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An integrative approach for an integrated exploitation of natural resources: *villae* and karstic environment around Banassac (France) in the Roman period

In order to shed light on the status and economic model of Banassac's Early Empire *terra sigillata* workshop, systematic surveys were carried out on the karstic terrain of the area surrounding the town. Due to a shortage of sources, the project was carried out as an integrative 'community archaeology' project, from the definition of the scope of research to the drawing of conclusions and consideration of results. With the synthesis of settlement dynamics from the Mesolithic times to the Middle Ages provided by the study and precise data about occupied sites in Roman times (38 *villae* and 55 workshops), it is now possible to see at Banassac a *villa* controlling a *fundus* through an integrated economic system linking clay, pitch and iron.

Banassac; terra sigillata; villa; survey; community archaeology; integrative economic system.

1 Introduction

Known to be one of multiple *terra sigillata* workshops in South Gaul, like La Graufesenque and Le Rozier, Banassac's workshop developed into a very large-scale producer of ceramics[1] between AD 110 and 160.[2] Excavation at the site, specifically that part containing the pottery workshops, the baths of a *villa*[3] and a tomb,[4] began in the 1960s.[5] Referred to in the relevant literature[6] as a secondary agglomeration of the Early Empire, Banassac was thought to have been founded by potters from La Graufesenque.[7]

Data on the tools, workshops, rubbish heaps and typology for this ancient site were well published, but there had been no attempt made to synthesize information on the surrounding landscape, the economic model of production, the exploitation of other natural resources and the settlement pattern before and after the period of greatest activity in the ceramic workshops. The project's aim was to depict the archaeological context of Banassac, to allow a better understanding of how and why the workshops became part of in the indigenous context of the Gabali people there during the decline of the *terra sigillata* workshops of La Graufesenque.

1 Hofmann 1986; Hofmann 1988, 157; Trintignac (unpublished), 123–127 and 144–168; Trintignac 2001, 223.
2 Mees 1995, 55; Gabler, Marton, and Gauthier 2007, 205; Polak 2000, 400; Gabler 2002, 230; Trintignac 2001, 222.
3 Balmelle 1937, 11; Genty 1986, 10; Fabrié 1989, 49–52; Trintignac 2001, 225; Trintignac 2012, 122.
4 Feugère and Gros 1996, 305; Trintignac 2001, 225; Genty 1986, 12.
5 Hofmann 1963, 62; Hofmann 1976, 417; Hofmann 1988, 150.
6 Chardonnet and Fages 1988, 19; Fiches 2002; Baret 2013, 35.
7 Polak 1993, 49; Hofmann 1986, 109; Hofmann 1988, 151.

References to sites associated with the production of pine pitch and with iron,[8] of the possible relation between ceramics and pine pitch,[9] to evidence of pitch storage in *villae,*[10] of *villae* basing their wealth on timber[11] and of the absence of any obvious evidence of an Early Empire agglomeration[12] led us to reconsider the question. The possibility that the workshop at Banassac was controlled by a *villa,* and of the use of an integrative economic model, along the lines of that associated with iron and pitch production in the Pyrenees,[13] led to a new reading of old data and inspired a survey of a wide area surrounding the site, encompassing 12,000 hectares of forest and moorland lying between valley and plateau.

The area surveyed had to be both representative of the environment (plateau and valley) and clearly delimited by modern administrative boundaries due to scientific and administrative considerations, respectively; this led to the selection of a survey area encompassing the entire Banassac and La Canourgue area,[14] which lies between 520 and 950 meters above sea level in the French Massif Central(Fig. 1).

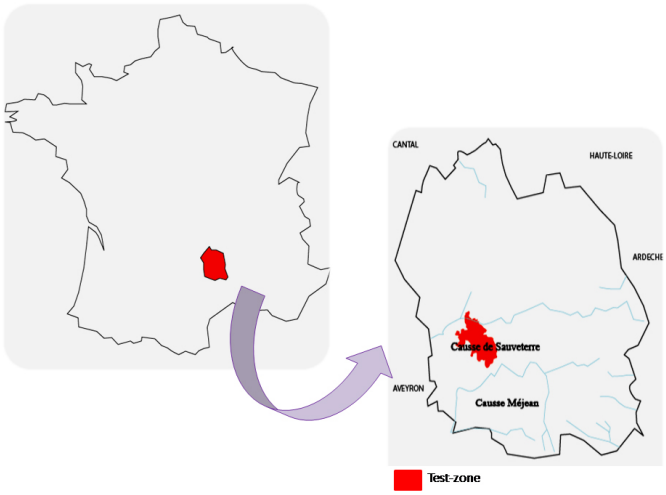

Fig. 1 | The area surveyed around Banassac.

