

**Republican amphorae in the Auvergne central  
France: an archaeological and petrological  
study.**

(Volume 1)

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## Abstract

This thesis studies Republican amphorae from late Iron age (c.200–1 BC) sites from the Auvergne (central France). The morphology, dating and contents of Greco-Italic, Dressel 1 and Lamboglia 2 amphorae, and the morphology of Republican amphorae from Mediterranean shipwrecks are reviewed. The morphology of 28 Republican amphorae assemblages from the Auvergne are described in detail and compared with 44 assemblages from Western Europe. A detailed programme of fabric analysis, using thin-sectioning, of 408 rim sherds, has created 96 fabric groups, many of which have been assigned to specific kilns. The distribution of Republican amphorae in the Auvergne and for the whole of France is studied and discussed. The role of amphorae in socio-economic change, the access to amphorae, the deposition of amphorae and the importation of other Mediterranean imports (Campanian wares, mortaria and *pâte claires*) in the Auvergne is addressed. Assemblages of Republican amphorae stamps from the Auvergne and the rest of France are compared by analysing the types of stamps, their placement, stamping rates and their place of origin.

The Republican wine trade to the Auvergne started during the second century BC when small numbers of Greco-Italic amphorae were imported and the large-scale importation of Dressel 1 amphorae occurred after c.150/140 BC. A high proportion of the amphorae came from the Etrurian kilns of Albinia and Cosa. Republican amphorae were widely distributed in the Auvergne during the second century BC with 203 findspots and are found in large numbers at several sites.

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## Author's declaration

A Leicester University MA thesis by the author contained several of the amphorae assemblages also used in this PhD thesis. However, topics not covered in the MA thesis (which concentrated upon the deposition of Republican amphorae in the Auvergne), include the morphology of the amphorae, their fabrics, and their distribution in the Auvergne and France. Furthermore, several additional amphorae assemblages used in this study (including La Grande Borne Aulnat/Chantier 1–3, Aulnat rue Elisée Reclus, Le Brézet Iveco, Le Brézet 51 rue Jules Verne, Pontcharaud III etc.) were not included in the MA thesis.



## Chapter 1 Introduction

Several assemblages of Republican amphorae (Greco-Italic, Dressel 1A, Dressel 1B, Dressel 1C and Lamboglia 2) from the Auvergne region of central France are studied in this thesis. There are four main parts to this study: an analysis of the morphology of the Republican amphorae especially of the rims; a programme of fabric analysis using thin-sectioning, the distribution of Republican amphorae and interpretation of the results of these analyses in terms of socio-economic change.

The main aim of this research is to study the morphology of the Republican amphorae in the Auvergne, to describe in detail and to analysis the assemblages. This involves studying the morphology of the Republican amphorae rims, the purpose being to assign them to the different types of Republican amphorae. This will be aided by studying in detail the morphology of complete Republican amphorae from Mediterranean wrecks, which will indicate the range of morphological variation for the different types of Republican amphorae. Tchernia (1986:310–311) and Olmer (1997:133) have questioned the validity of Republican amphorae classification schemes and they will be assessed in this thesis.

Studying the make-up of the Republican amphorae rim assemblages will allow them to be dated and to determine when the wine trade to the Auvergne started and ended. A further aim will be to determine whether any of the Republican rims from the Auvergne can be classified as Greco-Italic, as these amphorae are believed to be rare outside of non-Mediterranean France. A further aim of this systematic analysis will be to allow for intra and inter-regional comparisons of Republican amphorae assemblages and to address how the importation of Republican amphorae to the Auvergne compares and contrasts with other regions of France.

A substantial part of this thesis involves a programme of fabric analysis. Fabric studies, using thin-sectioning, of large Republican amphorae assemblages are rare and have mainly been limited to small assemblages from England (Williams 1985, 1987). Furthermore, for many of these studies the majority of fabrics are assigned to western

Italy and very few to individual kilns (Hénon 1995; Williams 1985, 1987) making it difficult to ascertain any patterning in the kilns/regions supplying amphorae. One aim will be to test whether it is possible to recognise distinctive Republican amphorae fabrics (in hand-specimen and thin-section) that can be assigned to specific kilns or regions of production. A related objective will be to assign as many fabrics as possible to specific kilns or regions of production. This will be facilitated by collecting reference sherds from known kilns and comparing fabrics to published description of fabrics and thin-sections. Systematic fabric descriptions will be provided with the purpose of allowing the Auvergne fabric groups to be assigned to new Republican amphorae kilns in the future. The final objective will be to use the fabric data to understand the kilns and regions supplying amphorae to the different sites in the Auvergne and to see if there is any chronological patterning. This is important for the interpretation of the wine trade, as previous studies have not attempted to use detailed fabric analysis of Republican amphorae to answer question concerning trade and exchange during the late La Tène period.

A substantial part of the thesis involved collecting details on Republican amphorae findspots in the Auvergne and for the whole of France. An objective being to create an up to date distribution map of Republican amphorae in France and to analyse any patterning.

To summarise this thesis aims to compare the Republican amphorae assemblages in the Auvergne with those throughout France and provide a brief summary concerning the importation and use of Republican amphorae in Gaul during the second to first centuries BC. This research will hopefully provide an opportunity to assess the validity of current models concerning the importation and use of amphorae during the late La Tène period. These models generally see the Republican wine trade to Gaul as being late, only starting after the conquest of southern France in 121 BC by Rome (Arthur 1995:242; Cunliffe 1982:52–53, 1984:4, 1988:81; Metzler *et al.* 1991:162; Nash 1984:102; Tchernia 1983:101). It is also seen as elitist, with the redistribution of amphorae under elite control and wine consumption restricted to rare special events (Haselgrove 1996:171–173; Metzler *et al.* 1991:167, 172; Poux *in press* 1 and 2;



Roymans 1990:42). Are these interpretations applicable to the Auvergne? How might changes in our understanding of the wine trade to the Auvergne alter and affect current models and ideas concerning socio-economic change during this period?

Over the last 10 years, an increasing amount of research has been devoted to Republican amphorae from sites in France. There have been several detailed regional studies (Aulas 1983, 1985, 1988; Maza 1996–1997, 1998a, 1998b; Olmer 1997; Poux 1999a), while many papers have been devoted to the morphology of Republican amphorae (Olmer *et al.* 1995), Republican amphorae stamps (Olmer 1997) and fabrics (Hesnard *et al.* 1989; Thierrin-Michael 1992). Much of this research is not well known in Britain, which tends to lag behind methodological developments on the continent. One of the main aims of this thesis is to publicise this work by applying many of these research methodologies to the material from the Auvergne.

This thesis is divided into two volumes and is organized in the following manner:

## Volume 1

Chapter 1 introduction.

Chapter 2 provides a background to the Auvergne and the archaeology of the Iron age in this region.

Chapter 3 summarises the morphology, dating, likely contents and fabrics of Greco-Italic amphorae.

Chapter 4 introduces the morphology, dating and contents of the Dressel 1 amphora. This chapter outlines the traditional division of the Dressel 1 amphorae into the Dressel 1A, 1B and 1C types. Different methodologies for studying the morphology of Republican amphorae rims are described and the techniques utilized in this study are outlined. The production areas and the fabrics of Dressel 1 amphorae are also examined.



Chapter 5 examines the morphology, dating, contents and fabrics of Lamboglia 2 amphorae.

Chapter 6 reviews the morphology of Greco-Italic and Dressel 1 amphorae from Mediterranean shipwreck cargoes. This chapter sets out to test the validity of the tripartite division of the Dressel 1 and to assess whether further distinct amphorae types can be recognised and how they might be identified in fragmentary land assemblages.

Chapter 7 describes in detail the Republican amphorae assemblages from the Auvergne.

Chapter 8 compares the morphology of the Republican amphorae assemblages from the Auvergne. This concentrates upon the rims, handles and bases. A short comparison of Republican amphorae assemblages from sites throughout France and several from Spain, Luxembourg and Switzerland is also provided.

Chapter 9 provides fabric descriptions for the different fabric groups and examines the fabrics of the Republican amphorae from the Auvergne. The methodology and recording of the fabric descriptions are explained, with a discussion and interpretation of the fabric analysis data.

