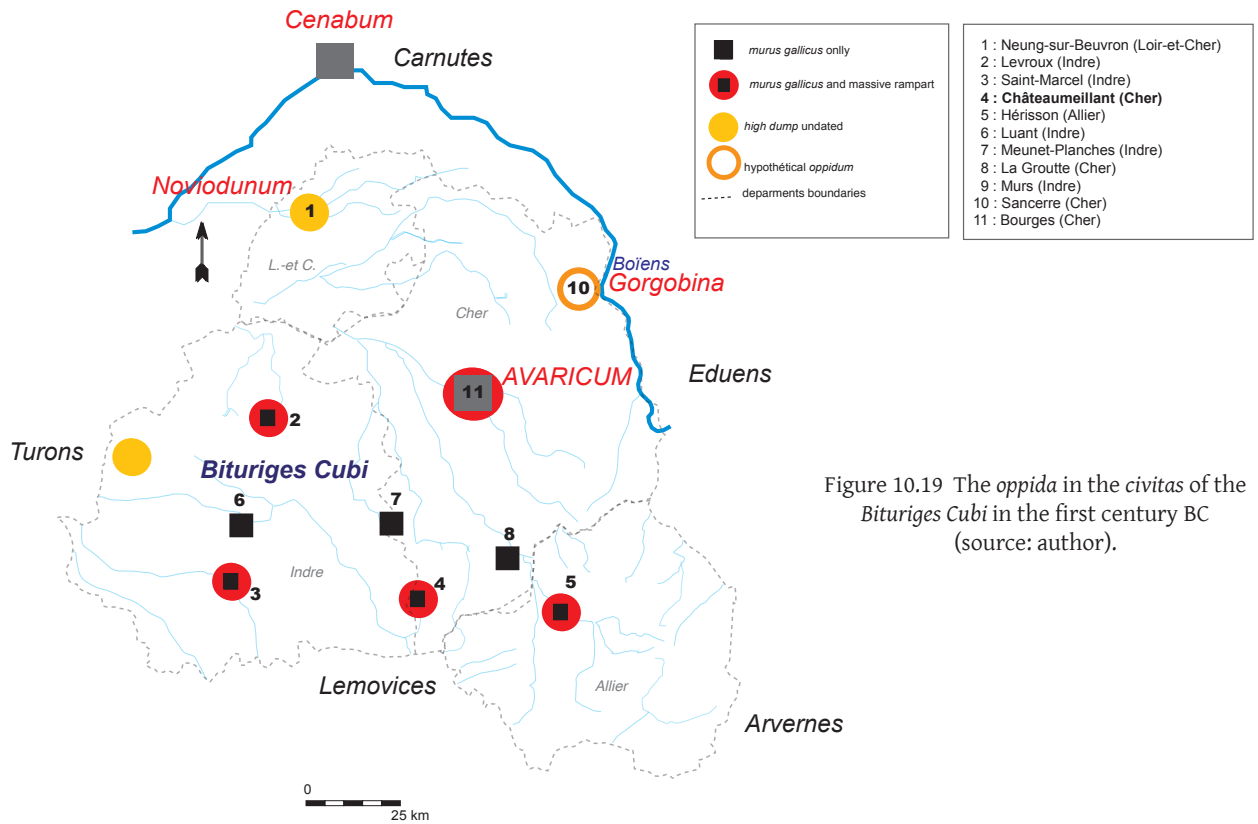


Figure 10.19 The oppida in the civitas of the Bituriges Cubi in the first century BC (source: author).

has been eroded a little, it could well have been 14 or 15 m high originally. If there had been a parapet along the top, this would have added an extra 2 m, making this earthwork 16 or 17 m in all! Unlike stone ramparts which have vertical walls, earth ramparts slope at the front so that siege machines were kept at a distance. As it was made of earth, the rampart could not be set on fire or undermined to make it collapse: the classical Roman tactics of sapping and firing were therefore useless against this type of defence. As for the ditch, the analysis of its fill shows that it was marshy. Being supplied at that time with water from one of the two rivers that flowed on either side of the oppidum, the ditch could have been wet or muddy for all or part of the year. The resultant marsh would have made it impossible for an approaching army to gauge the depth of the ditch. In addition, a water-filled moat 10 m wide and 4 m deep in the outer part of the ditch provided an extra obstacle; it too was probably supplied by one of the rivers. This very large defensive ditch would have been a particularly effective impediment not just against siege machinery but also against infantry and cavalry (Figure 10.22). Even if the attackers managed to cross it, we then have to imagine a wall of earth nearly 16 m high looming over them (or in fact some 19 m from the bottom of the ditch!). In the territory of the Bituriges, all the examples of *muris gallicus* ramparts at the main oppida, as at Châteaumeillant, are covered by massive dump ramparts (Krausz 2014; 2018). This seems

to have been a systematic and deliberate architectural development to counter Roman siegecraft.