To produce a comprehensive overview of human settlement in the area, we chose to start by compiling a list of archaeological sites in the area from prehistoric periods through to the Middle Ages. The traditional archaeological method consists of analyzing all available written sources in order to build a *corpus*, conducting field surveys to verify data and identify 'new' sites, reviewing related artifacts held in public and private collections, and creating and using a database shed light on historical questions.

The chief problem that arose early on in the research was a lack of sources: although numerous documents refer to Banassac's workshops, they essentially concern the ceramics. A systematic field survey appeared to be necessary, but the forest and moorland appeared likely to make the undertaking difficult. Although some sites had already been excavated, the corresponding reports are quite short. We therefore decided to structure

8 Loir 1940, 183; Trintignac 2010, 100; Roche (unpublished), 175.
9 Balsan 1935, 118; Balsan 1938, 381; Loir 1940, 184; Roche (unpublished), 175.
10 Loir 1940, 183; Balsan 1935, 118; Balsan 1938, 381; Trintignac (unpublished), 123; Trintignac 2001, 221.
11 Vernhet 1993, 119; Trintignac 2001, 221; Trintignac 2010, 100.
12 Roche (unpublished), 175; Roche 2011, 110.
13 Orengo 2013, 812.
14 The archaeological remains of the workshops are located beneath the two modern-day villages of La Canourgue and Banassac.

this project as a 'community archaeology' project, drawing on the local population, and especially farmers and hikers, who were able to collect interesting data. In this sense, the project is similar to projects carried out in the USA[15] and the United Kingdom[16] in the past.

The aim of this paper, originally presented at the 6th session of LAC 2014, is to explain how we carried out each phase of this research, from the acquisition of data to the drawing of conclusions, specifically through the use of oral interviews, field surveys and traditional bibliographical analyses.

2 Structuring a database with input from such a diverse set of sources

2.1 Written sources and the first *corpus* of sites

First, we analyzed the historical and archaeological literature produced from the 19th century up through contemporary works, including the major authors and issues in our review.[17] The earliest local researchers were humanists, doctors and priests who were chiefly interested in historical texts, epigraphy and monuments; these researchers led the first archaeological excavations in Banassac. Later, geographers became interested in region's the caves and avens, i. e. in its speleology and geology more generally. The 20th century saw the organization of research, and the compilation of a systematic inventory of sites and artifacts with the aim of establishing a strong structure for the French administration of archaeology. After the intensive excavations of Banassac's Roman site, additional excavations were undertaken in the villages and in the valley up as far as the plateau. Then multidisciplinary studies were conducted and, in particular, major survey campaigns were carried out with the construction of the A75 highway. During the study associated with those survey campaigns oral testimonies produced a great deal of data, an important methodological element that we decide to take further in our own research method.

The relevant literature, ranging from the ancient sources about the Gabali people to the most recent archaeological reports, was entered into an Access bibliography database. During this process, it appeared judicious to list all the sites mentioned, the interpretations proposed and all relevant pieces of information simultaneously, which resulted in an initial inventory of sites.

The first fields that had to be created in the database were for the 'name of the site', 'locality' data, for the 'artifacts' found, the data 'sources' and a field for possible links with other sites ('notes'). This laid the foundation for our inventory. Early on, we encountered problems associated with the diversity of sources, their differing levels of reliability, and the variation in their degree of detail and precision. Reading through the primary and secondary sources and the excavation and survey reports from different periods, we found it necessary to create new fields in the database in order to enter as much data as possible, although many of the fields would have to remain empty for some types of documents.

There was some ambivalence about this choice of method: might it be more efficient to reduce the number of fields, leaving us with fewer pieces of information overall but allowing us to have a standard set of information for each source? Or would it be more illuminating to expand the number of fields, creating as many as were necessary to enter all the data yielded by all the documents, and accept the necessity to tolerate a lot of empty fields where there were no sources addressing certain issues? The decision was made

15 De Cunzo and Jameson 2007, 430.
16 Faulkner 2000, 21; Faulkner 2001/2002, 17; Liddle 1985.
17 Roche 2010, 127.

to start by creating as many fields as necessary, try to fill them in and then to analyze the blanks. A great many fields were created for data as varied as 'interpretations', 'links' between pieces of information, 'remarks' about the current use of sites, and proximity to a water source or a former road. The aim of this first inventory was to produce an exhaustive list of known sites and data. It appeared to be very useful to begin by creating fields as necessary in order to include all available data, in order to provide the basis for a wider study. To decide at any moment how to deal with a particular piece of information, we could look back at the direct 'source' in the database.