Chapter 10 reviews the chronology and distribution of Republican amphorae. This starts by providing a short background to the earliest importation of Mediterranean goods in France during the Hallstatt and early La Tène periods. Then the distribution of Republican amphorae in the Auvergne is then examined, followed by the distribution of Republican amphorae throughout France. Is it possible to see any patterning in the distribution of Republican amphorae in France and can explanations be suggested for any patterning?

Chapter 11 highlights the role of amphorae and other Mediterranean goods with socio-economic change during the late La Tène period. The goods that may have been

traded for Mediterranean imports and the role of amphorae in socio-political behaviours are discussed. The questions of access to amphorae (how they were procured and the mechanisms by which they were exchanged) and the consumption of imported wine are addressed. The deposition of amphorae is also briefly examined and the importation and use of other Mediterranean imports during the late La Tène period is discussed.

Chapter 12 discusses the Republican amphorae stamps in the Auvergne and compares them with stamp assemblages from other regions of France.

Chapter 13 the concluding chapter draws together the main conclusions of this work and compares and contrast the Auvergne with the rest of France.

Volume 2

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Appendix 5 fabric descriptions of Republican amphorae from the literature

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## Chapter 2 Background to the study region and the Iron age of the Auvergne

### 2.1 Location

The Auvergne is situated within the Massif Central mountain range and comprises the departments of the Allier, Cantal, Haute-Loire and Puy-de-Dôme (Fig.1). This study is concerned with the material from the department of the Puy-de-Dôme, although assemblages from some of the other departments are also included.

The department of the Puy-de-Dôme is centred on the city of Clermont-Ferrand (Fig. 2). The Auvergne is an isolated, rural region, with a low population concentrated around Clermont-Ferrand. The landscape around Clermont-Ferrand has been shaped by geologically recent volcanic activity. Linear faults have created a 3km wide depression surrounded on either side by higher land (Gachon 1963; Mills 1985). This central depression contains the Allier river and three sedimentary basins; the Issoire Limagne in the south and the Grande and Petite Limagne near to Clermont-Ferrand (Gachon 1963:9; Jones 1992:24).

The Grande and Petite Limagne contain deposits of *terres noires* overlying the limestone bedrock (Jones 1992:24). These soils were deposited during the Neolithic to the Gallo-Roman period (Daugas *et al.* 1983; Gachon 1963:16–18) and are believed to have been formed by soil erosion resulting from human activity, especially the deforestation of the higher lands and slopes (Gachon 1963). The *terres noires* today provide fertile agricultural land but require extensive draining to be cultivated.

The Petite Limagne basin is broken up by several small lava plateaux to form the Pays de Buttes (Jones 1992:26). Here the basaltic lava flows seeped into the limestone rocks, to leave behind (once the softer surrounding limestone had eroded away), flat topped and steeply sided lava plateaux. This area also contains gentle limestone hills with thin, poor soils (Mills 1985:193). This area has poor agricultural potential with



upper slopes being uncultivated, while the lower slopes would provide some rough grazing (Mills 1985:196).

On the west are the Chaîne-des-Dômes and the Mont Dore mountains (Fig. 2). The former range developed between 80,000–5,000 years ago, contains c.100 volcanic cones, and craters that range in height from 700m to the highest the Puy-de-Dôme (1464m). Below this range are the mountains of the Mont Dore, which contain the remains of volcanoes that formed between four million and 250,000 years ago. These mountains are higher than the Chaîne-des-Dômes and the highest the Puy-de-Sancy reaches 1885m. Both of these mountain ranges today are used for summer pasture. To the east are the mountains of the Forez, Livradois and Bois Noirs, beyond which lies the Loire valley. These mountains reach comparable heights to the Chaîne-des-Dômes and the Mont Dore.

The Auvergne is a raised plateau enclosed by high land on both its western and eastern sides, and further south by the Cantal mountains. There are few communication routes cutting east-west, and the main axis of communication lies north-south with the Allier valley. For a more detailed description of the geography and geology of the region see Gachon (1963), Jones (1992) and Provost and Mennessier-Jouannet (1994 I:55–61).

## 2.2 The Arverni: history, classical accounts

The Auvergne takes its name from the Gaulish tribe the Arverni, who were first mentioned by Livy as inhabiting Languedoc in 207 BC (*History* 27, 38–43). Livy also states that the Arverni were one of the Gaulish tribes that invaded Italy in the third century BC (Nash 1975:212). Later accounts agree that their core territory was located around Clermont-Ferrand, although Strabo wrongly placed their capital *Nemossus* near to the river Loire (*Geography* 4.2.3) (Fig. 3). Defining the exact tribal borders of Arvernian territory is difficult and although Nash has argued that, for central France, Medieval dioceses and Roman administrative borders directly followed the late Iron age tribal boundaries (Nash 1976a:114, 1978b:464–465), only a

rough approximation can be made. For the Arverni their core territory probably included the southern most part of the department of the Allier, the whole of the Puy-de-Dôme and the Cantal, and the western part of Haute-Loire (Provost and Mennessier-Jouannet 1994 I:71–72).

The Arverni during the third to second centuries BC may have controlled more extensive territories in Gaul. Strabo mentions that “the Arverni had extended their rule as far as Narbonne and the boundaries of the territory of Marseilles and ruled over the tribes as far as the Pyrenees and to the ocean and the Rhine” (*Geography* 4.2.3).

According to Caesar, the Arvernian Celtillus won control over the whole of Gaul during the early first century BC (*De Bello Gallico* 7.4). Caesar refers to the following as dependant tribes of the Arverni: Cadurci (who were located in the departments of the Lot and part of Tarn and Garonne), Eleuteti (location of which is unknown), Gabali (department of Lozère) and the Vellavii (located in the eastern part of Haute-Loire) (*De Bello Gallico* 7.75) (Fig. 3). Caesar mentions that the Cévennes mountains separated Arvernian territory from the Helvii of the Roman province (*De Bello Gallico* 7.7–7.8). The Ruteni (who were located in the department of Aveyron) may have been subjects of the Arverni (Provost and Mennessier-Jouannet 1994 I:72). In the second century BC the Arverni had strong ties with the Allobroges (from around Vienne and the Rhône) and the Volcae Tolosates (from Languedoc) (Dyson 1985:138–139, 155), and in the first century BC with the Sequani (around the Saône) (Caesar, *De Bello Gallico* 1.31). During the revolt of Vercingetorix against Rome in 52 BC the Arverni formed alliances with the following tribes: Andes Aulerci, Cadurci, Lemovices, Parisii, Pictones, Senones and all the tribes along the western coast (Caesar, *De Bello Gallico* 7.4). These tribes may have had connections with the Arverni.

Surviving classical accounts indicate that during the second century BC the Arverni had the institution of kingship, common with other areas of Gaul during this period (Roymans 1990:33). The Arvernian king Louernius and his son Bituitus are



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Dyson suggests that there was further Roman military action against the Arverni during the early first century BC, and at this time the Vellavii were detached from their control (Dyson 1985:156; Strabo, *Geography* 4.2.3). Around this time, Caesar mentions that the Arvernian Celtillus attempted to claim the kingship but was executed (*De Bello Gallico* 7.4). There may have been a connection between these events and the Romans may have feared the consequences of a re-unified Arverni under the direction of a monarch (Dyson 1985:165–166). The Romans may have bolstered support in the Auvergne by actively supporting pro-Roman elements there; one example is the noble Epasnactus who according to Caesar was a “loyal friend of the Roman people” (*De Bello Gallico* 8.44). The use of the term ‘friend’ may imply a formalized form of recognition by Rome (Dyson 1985:170 note 261). The chaos of the Roman conquest of Gaul allowed the Arvernian Vercingetorix to reclaim the kingship and to lead the Gaulish revolt against Rome. Vercingetorix defeated Caesar at Gergovia in the Auvergne, but was finally defeated at Alesia in 52 BC (Goudineau 1990).

## 2.3 Chronological nomenclature

There are several classification schemes for the later Iron age or La Tène period (Colin 1998; Pion 1996). For the La Tène period, this study uses the Reinecke classification (used in Germany and northern France). In this scheme, the La Tène period is divided into three phases: early La Tène (LTA and LTB), middle La Tène (LTC), and a late La Tène (LTD). Currently the dating for the middle and late La Tène periods is undergoing revision in the light of dendrochronological dates and from the study of artefact assemblages (Colin 1998; Haselgrove 1996; Guichard *et al.* 1993; Pion 1996; Vaginay and Guichard 1988). Affected by these changes has been the dating of the late La Tène period, which has seen the start of LTD1 extended from 100 BC, to 130/120 BC and back to 150 BC.