Having a *muris gallicus* inside a massive dump rampart presented considerable military advantages:

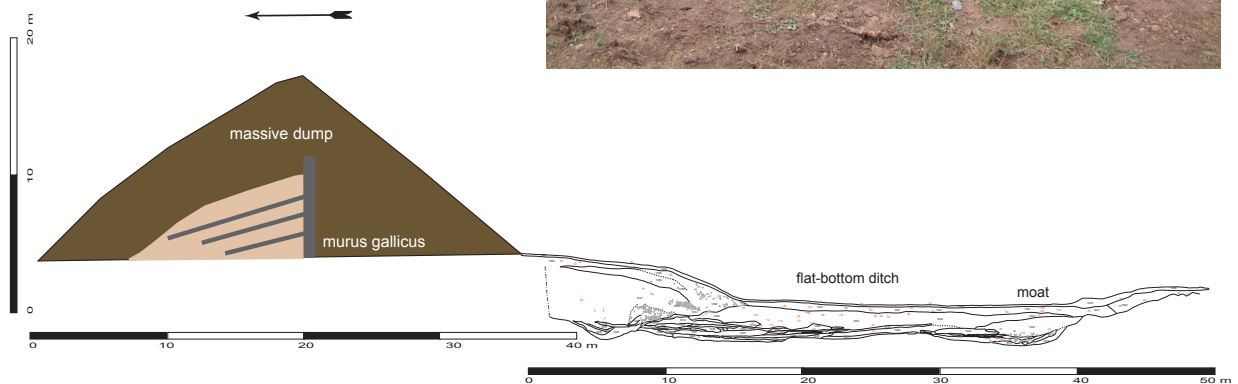
- First, there was already a solid core in place, meaning less material had to be moved to form the massive dump rampart.
- Next, the massive bank repaired and camouflaged old ramparts, built 50 to 70 years earlier, the beams of which may have rotted and the wall facing slipped away.
- From a military perspective, it can be considered that the massive bank both supplemented and is a development of the *muris gallicus*.

The masonry core formed by the *muris gallicus* would have played a key role inside the embankment by solidifying it, which is especially important for an earth rampart. While the earthwork could not be set alight, it could be undermined either at its base or part way up. The masonry core also formed an effective anti-mining device. Too few massive dump ramparts have been excavated for the exact composition of the rampart materials to be understood, whether at their core or on their inner and outer slopes. In most cases, it is not known how the slopes of the bank were constructed, but it is likely they were not just piles of earth. Some



Figure 10.20 The extent of the oppidum of Châteaumeillant-Mediolanum (Cher) and the proposed lines of the *murus gallicus* and the dump rampart (source: author).

Figure 10.21 The rampart and ditch at Châteaumeillant (Cher). Excavation across the wide flat-bottomed ditch; reconstruction of the flat-bottomed ditch and the rampart (source: author).



examples, such as the rampart at *Bibracte*, suggest that the outer slopes of the earthwork which contained the successive *muri gallici* were covered with cobbles or stones, forming an anti-mining device much like a tortoise shell (Buchenschutz et al. 1999: 257).

This sequence is exactly what has been observed at several ramparts in Berry, and in 2018 in the section through the massive dump rampart at Châteaumeillant. The *murus gallicus* of Châteaumeillant was identified in 1957 and seen again in 2018. The massive dump rampart (Figures 10.23 and 10.24) was made up of three separate parts: a central core, outer cladding and the rear ramp. The central core, a bank of orangey-red clay, was built over the *murus gallicus*. This clay came from the upper layers excavated in the ditch. This bank forms a highly compact and homogenous core; the clay is pure and is not mixed with other materials. The outer cladding consists of a series of grey clay layers, which were placed

against the outer surface of the central core. Some of these layers have varying contents which include mica-schists that are either crushed or form small pebbles. The accompanying clays were derived from the deeper layers of the subsoil at Châteaumeillant. They form a highly compact and dense outer shell, which the writer interprets as a sort of external armour-plating enhancing the defensive strength of the rampart. It proved hard during the excavation to penetrate these highly compact layers with digging tools. They are made up of a variety of sediments and several sorts of crushed and ground rock; and so this structure is thus by no means just a heap of earth but rather a mixture of carefully selected geological resources customized to provide the resultant structure with specific properties.

Thirdly, the rear ramp: as was the case with the external glacis, this is an embankment which rested against the central core, this time on its inner side towards the