2.2 Differentiating between lack of research and historically significant blanks

Once we had entered the data from the literature into the tables, the database clearly charted research in the survey area, with some fields rich in data and other fields empty for particular periods, topics or places. A wealth of data on the Roman site of Banassac was available, and we recognized that the emphasis during the phase of data selection and interpretation would be on theoretical issues such as the definition of a 'site'. Indeed, dozens of individual positions of archaeological significance were linked to the topic of ceramic workshops, and the question was whether to count them as one site or as several sites. Due to past excavations of dolmens and some proto-historic sites, there was a great deal of data available about those sites as well. Caves, *villae*, proto-historic hill forts and tombs were also associated with a lot of precise data.

There were also many sites in which evidence suggesting human occupation had been found but for which no precise data about the exact locality or description was available. This emerged as our second main methodological issue. More than a third of the sites, artifacts or data entered could not be assigned to a precise locality, and one fifth of the data was not reliable enough to confirm the presence of a site (e. g. it related to an isolated artifact or unverified oral testimony).

The results of this first analysis of this primitive *corpus* determined the archaeological objectives for the survey phase: to systematically fill in the empty database fields for the sites about which not enough was known to allow them to remain in a strong *corpus* (locality, surface, artifacts found), to survey the area systematically, plot by plot, to find 'new' sites, and to check public and private collections to verify data on artifacts previously extracted from the sites.

2.3 Bridging the divide with the population, or how to involve residents in both the survey and interpretation processes

As there were many blank fields in our database, the following methodological question quickly arose: "Do we aim to fill in *all* the blanks"? The data contained in geographical[18] and ethnographical[19] literature had necessitated the addition of fields that would clearly remain empty for sites and phenomena that were documented only in other types of sources. As archaeologists, we were not at first convinced of the necessity of filling in the blanks for data that appeared to be ethnographic in nature: initially, we did not believe that these data would be useful for the archaeological interpretation, and we did not really know how to deal with them. Nonetheless, we proposed both options in the course of recruiting volunteers from the villages to participate in the systematic survey of the area,

18 Marres 1936.
19 Bonniol 1994; Dengreville 1997; Gasc 2001, 15.

and in their eyes, filling in all of the blanks was quite obviously the logical approach. As non-archaeologists, they were naturally open to bridging the divide between disciplines, simply because they were quite unaware that was any such divide existed. In this context, the divide itself appeared to be one of a social nature. As the people responsible for both the survey and the group, we understood that dealing with the methodological issues that might arise as a result of the choice made by the community of participants was part of our job, if our aim was to make a genuinely collective study, as well as dealing with the possible bias. It appeared to be a collective choice to collect the maximum amount of data, with participants perceiving that task as a challenge bound up with their local patrimony and identity. Indeed, the participating residents clearly identified the past inhabitants as their ancestors, because they imagined that these people lived as they themselves do now, and they therefore saw the ethnographic literature as a major source for the archaeological studies, one far more important than a traditional archaeological survey that they neither knew about nor carried out.

In that light, our database, with its dozens of empty fields, was, in fact, a map of the possible bridges between ethnography and archaeology, and all of a sudden the blank fields within it suddenly appeared to be much more interesting than those containing data. This led us to the decision to attempt to fill in ALL the empty fields during our survey, particularly the fields created from the ethnographic sources, as the basis for a meta-analysis of the territory from different angles. We had to pool the data acquired by ethnographic methods with those acquired by archaeological methods, and refine these methods from an integrative point of view. The first *corpus* was a *corpus* of what was known; we now had to create a complete *corpus* of what would be known after an archaeological and ethnographical survey. Thus it would be necessary to track every piece of information and to build a vocabulary list that would enable a real confrontation between the interpretative hypotheses, the visible elements and the archaeological reports.

3 Data acquisition, structuring and selection: how to build an integrative but coherent and rigorous *corpus*

3.1 From survey to filling in the blanks in the database: a return ticket between content and methodology

The goal of the survey was to fill in as many database fields as possible for each site, so that we would know that each blank signified something more than a lack of research. To avoid any bias in the blanks remaining after our survey, we used the 'context' field to include pieces of information about the geographic conditions of the survey.

There were two distinct tasks pursued during the survey: performing a systematic archaeological survey, plot by plot, using land registries and 1:25,000 maps to find as many sites as possible, and revisiting of sites that were already known for which the data sheets were incomplete. The survey campaign was structured as follows: an area that could be surveyed in one day was selected, in such a way that within that same day we could both systematically survey the area to identify 'new' sites and check the sites, revise site entries and data sheets already identified as incomplete (by entering more precise location data, adding information about the context and the artifacts and links between sites).