The La Tène C period is divided into two phases, with LTC1 dating to c.250–190 BC and LTC2 from c.190–150 BC. The La Tène D period has two divisions; LTD1 c.150–80 BC, and LTD2 c.80–20 BC. A recent proposal has been to further subdivide



the LTD1 period for Belgic Gaul into a D1a and D1b phase (Haselgrove 1996:135–136). LTD1a, dating from c.150–120 BC, is characterised by Dressel 1A amphorae, cast potin coinage and LTC brooches. The LTD1b dates to c.120–80 BC and in this period are first found Dressel 1B amphorae, the Nauheim brooch and inscribed coinage. This division corresponds with the material from the Auvergne, and will be used in this study. The LTD2 period has also been divided into a pre and post conquest phase: LTD2a (c.80–55 BC) and LTD2b (c.55–30/20 BC). LTD2a contains late forms of the Nauheim and the *filiforme* brooches and Dressel 1B amphorae (Haselgrove 1996:135) while LTD2b is characterised by Alesia and collared brooches (Haselgrove 1996:135), Arretine pottery, Dressel 1B, Dressel 2–4 and Spanish amphorae (Dressel 7–11, Pascual 1).

## 2.4 The Iron age settlement history of the region

This section provides an outline of the Iron age archaeology of the department of the Puy-de-Dôme (for earlier reviews *cf.* Collis 1975a, 1984a and Nash 1978a). The Iron age database for this region is not perfect, as most of our data is confined to a small area around Clermont-Ferrand and less is known about the Iron age exploitation of the mountainous interior and the areas away from Clermont-Ferrand. However, following systematic archaeological fieldwork, the area around Clermont-Ferrand has one of the most detailed Iron age settlement records for France. Many of the sites mentioned below are described in more detail in chapter 7.

### 2.4.1 Hallstatt and early La Tène

During Hallstatt B (950–800 BC) there was a concentration of large hilltop sites bordering the southern Grande Limagne (Milcent 1999:28–31 fig. 22; Provost and Mennessier-Jouannet 1994 I:63 fig. 4). The Côtes-de-Clermont and the adjacent hill of Chanturgues have extensive early Iron age material on their summits (Nash 1978a:123–124). The plateau of Gergovie also has Bronze age material and Hallstatt B activity (Guichard *et al.* 1994:280). Corent has a large Bronze age final /Hallstatt B settlement (Provost and Mennessier-Jouannet 1994 I:64) and isolated early La Tène

material (Malacher and Collis 1992:195). By Hallstatt C–LTA (c.800–480 BC) there was increase in the settlement of the Grande Limagne with the appearance of many small farms, while the hilltop sites were abandoned (Milcent 1999:31–33 fig. 23).

#### 2.4.2 Middle La Tène to early late La Tène (LTD1a)

From LTB to LTD1a a series of open settlements were found on the Grande Limagne in the immediate vicinity of Clermont-Ferrand (Collis 1995). These sites are found concentrated on the southern edge of the Grande Limagne plain and deeper into the Grande Limagne (Mills 1985:197).

The Aulnat area, near to the edge of Clermont-Ferrand, has produced a dense group of LTB-D1a material, covering c.5ha (Collis 1975a:185, 1995, *n.d.* 1; Malacher and Collis 1992:191; Provost and Mennessier-Jouannet 1994 I:99). This agglomeration may either represent several distinct settlements, or a village. The Le Brézet area close to Aulnat, has a similar large spread of LTC-D1a material, including the small inhumation cemetery at Pontcharaud (Loison *et al.* 1991). The most extensively excavated settlement for the LTC-D1 period is the site of Le Pâtural about 5km away from La Grande Borne, on the Grande Limagne. These sites were involved in a variety of industrial and craft activities, including the smithying of iron (Collis 1975b, 1980; Orengo *in prep.*). The Grande Limagne plain was extensively settled during this period, the surrounding hills were devoid of settlement. The exceptions are the Côtes-de-Clermont and Chanturgues, which have produced a scatter of LTC2-D1a ceramics on the plateau top and its slopes (Nash 1978a:124; Collis 1975a:189).

Around Lezoux, there are several middle-late La Tène settlements including Bois Picot, Fontoriol and L'Etang (Provost and Mennessier-Jouannet 1994 II:116–117, 132 fig. 56) however, they are not as dense or as rich as the activity found around Clermont-Ferrand, although none have been extensively excavated. For the northern Grande Limagne there are several early/middle and late La Tène sites (LTD2 material is generally absent), including: Artonne 'La Mothe' (Mennessier-Jouannet 1993, 1994) and La Moutade 'Pied de l'Âne' (Mennessier-Jouannet 1999). The quantity of



material culture deposited at these northern sites is considerably less than the southern Grande Limagne sites. Only the small rural site of Aigueperse has been extensively excavated and has evidence for iron working (Mennessier-Jouannet and Dunkley 1996:11). In the southern Puy-de-Dôme around Issoire, only two late La Tène settlements have been found, however Bronze age and Roman settlements were more frequent (C. Watson *pers. comm.*).

#### 2.4.3 Late La Tène (LTD1b-LTD2b)

Around the late second to early first century BC there was a major change in the settlement pattern of the region, with the abandonment of most of the sites on the Grande Limagne and nucleation of the settlement into *oppida* (Collis 1995; Malacher and Collis 1992). The term *oppidum* was used by Caesar to denote the large defensive settlement he encountered during his conquest of Gaul, which he did not designate as *urbs* (Collis 1984a:5). *Oppida* were large settlements in defensive positions and/or heavily fortified with stone or earth ramparts. However, Caesar was never consistent in his use of the term *oppidum*, and Caesar occasionally describes some of the more important settlements as *urbs* (e.g. *Avaricum* and *Bibracte*). The debate over the role and function of the *oppida* can not be answered by use of the Auvergnian *oppida*, as they remain relatively unknown archaeologically.

During the late second to first century BC, three large defended *oppida* — Corent, Gondole and Gergovie were occupied near to Clermont-Ferrand (Fig. 4). A fourth *oppidum* at Saint-Just-de-Baffie (near to Ambert in the south-west) controlled the valley of the Dore and is near to the eastern border of Arvernian territory. This site appears to have been occupied around the start of the first century BC possibly to the Augustan period (Provost and Mennessier-Jouannet 1994 II:396).

Corent, a flat topped lava plateau, was the first to be occupied from c.120/100–70/60 BC or LTD1/D2 (Guichard *et al.* 1993). At the base of Corent was a contemporary open settlement at Le Bay, adjacent to the Allier river (Guichard and Collis 1992:22). Corent was followed by the lowland *oppidum* of Gondole (Collis *n.d.* 2; Malacher and

Collis 1992:194; Provost and Mennessier-Jouannet 1994 II:51 fig. 24) which was occupied from c.80/70–40 BC (LTD2a) (Guichard *et al.* 1993:38 fig. 8; Malacher and Collis 1992:195–196). Finally, the plateau of Gergovie which was occupied just before the Gallic war (LTD2b) and since the eighteenth century the site has been identified as the location of Caesar's defeat by the Arvernian chieftain Vercingetorix.

#### 2.4.4 Augustan period

During the late Augustan to early Tiberian period the *oppidum* of Gergovie was abandoned in favour of settlement once again on the Limagne plain, with the founding of the Roman town of *Augustonemetum* which survives today as Clermont-Ferrand. Many Roman farms were also found on the Grande Limagne plain, on the Petite Limagne and in the Allier valley (Mills 1985:198; Provost and Mennessier-Jouannet 1994 II:77–78).

### 2.5 Conclusions

The settlement record for the middle-late Iron age period for the department of the Puy-de-Dôme shows a society dominated by rural settlements involved in cereal and arable farming (Richardson 1997:199–200, 221, 232, 241). Settlement was concentrated on the fertile Grande Limagne with less dense settlement in the outlying regions (northern Grande Limagne, Lezoux and Issoire).