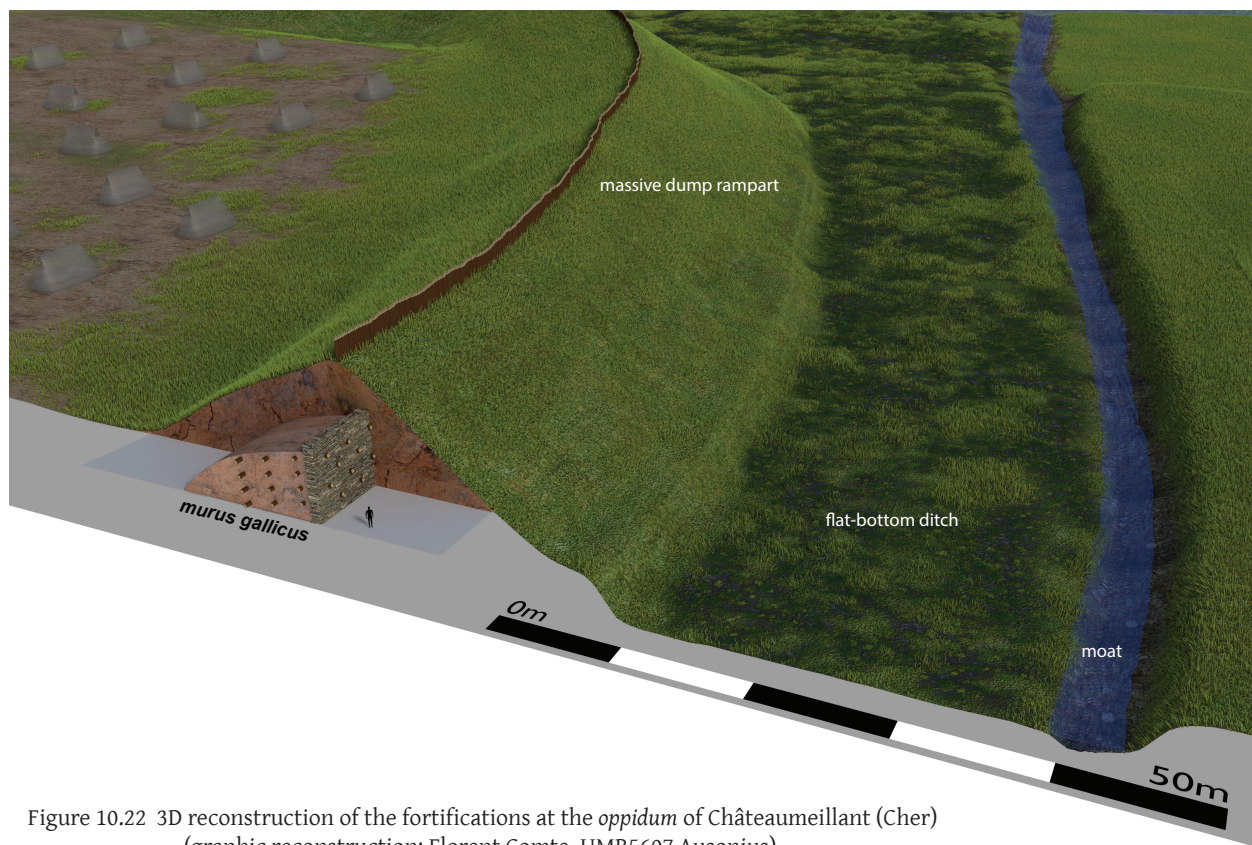


Figure 10.22 3D reconstruction of the fortifications at the oppidum of Châteaumeillant (Cher) (graphic reconstruction: Florent Comte, UMR5607 Ausonius).



Figure 10.23 Excavation of the massive dump rampart of Châteaumeillant in July 2016 (photo Marion Bouchet).



Figure 10.24 The rampart at Châteaumeillant during excavation, July 2018 (drone photo: Bernard-Noël Chagny).

*oppidum*. This embankment is made up exclusively of a mass of crushed mica-schist, which is not mixed with clay. This blue-green layer is therefore made up solely of ground rock. It is compact but seems less dense than the external cladding. This embankment forms the access ramp at the rear of the rampart, which would have been used for circulation and for climbing quickly to the top of the rampart.

These latest observations show that the massive dump rampart of Châteaumeillant was a complex structure and far more than just a mound of earth. It is a technological construction made up of several components with specific functions, and the external glacis in particular seems to have been the more elaborately engineered. It forms the armour plating, the defensive shell of the rampart. The section dug in 2018 seems to show that the monument is perfectly and fully conserved in its primary form.

### Conclusion

I have endeavoured in this round-up to highlight the main models of ramparts in Iron Age France, drawing attention to the known contrasts between the Mediterranean south and the northern part of the country, and considering the cultural influences

that these monuments enable us to address in the archaeological study of settlements. Ramparts have been built since the early Neolithic in France, but some periods, such as the early and middle Bronze Age, do not seem to have been phases of active fortification construction. Conversely, the significant increase in the number of ramparts from the end of the Bronze Age reveals a need to protect settlements. Over the course of time, fortification was not a continuous phenomenon and it often remains associated with socio-political contexts or historical events about which we remain largely ignorant.

Accordingly, we cannot explain why fortifications were rare in some areas or phases within the Iron Age or even disappeared from most regions of France in the fourth and third centuries BC. In any event, the first century BC oppida and their fortifications are the best known today. For the major urban sites, the most common ramparts were of the timbered model, mostly *muri gallici*, with several regional variants. They were built some fifty years before the Gallic Wars and their exact purpose is still unclear, lying somewhere between a show of power and defensive capability. Massive dump ramparts for their part were truly for war and those of the *Bituriges* seem to have been designed specifically to counter Roman siegecraft. They were to be the last

ramparts invented by Iron Age architects in Gaul, and are testimony to the know-how of Gallic engineers in fighting effectively against siege machinery.

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