The methodological challenge encountered in this phase had to do with the temptation, felt at several sites, to add new fields to the data sheets during the survey to ensure that the records were indeed exhaustive or to report some interesting phenomena. We used the first days of surveying to refine our data sheets with respect to the maximum number of useful fields. This entailed returning to sites already surveyed in order to fill in

fields that had not existed during the initial survey visit, so we limited this process to the first twenty sites, chosen because they were representative of known sites.

We also interviewed a number of the area's residents, with a particular focus on farmers who know the land very well and older people who remember the excavations done in the 1960s and 1970s. We hoped that these interviews would help us to identify known sites that we had not run across during our literature search and to find new sites; this would clearly be a very time-consuming approach but it also proved a very effective one. In addition to their usefulness in confirming the position of sites, the interviews contributed to our knowledge about agricultural practices, which helped us to distinguish between the artifacts of archaeological sites and modern activities. Some of the interviewees spontaneously offered interpretations and gave answers to issues that were of interest to us (e. g. why does the Roman road change direction in the absence of geographical features?). It became apparent that the interview process, which we had first expected to be useful only for localization, would be crucial for the interpretation of hypotheses. It led us to propose links between oral sources and elements of interpretation in the database, and reinforced the importance of tracing each source.

This led to a very rich and original *corpus* of 256 archaeological sites in the area surveyed, corresponding to two sites per square kilometer; quite a high figure in comparison with the current demography of the plateau (two people per square kilometer). In total, 119 'new' sites were listed, and 84 sites revisited. The range of sites included in the new *corpus* is quite different from the first list: the second *corpus* contains 15 lime kilns, all 'new'; sites of iron production, almost all 'new'; and roads, also almost all 'new'. We also listed an abundance of original data about the environmental context, the vegetation, the altitude, water sources and access to the valley.

3.2 Structuring the data to address settlement dynamics and methodological issues

At this stage, the problem was to structure the pieces of information correctly in the database and to choose the right structure for the tables in a way that would create an efficient tool to answer questions on the environmental context of the sites, the possible links between sites, the chronological structure of sites and whether or not there were gaps in occupation, the type of occupation and the transformation of the visible landscape. We wanted to know the exact source of each piece of information, as we had data from varied very wide range of sources, from excavation reports to oral testimonies reporting about other oral testimonies.

Rather than representing a precise description of the database, the database design chart[20] (Fig. 2) shows how we chose to structure the pieces of information we needed. Notice that we had to separate two tables from the main database of sites; the links between the three bases are made by distinct requests and not by keys. It concerns the sources and the context (see the dotted lines). The 'biblio code' enabled us to group together multiple bibliographical references, such as all the references for one archaeological site, for example. The 'context code' is built in the same way and enabled us to group together multiple environmental elements for one archaeological site, stored in the same code.

To link all the pieces of information, we chose to use keys (K) or external keys (EK), which entailed the use of a unique index (ID) for notes, minimal registration units, sites, interpretations, contexts, environmental elements, remains, authors, references and bibliography.