Most sites show evidence for a variety of craft and industrial activities, with the working of iron being most frequent. Most sites were self-sufficient in iron production, producing the iron tools and objects they needed, either by the use of itinerant specialists or by members of the settlement itself. Only the larger settlements, such as La Grande Borne Aulnat, were engaged in a wide range of industrial activities. There is no evidence that industrial production was under elite control during LTC-D1a (*contra* Henderson 1991:116) although Orengo (*in prep.*) has argued that this was the case during LTB2-C1/2.



The middle to late La Tène settlements in the department of the Puy-de-Dôme had access to a wide range and quantity of goods in the area around Clermont-Ferrand at least. From the second century BC onwards a range of more standardised and specialised forms of pottery began to be manufactured many making use of the potter's wheel. During the late second century BC, a group of fine wheel turned vessels that copy Campanian forms (imitation Campanian) appeared. The LTC-D period saw the production of fine painted pottery often with complex zoomorphic designs (Guichard 1994), which Andrews (1997), has argued were produced by skilled full-time craftsmen. These fine wheel-made ceramics were also widely distributed and are found at most of the LTC-D1 sites in the department of the Puy-de-Dôme.

The lack of settlement hierarchy for the middle and late La Tène period in the department of the Puy-de-Dôme is also reflected in the burial record, which contains little evidence for great social stratification and neither is there evidence for a military elite in the burial record. Of course, it is possible that status differences and competition was not expressed in the burial sphere and it must be noted that rich burials are lacking for the Auvergne throughout prehistory. For the middle-late La Tène period in the Auvergne, society appears to have been open and relatively homogenous, with little status competition. Goods were widely redistributed and exchanged.

The archaeological record for the second century BC sites on the Grande Limagne shows the frequent re-digging of ditches and the deposition of archaeological materials within them, and the deposition of material within pits and wells. These activities need not be simply equated with intensive settlement, but instead with the level of social activity and interaction. Boundaries have often been linked with ritual and symbolic activity and the creation and re-cutting of boundaries has been linked with the demarcation and re-defining of social and community space (Hingley 1990). The frequency of ditch re-cutting and digging may indicate increased competition between small rural groups and the need to re-define and reinforce boundaries.

During the late second to first century BC, the department of the Puy-de-Dôme saw the formation of four *oppida*. These sites may have been deliberately planned, and show an increasing concern with defence and the control of space. The *oppida* in the Auvergne are not placed near to the best farmland and are instead located in marginal areas showing a greater concern with communication routes such as the river Allier. It is noteworthy that the *oppida* of Corent and Gergovie were located on hilltops that were previously settled during the late Bronze age/Hallstatt C-D period. There appears to be a desire to make use of and invoke earlier ritual and ancestral authority.

The Auvergne is unusual in that there is a succession of centrally located *oppida*, for other areas of France the continued use of a dominant *oppidum* was the norm and the Arverni appear to have little need for fortified settlements to control their territory unlike other Gaulish tribes. The Aedui had a political centre at Bibracte, a trading settlement at Châlon-sur-Saône (*Cabillonum*), and lesser *oppida* controlling the more distant parts of their territory such as at Mâcon (Caesar *De Bello Gallico* 7.42, 7.90). The Bituriges Cubi had a number of *oppida* dispersed throughout their territory (Ralston 1988, 1992; Guichard *et al. in press*) such as *Avaricum*, Châteaumeillant and *Noviodunum*. The adjacent Forez region saw the continuation of open rural settlements, such as Feurs (Vaginay and Guichard 1988) and Roanne (Lavendhomme and Guichard 1997), during the formation of the *oppida* of Essalois, Joeuvre and Crêt-Châtelard. The nearest comparison to the Auvergne is the Aisne valley in northern France. Here there was a similarly dated settlement shift from undefended valley bottom sites to a succession of short-lived defended *oppida* — Condé-sur-Suippe, Villeneuve-Saint-Germain and Pommiers (Haselgrove 1990, 1996).

Collis (1982) has proposed a crisis model to explain the pattern of settlement change during this period for the Auvergne. A crisis causes the nucleation of previously open settlement into more defensible locations. This model fails to explain why there should have been a succession of *oppida* in the Auvergne. All the *oppida* were only occupied for about a generation and then quickly abandoned. This succession of *oppida* implies a less stable settlement system during LTD1a-D2b than for the preceding periods.



When the density of Arvernian settlement for the second century BC is compared with the following century, there appears to be a reduction in settlement. Three explanations are possible; firstly the less frequent redistribution of material culture and/or a reduction in the deposition of archaeological materials, secondly, a reduction in the population and thirdly, a mixture of these factors. The defeat of the Arverni in 121 BC, the end of kingship, and the invasion of the Cimbri and the Teutones may have resulted in a fall in population. However, even if these events had some bearing on the changes observed in the Auvergne, it does not account for the continuation of the *oppida* after the crisis had passed. There is evidence that at the LTC2-D1 settlement of Le Pâtural the later Roman ditches, respect the late La Tène ones, suggesting that the field boundaries were maintained and the land was still farmed during the period of the *oppida*. The third hypothesis postulating a reduction in population and less deposition of material culture appears more favourable than a major reduction in population and the deposition of material culture.

To summarise, the second to the first century BC in the Auvergne was a period of major change and crisis. The second century BC was a period of small open farms, with little status difference, goods and material culture were widely distributed and deposited. Small-scale interactions between these farms and settlements took the form of ritual deposition of material culture in ditches and pits. By the first century BC the frequent ritual deposition of pottery ceased and was restricted to the *oppida*. Material culture may have been less frequently redistributed and sites away from the *oppida* had less access to these items making them less visible in the archaeological record.

## Chapter 3 Greco-Italic amphorae

### 3.1 Introduction

Benoit (1957) used the term 'Greco-Italic' to describe a group of amphorae, made from the fourth to second centuries BC, that were based on Greek prototypes (Figs. 18–29). The first classification scheme was based upon an increase in vessel height and divided Greco-Italic amphorae into three groups: Greco-Italic ancient, Greco-Italic transitional and Greco-Italic recent (Joncheray 1971:10). Will (1982) who divided the Greco-Italic into five varieties (A-E) made a more systematic attempt at classification. Will's scheme has not been universally welcomed (Manacorda 1986) and there is an element of vagueness in the definition of her forms, but it remains the most comprehensive scheme available. The classification scheme by Vandermersch (1994) only deals with Greco-Italic amphorae from the fourth to the third centuries BC and concentrates upon Greek and Sicilian production, which is of less relevance to this study. Vandermersch has six types: MSG I to MSG VI most of these forms are equivalent to Will's; Greco-Italic type A and MSG VI to type C and D.

### 3.2 End of Greco-Italic production

Production of the latest types of Greco-Italic amphorae overlapped with the Dressel 1A for a short period. Greco-Italic and Dressel 1A amphorae were found in the latest layers at Carthage (Hesnard 1990:50–51), and at Nages in layers dating before 125 BC (Hesnard 1990:51). Both types have been found at the Roman camps of Peña Redonda and Renieblas V at Numance (Spain), that were abandoned by 133 BC (Sanmartí-Grego 1985, 1992). Greco-Italic amphorae have been found in the Punta Scaletta shipwreck dated to c.150–130 BC (Parker 1992:359). The Capo Graziano A wreck, dated to 160–140 BC, contained transitional Greco-Italic/Dressel 1A amphorae (Parker 1992:117). After c.120 BC Greco-Italic amphorae are not associated with Dressel 1A amphorae, thus the period of overlap was short lived.



### 3.3 Morphology

Greco-Italic amphorae have low out-flaring rims; a pear shaped body, a small slender base and a vessel height under 0.95m. Most Greco-Italic rims have a height under 30mm and an inclination less than 65° (Guichard 1997:134–135). An alternative scheme for the recognition of Greco-Italic amphorae involves comparing the ratio between rim height and rim width (Hesnard and Lemoine 1981). Hesnard suggests that Greco-Italic rims have a ratio that is under or equal to 1.0 (Hesnard and Lemoine 1981:252 note 33). Gateau has proposed that a ratio under 1.29 indicate Greco-Italic rims and a ratio of 1.3–1.39 transitional rims (Gateau 1990:169).