20 Thank you to Tony Doat, PhD in Computer Science, for his help in compiling this design chart.

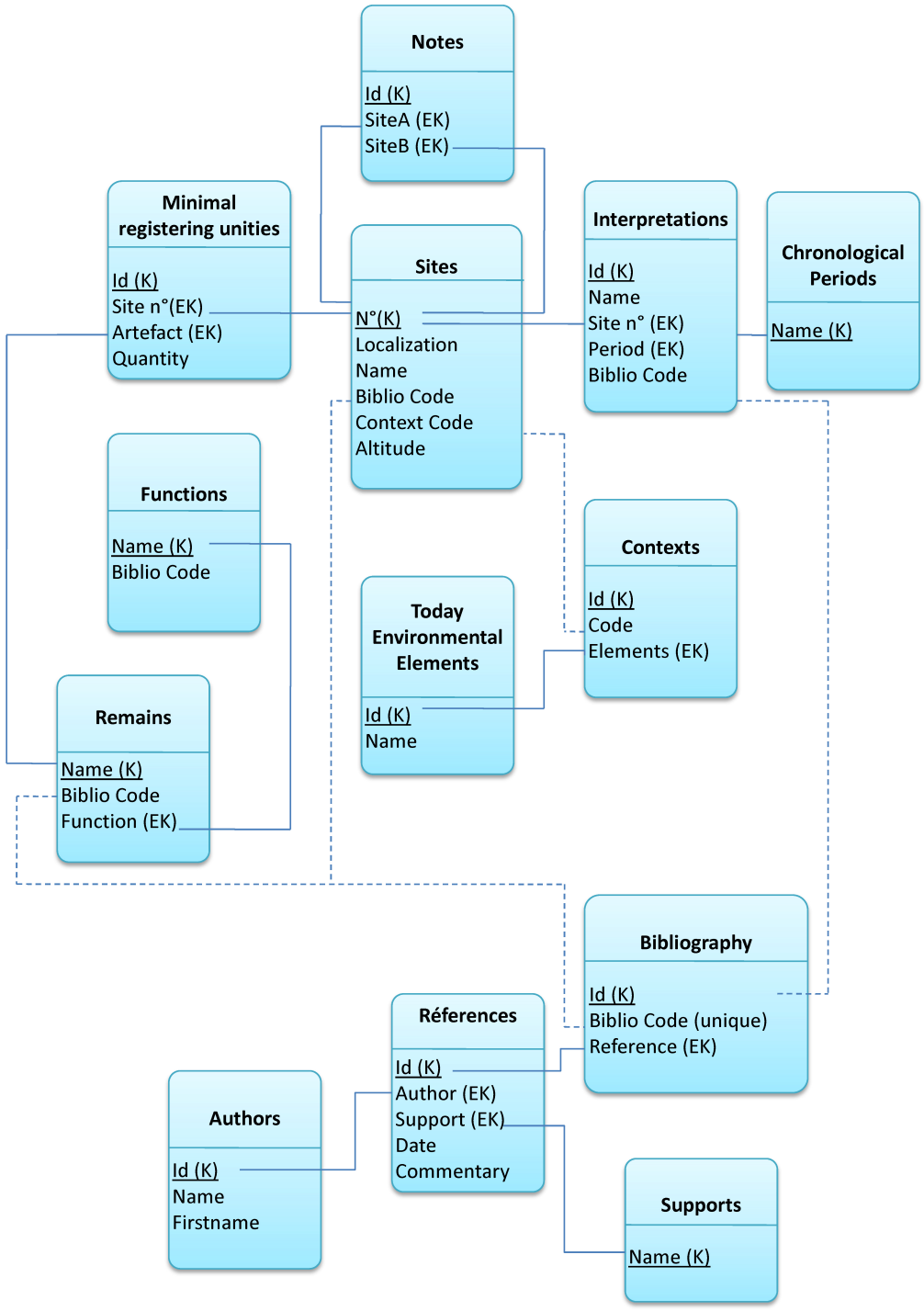

Fig. 2 | The database.

The keys and external keys, like periods, functions, remains, environmental elements, interpretations and support, needed *thesauri* (Fig. 3).

This database design makes it possible to respond to many types of queries, enough to answer settlement dynamics issues, bibliographical issues and requests about the artifacts all at the same time. It retains the links between the remains and the interpretations, the data and the sources. It can distinguish among multiple occupations on a single site, and

tell us more about the contemporary environmental context, to test the survey techniques in forest and moorland areas. It localizes the site, registers its property status and tracks all sources.

3.3 Evaluating and selecting the final *corpus*

Dealing with such a disparate *corpus* of sites, extracted from diverse sources of unequal quality and reliability, meant that we needed to pass the data through the filter of quality selection. At the end of the field work, having filled in as many blanks in the fields for each sheet as possible, we were able to differentiate among the 'sites': to distinguish sites are clearly well documented with respect to the issue of settlement dynamics from 'indications of possible sites', which are not clear enough to be identified as sites. In this latter category, we included indications pointing to the existence of sites that are not very well localized, sites indicated in oral or written testimonies that were not sufficiently well-linked with tangible artifacts on the site, and sites for which only isolated indications of occupation were identified.

The task of distinguishing between sites and 'indications of possible sites' was not without its methodological and theoretical problems: first, our definition of 'site' did not match the definition of the French Ministry of Culture, which uses 'entities' as minimal database entries, requiring non-interrupted occupation for each site. We reconciled these asymmetrical concepts using the 'interpretations', 'chronology' and 'functions' tables.

Another issue that had to be addressed was that of how to determine the chronological boundary that we would set to determine whether a phenomenon qualified as an archaeological element: with the case of cattle fences, for example, there are indications suggesting that they are of very ancient origin, but they are still used today. We decided to take into account sites with indications of an ancient origin, and not to consider their present use, but do so without ruling out the interpretational opportunities offered by that use.

A lot of work then went into bringing our *corpus* in line with this definition of site, entering the data from diverse sources into the correct fields and verifying them, taking into account both meanings of terms as used in the source and how they corresponded with our *thesauri*.

We then decided to eliminate some sheets that had been filled in directly from the Ministry of Culture archives, because these were in fact global sheets that recapitulated data from other distinct sheets. Finally, we eliminated sheets dealing with the Middle Ages, keeping only archaeological sites from Late Antiquity. This was necessary for the sake of coherence, otherwise the *corpus* would have had to be expanded to include castles and historical sources. The final study took into account sites from the Mesolithic period to Late Antiquity.

This led to a *corpus* of 203 archaeological 'sites' and 53 'indications of possible sites'; these latter sites were not included in the statistical analysis.

4 From data analysis to interpretation

Database queries enabled us to produce reports giving an overview of several thematic and chronological aspects.[21]

21 Roche 2011, 110.

Fig. 3 | The *thesauri*.

4.1 Entries sorted by nature of occupation

The first step of interpretation led us to create the 'functions' field, which was characterized by several parameters, such as surface, artifacts and structures. At this stage, we did not take chronology into account, and we obtained the following results: 48% of the sites were inhabited, 24% had agricultural activities, 38% workshops, 28% at least one tomb, 3% a sacred function, 11% evidence of cattle enclosures (which were generally identified as a result of oral interviews), 5% a fortification, and 11% remains of ancient roads.[22]

22 This last part of the study continued and is still in progress (research section: *Ancient roads and paths*, A. Roche and P. Le Lay, Centre d'Etudes et de Recherches de Mende, Lozère (France)).

To be more precise, the 'interpretations' table of the database combines several fields to achieve the act of interpretation. Throughout the process, we had to take into account the fact that several sites are well documented but not dated. We decided to include these in the collections but not in the final synthesis, as this was too risky (e. g. for lime kilns).

4.2 Entries by chronology

From a chronological perspective, we noted that numerous sites were occupied during several periods of time, and we pre-defined the periods to facilitate the sorting and the combining operations. Roman times are well represented in the *corpus* (two thirds of the sites were occupied in this period), but the *corpus* also documents quite a well-preserved Prehistoric period (one fifth of the sites were occupied in this period) and a proto-historic period (one third of the sites were occupied in this period), showing an important role for pre-Roman occupation in the settlement of the area around Banassac. The representation of Late Antiquity (one third of sites occupied in this period) is also quite good. Preparing the chronological analysis led to a review of the interpretation of the 256 sites, although the aim was less to concentrate on one site in particular than to achieve a global synthesis. For this stage, and so as to have a strong and reliable *corpus*, we only kept the data that we were sure about, and put data we were less certain of in the 'notes' fields.

The chronological analysis determined that there is a record of the presence of humans in the valley and in the karstic cliffs and caves, at around 654m average altitude reaching back to Mesolithic times. Neolithic sites indicate a semi-nomadic way of life and the beginning of the development of agricultural planning. Some proto-historic sites are fortified and some not, and we listed many proto-historic *tumuli*. The field 'altitude' generated remarkable evidence of a perched settlement pattern for the proto-historic period, 200 meters higher than the preceding period (824m). The Roman period was associated with the creation of many sites and a great deal of documentation, especially pertaining to the Roman *villae* and the workshops (for ceramics, pine pitch and iron, for example), with an average altitude of 776m. That latter conceals two distinct groups of sites: those in the valley (550m) and those on the plateau (850m) (Fig. 4). Due to the lack of knowledge about ceramics from this period the *corpus* does not support a conclusion as to whether settlement patterns changed dramatically in Late Antiquity.

4.3 Use of multi-criteria research to portray an integrative economic system at Banassac in Roman times

Multi-criteria research led to a more precise picture of Banassac and its surroundings in the Roman period. The important historical issue to address was the question of the economic model and control of the ceramic workshops, which was already raised by Hofmann.[23] According to this new study,[24] the economic system seems to be an integrative one, with principles of both vertical integration (control of the different production phases, transformation and distribution by central authorities, 38 *villae*) and horizontal integration (economies of scale, grouping of activities, complementarities between the waste and the resources of 55 workshops), linking pine pitch, iron and earth through a well-organized timber sector.

The business model developed in the first centuries AD was controlled by a hierarchical network of *farms* (4 big *villae*, 9 of average importance, 19 smaller-scale and 6 rural