Will's five types of Greco-Italic amphorae are described below:

Greco-Italic type A. This form dates from c.350–250 BC and has two subtypes: type a<sup>1</sup> is very short (0.60–0.65m), with a wide belly (maximum diameter 0.38–0.40m); it has a low out-flaring rim and a narrow mouth. The base is hollow and the body walls are thin (Will 1982:342). Type a<sup>2</sup> differs only in being taller, but is still relatively short (0.70m), with a more slender body.

Greco-Italic type B. Dates for this type are c.250–200 BC (Py 1993:47). This form is taller (0.70–0.80m), and the body has a wide diameter (0.36–0.38m). The rim is low and out-flaring, the base is short, ill-defined, and often bent off axis, and the body is thick walled (Will 1982:345). Manacorda (1986:581) believes that this type is not sufficiently defined and classifies types A and B together.

Greco-Italic type C. This type dates from c.225–175 BC (Py 1993:47). This form is higher (0.82–0.90m) with a maximum body diameter c.0.36–0.39m. The rim is low and out-flaring, but tends to be triangular. The base is well developed and often has a cap on the end (Will 1982:346–347). This type is found in a half-sized variety 0.55–0.60m high.

Greco-Italic type D. This variety dates from c.200–150 BC (Py 1993:47) and is the most common Greco-Italic amphorae. The average height is 0.75–0.80m, the body

diameter is between 0.32–0.36m and has a distinctive pear-shaped body. The handles are often s-shaped in profile, the base is well defined and the rim is often low and out-flaring (Will 1982:348–349).

Greco-Italic type E. This form dates to the second century BC (Will 1982:354) and Py (1993:48) suggests c.175–100 BC. These second century BC examples may actually belong to a specific type of Dressel 1 amphora (see chapter 6). This is the tallest Greco-Italic amphora (0.85–0.95m) with a slender body and thin, tall and s-shaped handles. The rim is high, triangular, and can resemble Dressel 1A rims. The base is ill-defined (Will 1982:354–355). This form has many morphological similarities with the later Dressel 1C.

### 3.4 Contents

Greco-Italic amphorae were probably used as containers for wine however, unlike the Dressel 1 there are painted inscriptions on the vessels to confirm this. Several Greco-Italic vessels from shipwrecks have preserved traces of their contents. Greco-Italic vessels from the Grand Congloué 1 wreck contained traces of a red liquid, possibly the remains of a red wine (Benoit 1961:50). Several of the Greco-Italic vessels from the Capistela shipwreck (Sicily), contained grape and olive seeds (Frey *et al.* 1978:289). These may either indicate the carrying of wine and olive oil in these vessels, or the carrying of grapes and olives preserved in *defrutum*. Many Greco-Italic amphorae have been found with internal resin linings and these vessels could not have carried olive oil, as it reacts with resin, degrading its quality and taste. Greco-Italic vessels from the following wrecks have resin linings: Chrétienne C (Peacock and Williams 1986:12), Grand Congloué 1 (Benoit 1961:50), Capistela (Frey *et al.* 1978:288–289) and Motya (Frost 1973:45–46).

### 3.5 Production areas

Will (1982) refers to fabrics for her different types of Greco-Italic amphorae and suggests likely source areas for them (see appendix 5). Her pronouncements must be



taken with a degree of caution, as they are not backed up with any detailed fabric analysis.

The Greco-Italic type A have Greek or Iberian stamps (Will 1982:342) and are common in Greece, Sicily, mainland Italy (Albinia and the *ager Cosanus*) and north Africa (Will 1982:343). There are concentrations of early Greco-Italic amphorae, including several wrecks, in southern Italy and Sicily (Riley 1979:131; Vandermersch 1986:fig. 3) but no kilns are known. There is no evidence to link the production of type A at Cosa and the Cosan fabric is not encountered in the fabrics of this variety (Will 1987a:178). Will suggests that this distribution indicates that they were made in Greece and Sicily; more specifically she assigns the type A<sup>1</sup> to the Aegean and gives type A<sup>2</sup> a Sicilian origin (Will 1982:343–344). Parts of Sicily especially Agrigentum were an important wine providing area during the Republican period (Riley 1979:131).

For type B Will (1979) draws attention to an incomplete stamp at Pech-Maho (southern France) which reads [-]ES. She believes that this is a SES (Sestius) stamp indicating that the vessel was manufactured at Cosa in Etruria (Will 1979 and see chapter 12). Apart from this questionable evidence, there is little data concerning the regions producing this form. Many of these vessels have Latin stamps (Will 1987a:345) and at present, an Italian origin is all that can be suggested.

The Greco-Italic type C has a limited distribution (Will 1982:346) and although this type is found at Cosa, there is no evidence to suggest that it was made there (Will 1987a:178) and no other production centres are presently known.

Many Greco-Italic type D amphorae have been found at Cosa and in the Cosan fabric and production occurred in Campania around Pompeii (Will 1987a:172–173, 178). The stamp TR. LOISIO (*Trebios Loisios*) found on a Greco-Italic Will type D amphora at Pompeii (Arthur 1982:31) backs this up as the *Trebbii* family came from Pompeii (Will 1982:350). Greco-Italic vessels (type D?) in the Filicundi A shipwreck dating to 180–170 BC were in the Pompeii black-sand fabric (Tchernia 1986:47).

Will (1987b:24) suggests that production took place in Brindisi and Metaponto (southern Italy) and recently Greco-Italic kilns have been found around Metaponto (Alvares 1992). A stamp on a Greco-Italic amphora from Ampurias that reads P. CAMPATIV is of a family from the Brindisi area (Manacorda 1986:38).

Will's opinion that her type E was made in north-eastern Spain where it is common and developed into the Dressel 1C is controversial (Will 1982:355, 1987a:201–202), however, see below.

Vandermersch suggests production centres for his Greco-Italic types. For MSG III (c.400–375 BC) Greece (1994:71), MSG IV (Will type A<sup>2</sup>) southern Italy and Sicily (1994:75), MSG V (Will type A<sup>1</sup>) Campania and the Naples area and MSG VI (Will type C and D) was made in Etruria, Latium, Campania, Southern Italy, Sicily and Greece (1994:84, 86).

### 3.6 Kilns

Table 1 lists the presently known Greco-Italic kilns from western Italy (see also Fig. 12). In northern Etruria Greco-Italic amphorae were made in the lower valley of the Arno and have been found at three kilns in the *ager Volaterra* at Podere Canciano, Giardino and Podere del Pozzo (Pasquinucci *et al.* 1998:357, 361 fig. 1). Peacock (1977a) collected a Greco-Italic rim from the Albinia kiln in Etruria (Manacorda 1981:22–24; Tchernia 1986:46; Manacorda 1981). Greco-Italic amphorae sherds are reasonably frequent in southern Etruria (Attolini *et al.* 1991:146–147, fig. 5).

From the Latium region Greco-Italic amphorae have been reported from the Astura kiln (Hesnard *et al.* 1989:24), at kilns from the plain of Fondi (Hesnard *et al.* 1989:26): at Monte San Biagio (Hesnard and Lemoine 1981:246), Garigliano and *Minturnae* (Hesnard *et al.* 1989:26).

Greco-Italic amphorae, have been found at several amphorae kilns from the *ager Falernus* in Campania, including kilns at Dugenta (Hesnard *et al.* 1989:29),



Mondragone (Hesnard and Lemoine 1981:248–249), and around Sinuessa (Arthur 1982:23, 1991a, 1991b). Greco-Italic amphorae were manufactured at Pompeii (Will 1982:351) and other findspots in Campania include the kilns at Monte Vico and Ischia (Arthur 1982:31). Fieldwalking surveys by Arthur in northern Campania have found few fragments of Greco-Italic amphorae hinting that the level of production was at a lower level than Etruria (Arthur 1995). In Calabria (southern Italy) Greco-Italic amphorae have been found at the kilns of Hipponion, Locri and Medma, (Arthur 1989:133).

Greco-Italic amphorae were also manufactured at Marseilles (Bertucchi 1992; Laubenheimer 1989:110), but apart from examples at Nages and Pech-Maho (Languedoc) (Laubenheimer 1989:116; Bertucchi 1982) they remain scarce. Recently evidence has emerged for the production of Greco-Italic amphorae in Spain in the region of Taracco (Carreté *et al.* 1995:80, 277).

### 3.7 Chemical analysis of Greco-Italic fabrics

Chemical analysis (x-ray fluorescence) has been used to analyse Greco-Italic amphorae from Pech-Maho (46 examples of Will types A and B, dating from c.300–200 BC) and Ampurias (52 examples of Will types C, D and E, dating to c.200–175 BC) (Hesnard *et al.* 1989:36–37, 60–65). Samples of Republican amphorae sherds taken from the kilns of Albinia, Astura, Cales, Cosa, Dugenta, Fondi (Canneto, Monte San Biagio and Torre San Anastasia), Garigliano, *Minturnae* and Mondragone, were used as references (Hesnard *et al.* 1989:37–38).

For Pech-Maho 10–15 kilns supplied Greco-Italic amphorae to the site (Table 2) and 20–25 to Ampurias (Hesnard *et al.* 1989:48 table 2), suggesting an increase in the number of workshops supplying Greco-Italic amphorae with time. At Pech-Maho 13% of the amphorae came from the Pompeii region and for Ampurias the figure is 4% (Hesnard *et al.* 1989:46 fig. 21). Greco-Italic amphorae with Greek stamps represent 17% of the vessels at both sites (Hesnard *et al.* 1989:61 fig. 28). Vessels stamped M.LVRIVS represent 20% of the Greco-Italic vessels at Pech-Maho and 4%

at Ampurias (Hesnard *et al.* 1989:61 fig. 28). The source of these two groups is not known but a Sicilian and or a Greek origin has been suggested (Hesnard *et al.* 1989:62–65). These two fabrics are not found in the sample of Dressel 1A fabrics from the later site of Lagaste (see chapter 4) and may indicate non-western Italian sources (Hesnard *et al.* 1989:62–65). Mondragone supplied 6% of the amphorae at Ampurias, but none to Pech-Maho, while amphorae from *Minturnae* are absent from both sites (Hesnard *et al.* 1989:46, fig. 21). Neither site has any Greco-Italic amphorae from the Etrurian kilns of Cosa and Albinia (Hesnard *et al.* 1989:58 fig. 27). The site of Ampurias shows a greater similarity in amphorae fabrics with the Dressel 1A amphorae from the site of La Lagaste, than Pech-Maho (Hesnard *et al.* 1989:63).

This study suggests, admittedly on slender evidence, that Sicily and Greece, followed by Pompeii and Campania were the main suppliers of Greco-Italic amphorae during 250–175 BC. The predominance of Sicilian and Greek Greco-Italic amphorae at Pech-Maho and Ampurias is in agreement with the limited fabric analysis so far carried out upon Greco-Italic types A and B. The lack of Albinian and Cosan Greco-Italic at these two sites suggests that Etrurian production of Greco-Italic amphorae did not start until the early second century BC (Will type C, D and E).

### 3.8 Conclusions

There have been few thin-section and chemical studies of Greco-Italic amphorae and few conclusions can be drawn regarding the areas and regions supplying these amphorae. Greco-Italic fabrics tend to be different from those found in the later Dressel 1 (Hesnard *et al.* 1989; Riley 1979:132). The earliest Greco-Italic amphorae may have been manufactured in Greece, Sicily and southern Italy. By the late third-early second century BC, they were being manufactured around Pompeii and soon after in Etruria, Latium, and other parts of Campania.



## Chapter 4 Dressel 1A, 1B and 1C amphorae

### 4.1 Introduction

Since the recognition of this type by Dressel in the late nineteenth century (*cf.* Zevi 1966) this form has been subsequently subdivided into three types: A, B and C (Lamboglia 1955). Although this framework is still used, it has been suggested that it is inadequate (Manacorda 1978:126). Recent research is suggesting that Dressel 1 amphorae contain several distinct types, more than the three currently recognised (see below and chapter 6). Firstly, the traditional definition is given for the three types of Dressel 1 amphorae together with their production dates and this is followed by a detailed discussion on the validity of this classification scheme.

### 4.2 Dressel 1A morphology

This type is characterised by a triangular rim 30–50mm high, with an inclination between 50–85° (Guichard 1997:135). The shoulder is less rounded than the Greco-Italic giving the vessel a long cylindrical shape (Figs. 30–51). The neck is long and narrows at the bottom and there is a stub base. These vessels have a stronger construction than the Greco-Italic. The height of the vessel is around 1.0–1.1m, and with a capacity of 20l.

#### 4.2.1 Chronology

Current thinking places the origin of the Dressel 1A around 150–140 BC (Hesnard 1990:51) and two Dressel 1A rims have been reported from Carthage, destroyed in 146 BC (Wolff 1986:148–149; Hesnard 1990:51). Dressel 1A amphorae have been found at the Roman military camps at Numance which were abandoned in 133 BC (Sanmartí-Grego 1985, 1992), and from the *oppida* of Saint-Blaise, Baou-Roux and Entremont in southern France, which were abandoned respectively in c.130/120 BC, c.100 BC and c.90 BC (Gateau 1990). Dressel 1 amphorae are also reported from the *oppidum* of Nages in layers pre-dating 125 BC (Hesnard 1990:51) and at Ampurias in

layers dating to 175–125 BC (Tchernia 1986:44). Archaeological deposits from Geneva dated to 123–90 BC from dendrochronological dates contained a Dressel 1A rim (Haldiman 1989:12, 15 no. 10; Poux 1999a:388 fig. 4).

Poux has collected details of consular *tituli picti* (painted inscriptions) on Dressel 1 amphorae (Poux and Sellès 1998:fig.7) (Table 3, Fig. 5). There is a date from Rodez of 129 BC and *Carthagera* of 119/117 BC (Poux 1999a:413). Previously the oldest *tituli picti* on the Dressel 1 was a date of 119 BC (Tchernia 1986:44), 102 BC (Zevi 1966:212) and a less secure one of 129 BC (Tchernia 1986:44). The rims from Rodez, Fiesole and Carthagera are all triangular giving a date of c.130 BC for the existence of clear Dressel 1A rims. Several of the rims from Agen are 40–50mm high, with a vertical profile and are transitional with the Dressel 1B (Fig. 6). Such rims are very rare at Numance (Sanmartí-Gregó 1985, 1992) suggesting that this type of rim first appeared after 130 BC, but before 100 BC. A second sub-type of Dressel 1A rim can be tightly dated and this form consists of a very high (45–55mm), wide, triangular rim, that is transitional between the Dressel 1A/Dressel 1B. Such rims have been found at the Athenian Agora in layers predating the Sullan destruction layer of 86 BC, at Cáceres El Viejo in Spain that predates 80 BC (Poux 1999a:388 fig. 4), but are absent from Numance (Fig. 7). This form would appear to have a date around 130–80 BC (chapter 6).

Although the date for the origin of the Dressel 1A has been extended over the last 20 years, there has been less willingness to consider changing the terminal date of this form, and reducing the period of overlap with the later Dressel 1B. The terminal date for the production of the Dressel 1A given in the literature is c.50 BC (Laubenheimer 1990:41; Peacock 1971:165; Tchernia 1986:320). Dressel 1A amphorae have been reported from several contexts from the middle of the first century BC: La Cloche at Marseilles (Hesnard 1990:51), Nages and Lattes (Poux 1999a:386–387 fig. 2). As these examples are all from sites that had a long history of occupation, the Dressel 1A rims may be residual.



Parker (1992:32) has suggested that the Dressel 1A dates to the second century BC, based upon a detailed study of shipwrecks containing Dressel 1 amphorae, and that they were not produced after 100 BC. The last consular date on a Dressel 1A is a date of 80 BC (Long 1987a:165). According to Olmer, the Dressel 1A dominates the 50–30 BC contexts at Tournus Clos Roy (1997:288). Shipwrecks containing cargoes of the Dressel 1A and the Dressel 1B are rare (Poux 1999a:388; Parker 1992), although there are a few cargoes dominated by the Dressel 1B that contain several Dressel 1As (however see chapter 6). The La Fourmigue C shipwreck contained two Dressel 1As and c.100 Dressel 1Bs (Baudoin *et al.* 1994) and the Madrague de Giens wreck contained c.10 Dressel 1As, but c.6,000 Dressel 1Bs (Liou and Pomey 1985:563). These Dressel 1A may have been for shipboard use only, and they do not indicate that the Dressel 1A were still traded during the later first century BC.