23 Hofmann 1988, 150.
24 Roche 2014, 24.

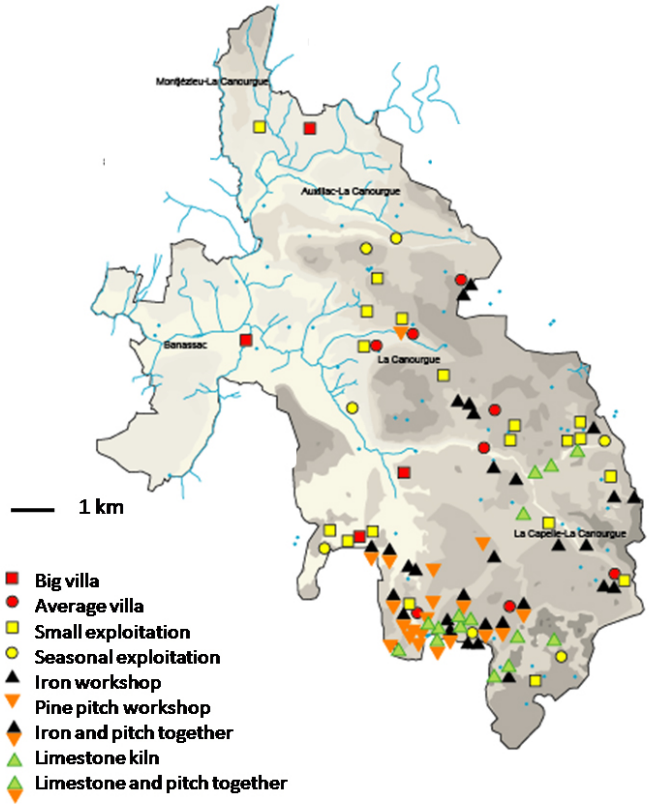

Fig. 4 | Roman workshops and *villae* around Banassac.

buildings in seasonal use; although the actual number of lattermost is certain to have been larger, with preservation conditions responsible for the lower figure found). The *villa* or *villae* with central authority seem to have coordinated numerous smaller rural buildings, structured diffusion near communication axes and controlled the smallest *villae*, which were dependent on the central authorities.

This system provides stability in the supply or resources and a turnover in human resources, with the different workshops operating in different seasons. It enables the owner to optimize the exploitation of his *fundus*. Trunks of trees are used in the pottery kilns,[25] branches are used to produce pitch and charcoal, and the charcoal in bloomery-type furnaces to produce iron. Slag is also used in roads and embankments. Given clay and kilns in the valley, iron ore and forests on the plateau, and workers, it is possible to produce pottery, pitch and iron in optimal quantities, to enable the prices of the final products to be reduced, to avoid supply risks, and to enable the products to be distributed in several regions (Figs. 5 and 6).

These conclusions logically led to the possibility that Banassac was a *villa*, although researchers have traditionally viewed it as a secondary agglomeration. This possibility emerged from the observations that Banassac exhibits numerous elements traditionally thought to describe *villae*, and that Banassac is surrounded by a well-organized network. On the other hand, no proof of the presence of an agglomeration emerged from the data. Thus it is possible to advance the hypothesis that a villa controlled the *terra sigillata* workshops and other natural resources.

25 Trintignac 2003, 242.

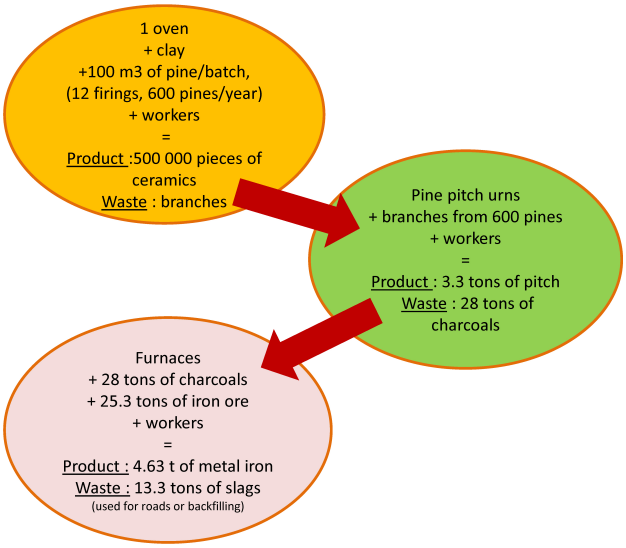

Fig. 5 | Horizontal integration of iron ore, pitch, clay and wood for one kiln for one year.

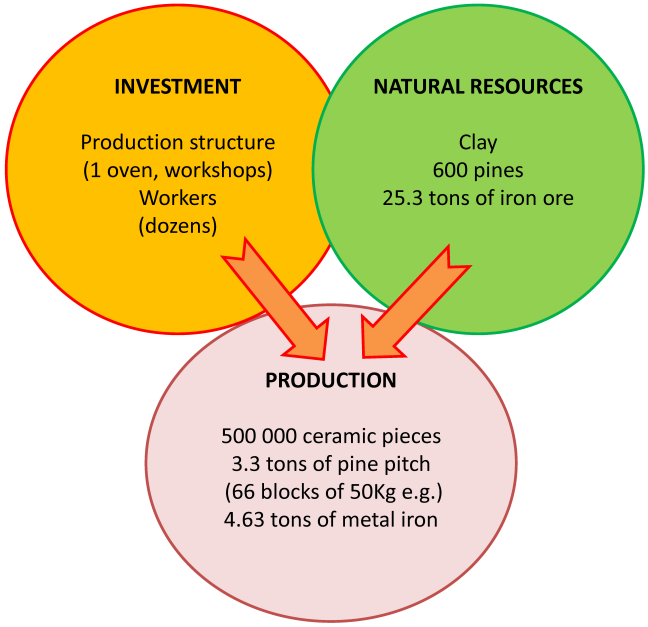

Fig. 6 | Theoretical optimization pattern for the economic system of Banassac.