### 4.3 Dressel 1B morphology

The Dressel 1B has a high, slightly concave collar rim, which is over 45mm in height and can be as high as 60mm, the inclination is greater than 75° (Guichard 1997:135). The shoulder is much more angular and sharply defined than the Dressel 1A (Figs. 52–63). The base is taller and more massive than the Dressel 1A, often over 150mm high. The vessel height was greater than 1.1m with a capacity of around 25l, and has a sturdier construction than the Dressel 1A.

#### 4.3.1 Chronology

Will originally argued that the Dressel 1A evolved into the Dressel 1B c.80–70 BC (1987b:34). Two *tituli picti* show that this form was being produced by the end of the second century BC. From the *Castro Pretorio* ditch in Rome there is a Dressel 1B with a consular date of 97 BC (Tchernia 1986:320). There is a consular date of 90 BC on high collar rim from Burriac (Miró 1986) (Figs. 7–8), but see chapter 6. There are two second century BC possible Dressel 1B rims at Frégelle that predate 125 BC (Poux 1999a; Guidobaldi 1989), but they could equally be transitional Dressel 1A/1Bs (Fig. 6). There is a similar high rim at Vallromanes with a consular date of 119 BC

(Miró 1986). Dressel 1Bs are found at Nages in layers dating to 100–75 BC and in late second century/early first century BC contexts at Olbia (Poux 1999a). A very high Dressel 1B rim with the classic Dressel 1B morphology from Carthage (Fig. 5) has a consular date of 25 BC (Poux 1999a).

It is argued that the Dressel 1B out-numbered the Dressel 1A by c.70–60 BC and had replaced it by c.50 BC (Laubenheimer 1990:41; Peacock 1971:165; Tchernia 1986:320). According to Gateau (1990:166) the period 80–50 BC, saw massive importation of the Dressel 1B. This is not reflected in the Dressel 1 cargoes from first century BC shipwrecks, which solely contain cargoes of Dressel 1Bs. The latest dated cargo of Dressel 1B amphorae are the Planier 3 (c.47 BC) and the Plane 1 (c.50 BC) shipwrecks (Poux 1999a; Pion 1996 fig. 256). The less securely dated Santa Severa shipwreck (50–25 BC) has a large cargo of Dressel 1Bs but also one Dressel 2–4 (Parker 1992:385–386).

Dates from *tituli picti* indicate that wine was no longer decanted into the Dressel 1B after 10 BC (Sealey 1985:26). The last consular dates on this form are 25 BC, 20 BC, 19 BC and 13 BC (Zevi 1966:213), but it has been suggested that this series of dates are on vessels that may have been re-used (Desbat 1998:33; Pion 1996 II:177). At Besançon Saint-Jean, Dressel 1B and Dressel 1C amphorae were found in structures with dendrochronological dates of 10–1 BC and AD 20–40 (Laroche 1998). At Roanne Dressel 1 sherds are common in Horizons 9–12 (first to third century AD) (Genin and Lavendhomme 1997:115–118). The La Tradeliere shipwreck (20–10 BC) contained a large cargo of Dressel 2–4, Rhodian and Chian amphorae, but several Dressel 1Bs (Parker 1992:433–434; Pion 1996 II:176).

Dressel 1 amphorae are missing from the large deposit of amphorae from the ditch at La Longarina dated to c.5 BC-AD 5 (Hesnard 1980) and from the settlement of Augst (c.40 BC) (Desbat 1998:33). Dressel 1 amphorae are absent from the port of Frejus in southern France, which was founded by the Romans shortly after the battle of Actium in 31 BC (G. Rogers *pers. comm.*). Few Dressel 1B amphorae are reported from the



late Augustan forts from southern Germany (Fitzpatrick 1985:307) although further quantitative data is lacking (Desbat 1998:33).

It has been suggested that Dressel 1 amphorae were not exported to Gaul after 50–30 BC (Pion 1996 II:177–178; Desbat and Martin-Kilcher 1989; Desbat 1998). At Saint-Romain-en-Gal (Vienne) worn and eroded Dressel 1 sherds are found in the three horizons starting 30/20 BC, 15 BC/AD 5 and AD 15/20 (Desbat and Martin-Kilcher 1989:344 fig. 2) and are interpreted as residual (Desbat and Martin-Kilcher 1989:345–346). At Lyon Verbe Incarné Dressel 1 amphorae represent only 1% of the amphorae in the 15 BC/AD 15 horizon, and may be residual. At Lyon rue Favorite (AD 5–10) Dressel 1 amphorae are absent (Desbat and Martin-Kilcher 1989:345 fig. 3). There are only nine Dressel 1 amphorae (only 2.1% of the total number of amphorae) at the Roman colony at Carthage that was founded in 44 BC. Desbat (1998:34) has suggested that the rapid fall in the importation of Dressel 1 amphorae after 50 BC to France and the rarity of the later Dressel 2–4 can only be explained by the importation of Italian wine in wooden barrels.

Although the finding of Dressel 1 amphorae from several of the late Augustan German forts contradicts Desbat argument (1998), it appears that Dressel 1 amphorae are not found on civilian settlements during the late Augustan period. If Dressel 1 amphorae were not exported to western Europe after 50–30 BC, this would have obvious repercussions as regard the dating of most Dressel 1 amphorae in England which are generally assigned to the period just before and after the Gallic war.

#### 4.4 Dressel 1C morphology

The Dressel 1C has a distinctive spindle shaped body (Figs. 33, 35, 43–44, 48, 64–65). The height is around 1.1–1.2m, and has a capacity of 25l. It has a distinctive high (60–80mm), vertical or concave rim. The mouth is very narrow with an average diameter of 100–120mm (Will 1987a:201), but always under 150mm, and so clearly differs from the Dressel 1B (Guichard 1997:135). The handles are s-shaped in profile and ribbed, the shoulder is narrow, the base is not well defined and not properly

differentiated from the body. This variety is much less frequent than the Dressel 1A and the Dressel 1B.

#### 4.4.1 Chronology

The Dressel 1C is taken as being contemporary with the Dressel 1A and 1B (c.150–10 BC) however, a slightly later appearance by the late second century BC with production only until the second quarter of the first century BC is more likely (Gateau 1990:166; Will 1987a:202). The Dressel 1C has been found at several sites dating to c.100 BC: Azaila (with a consular date of 96 BC), Olbia (Poux 1999a) and Vada Sabatia (Lamboglia 1952). In Burgundy the Dressel 1C has been found in 150–130 BC contexts (Olmer 1997:149, 221 plate 26 and 28), but is more frequent around the LTD1/2 transition and is rare by the end of LTD2 (Olmer 1997:150–151, figs. 77, 87). This form has been reported from the Cavalière wreck (c.125–100 BC) (Charlin *et al.* 1978) but is absent from many other Republican shipwrecks dating to the second century BC (Parker 1992). The Dressel 1C is found at Delos (Will 1979:341) where it was most common in the first quarter of the first century BC (Will 1987a:202). The Dressel 1C is not found at Corinth which was re-founded in 44 BC. The finding of a Dressel 1C from the Athenian Agora with a painted inscription reading COS/SES (Will 1979:346) probably refers to *Lucius Sestius Quirinalis consul suffectus* in 23 BC (and not Cosa as interpreted by Will).

#### 4.5 Dressel 1 contents

The Dressel 1A and 1B was used to carry wine and the production of this form is concentrated in the great wine producing areas of Etruria, Latium, and Campania. Painted inscriptions on Dressel 1 amphorae refer to their carrying wine (Zevi 1966; Sealey 1985:21–25) including the famous *Falernian* and *Caecuban* wines (Sealey 1985:23).

In rare cases, Dressel 1 amphorae have preserved traces of their contents. Dressel 1B amphorae from the Albenga shipwreck contained a red paste (Parker 1992:50).



Dressel 1B amphorae from the Madrague de Giens shipwreck contained the remains of red wine, although the cargo is known to have come from the area of the famous *Caecuban* wine which was white (Parker 1992:249). One amphora from the Capo Saint Andrea B wreck contained the remains of a white wine (Parker 1992:124).