Indeed, one of the *villae* (La Pravive) seems to be the most important one; it owns baths[26] and is certainly linked with the Roman tomb[27] in the valley that stresses the position of the deceased as a blacksmith. From the results of this new data inventory and analysis, we should reconsider the question of the urban and economic status of Banassac's *terra sigillata* workshop, and see in its organization one link of an integrative production chain, which associates iron and pitch with clay by way of the timber industry.

Encompassing a range of activities, from the export of the resources to distant markets through to the re-use of waste at each stage of transformation and transport, this system

26 Balmelle 1937, 11; Genty 1986; Fabrié 1989, 49.
27 Feugère and Gros 1996, 305; Gros 1990; Gros and Fages 1990.

enabled the owner of the Banassac *villa* to set up the *terra sigillata* workshop during the decline of La Graufesenque (around 110).

In the foundation of Banassac's *terra sigillata* workshop, we can discern the initiative of an owner who decides to base his wealth on the simultaneous production of pottery, iron and pitch, by hiring five experienced potters from La Graufesenque and by organizing his business model on an integrative economy around the timber industry; this economic strategy is based on a vertical and horizontal integration of the rarest resource – timber – used for pottery, pitch and iron production, *via* the seasonality and complementarity of their productions. The markets for sales of the products are different: Gaul for pitch and iron, and Gaul and north-eastern Limes[28] for *terra sigillata*. This strategy combined with the marketing strategy seen in the epigraphic patterns and some evidence of the deliberately fraudulent use of signatures[29] represent three choices made by the owner in his endeavor to develop his wealth. He cleverly took into account the reasons for the decline of La Graufesenque: certainly the lack of wood resources,[30] the lack of a good supply of clay, and the fierce competition from other workshops, like that at Lezoux.[31]

5 Conclusion

The integrative and collective method meant that this karstic terrain in this area, which appeared to be harsh, poor and deserted, produced a potential 256 archaeological sites (203 sites determined with certitude and 53 with insufficient data to qualify for this study), corresponding to two archaeological sites per square kilometer. The surveys show no real obstacle to surveying in forest and moorland, but highlight the need to structure a project-specific method, with an associated database and survey strategy, to compensate for the lack of documents and the impossibility of surveying in ploughed fields. Resorting to oral interviews of local residents entails the bridging of a social gap, which included the need to convince the official authorities, politicians and archaeologists to create a project group composed partially of volunteers.

The methodological implications for the database and the approach to its completion were so numerous that bridging activities took place at every stage of the research, which at the same time contributed to the design of an appropriate methodology. The community archaeology project resulted in the modification of the research framework, which had the scientific advantage of being as complete as possible in its description and understanding of the phenomena of settlement and the use of land, which makes complete sense given the geographical meaning of 'landscape'. Ultimately, theoretical and epistemological issues, such as the definition of a site, the chronological limits, the approach to selecting relevant data extracted from so many different sources for the final syntheses, and the temptation felt by volunteers to model the past on their own way of living, appeared less as obstacles than as collective challenges. The results of the adoption of this form of research do not stop at the encouraging findings indicating that a broader study to include the valleys and the karstic plateau would be beneficial: value continues to be created, driven in part by the collective emergence of a consciousness of [a common local] heritage[32]. Using an integrative approach of this kind puts the researcher in a project-management position among the population, and the enquiry is no longer his/hers, but becomes a collective project that serves a territory as well as investigating it. Strictly in terms of the study of history, this study has enabled us to reassess the status and economic model of

28 Hofmann 1976, 410; Hofmann 1986, 103; Mees 1992/1993, 39; Morel and Peyre 1968, 66.
29 Mees 1995, 55.
30 Vernhet 1993, 119; Fabrié 1984, 19.
31 Vernhet 1981, 42.
32 The creation of a museum is currently under consideration.

Banassac's *terra sigillata* workshop, which emerges less as a secondary agglomeration of potters than as a *villa* owned by a strategist who cleverly associates the industries of clay, pitch and iron to optimize his *fundus*, between plateau and valley.

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