Many Dressel 1 amphorae from shipwrecks have internal resin linings (Parker and Squire 1974:32; Beck *et al.* 1989) which precludes the carrying of olive oil in these vessels. It is possible that *defrutum* (a non-alcoholic sweet preservative made from the boiling of the remains from grape pressing) may have been carried in these vessels (Sealey 1985:25, 62–63). This might explain the finding of preserved grapes from a Dressel 1B from the Madrague de Giens shipwreck (Sealey 1985:25) and the remains of olives (presumably also carried in *defrutum*) in Dressel 1 amphorae from the Cavalière (Charlin *et al.* 1978) and the Santa Severa wrecks (Parker 1992:385). Varro and Cato refer to the making of a poorer quality wine from a second pressing of the must, and by the addition of water to the remains from the pressing (Rossiter 1981:346). The export of such poorer quality wines may explain the finding of grape remains in some amphorae; as would the reference by Pliny to the covering of wine up to the top of the cork with boiled grape must (*Naturalis Historia*, 14.135).

The distinct morphology of the Dressel 1C and its rarity may suggest that its contents differed from the Dressel 1A and 1B. However, few Dressel 1C amphorae have preserved traces of their contents; eight Dressel 1Cs from the Cavalière wreck contained olives preserved in *defrutum* (Parker 1992:133). Will has suggested that the Dressel 1C from Cosa may have been used to contain *garum* from the large fishery excavated at the port (Will 1987a:202). However, *garum* could have been carried in the more common Dressel 1A which was also made there, and there is no other evidence for the carrying of *garum* in the Dressel 1C. Gas chromatographic analysis of Dressel amphorae manufactured in Tarraco (Spain) has suggested that they carried fish products (Carreté *et al.* 1995:81). There is a morphological similarity between the Dressel 1C and the later Spanish Dressel 12 *garum* amphora. Dressel 1C have been recovered with traces of an internal resin linings from the Colonia de Sant Jordi A and the Grand Ribaud A wrecks (Parker 1992:149, 202).

## 4.6 Validity of the Dressel 1A, Dressel 1B and Dressel 1C

The validity of the tripartite division of the Dressel 1 amphorae has been the subject of critical analysis on the continent (Aulas 1983, 1985, 1988; Colin 1998; Guichard 1997:133–135; Hénon 1995; Maza 1996–1997, 1998a, 1998b; Olmer 1997; Olmer *et al.* 1995; Poux 1999a). This debate has pointed out that the Dressel 1A or the Dressel 1B is not defined in any coherent way in the literature. Conflicting classification schemes have been developed to classify Dressel 1 amphorae (Tchernia 1986:310–311). For rim height several different criteria have been used: Benoit (1957) suggests that the Dressel 1A has a rim height of 40–56mm, Stöckli under 50mm (1979) and Bats (1986:399) under 50mm. For the Dressel 1B Benoit gives a rim height of 60–80 mm, Stöckli over 49mm (1979) and Bats greater than 50mm (1986:399). Hénon (1995:157), Olmer (1997:134) and Tchernia (1986:313), suggest that ‘classic’ Dressel 1Bs have a rim height greater than 55mm. To Will the Dressel 1B differs from the Dressel 1A in having a more vertically shaped rim (Will 1979:341 note 6).

It appears that the only reliable defining characteristic of Dressel 1 amphorae and Greco-Italic is that of vessel height (Guichard 1997:135). Greco-Italic amphorae always have heights under 0.9m, while Dressel 1As height ranges from 0.95–1.05m, and the Dressel 1B from 1.1–1.2m. Plotting the height of Republican amphorae recovered from Mediterranean shipwrecks shows that on the basis of complete height they do fall into three groups (Guichard 1997:133–135 fig. 116) and see Fig. 9.

Only the Dressel 1C has a more distinctive rim and body morphology than the Dressel 1A and 1B, and is easier to differentiate from the Dressel 1A and 1B. Many researchers agree that the Dressel 1B, like the Dressel 1C, has a more standardised morphology and it is the Dressel 1A that poses all the classification problems (Olmer 1997:133). The wide range of morphological variation seen within the Dressel 1A (Olmer 1997:133, 152), is because this form contains several distinct types of amphorae (Olmer 1997:152; Tchernia 1986:320). The Dressel 1A would consist of those amphorae that could not be classified as Dressel 1Bs or Dressel 1Cs (Olmer 1997:135). A second scheme used by many French researchers is to recognise only



the Dressel 1C as a distinct type and to subsume the remainder as Dressel 1 and in some cases the Dressel 1C division is not recognised.

#### 4.6.1 Classification of Republican amphorae rims

Many schemes often instead classify Dressel 1 rims into rim classes, based on their rim height and angle of inclination. These studies build upon the work by Vaussanvin (1979) and by Aulas who studied the amphorae from the sites of Amplepuis in the department of the Rhône (1985), Feurs (1988) and Roanne (1983), from the Forez region of central France. Other researchers have instead just studied rim height, inclination, and rim diameter as single variables (Maza 1998a; Olmer 1997; Poux 1999a).

Aulas has argued that there was a linear trend of increasing rim height and angle of inclination (Figs. 6–7, 10); with Greco-Italic rims evolving into Dressel 1A rims, which in-turn evolved into Dressel 1B rims (1983). Because of the gradual evolution of one form into another, there will inevitably be some morphological overlap among the different types. Aulas has created four rim classes (Table 4) which can be used to aid the classification of Republican amphorae rims.

Greco-Italic rims will be found in class 1, Dressel 1A rims will be found in classes 1, 2 and a small number in class 3. Dressel 1B rims will be found in classes 3 and 4. By analysing the proportions that these different rim classes represent at sites, this can allow the comparison and seriation of Republican amphorae assemblages (Aulas 1983:225, 1988:90; Colin 1990:202, 1998:70–72). Sites with the earliest Dressel 1 amphorae will be dominated by rims from classes 1 and 2, progressively later sites will contain increasing numbers of rims in classes 2 and 3 and the latest sites will consist of rims from classes 3 and 4.

Many other workers have used Aulas' scheme, and this allows regional comparisons of Dressel 1 amphorae (Colin 1998:70–72; Guichard 1997; Gruat *et al.* 1991:98–99;

Hénon 1995; Pion 1996 I:262–263). However, Aulas' rim classes do not cover all the morphological range of Dressel 1 rims (Baudoux 1996:31; Hénon 1995; Maza 1998a).

Guichard (1997:133–135) has modified Aulas' scheme in the light of a study of amphorae assemblages from Mediterranean shipwrecks (Figs. 9, 11). Guichard has studied the variation in rim height and inclination against vessel height and has plotted the range of rim heights and angle of inclination for Greco-Italic, Dressel 1A, 1B and 1C amphorae (Fig. 9). Guichard has three rim classes (1, 2 and 3) representing the morphological range of Greco-Italic, Dressel 1A and 1B rims (Fig. 11). The morphological overlap between the rims of the three amphorae types creates two subgroups representing the overlap of groups 1 with 2 (class 1 or 2) and group 2 with 3 (class 2 or 3). Rims that fall within class 1 or 2 either belong to Greco-Italic or early Dressel 1As and those in class 2 or 3 are either late Dressel 1A, transitional or Dressel 1B (Fig. 11). Guichard (1997:135–139) has used this scheme to study amphorae assemblages from the Forez region, Lyon and the Aisne valley. Guichard's scheme has been used in this thesis to study the amphorae assemblages from the Auvergne, and to compare them with other important assemblages of Republican amphorae from Western Europe (chapter 8). As well as classifying Republican amphorae rims into rim groups, the raw data should also be provided as this allows other researchers to classify the rims according to their classification system.

Tchernia has questioned Aulas' scheme for a gradual morphological evolution of Republican amphorae rims (Tchernia 1986:313). It has been argued that the existence of several types of Dressel 1A amphorae would invalidate this morphological trend, but this need not necessarily be so (see chapter 6). The Republican amphorae assemblage from Lyon Verbe Incarné has also been used to cast doubt on the Aulas scheme (Goudineau and Mandy 1989:55). This assemblage contains Greco-Italic, Dressel 1A, 1B and 1C amphorae and according to the excavators, these amphorae were deposited at the same time in the ditches of a Roman military camp either in 62 BC or 43 BC (Goudineau and Mandy 1989). A more recent interpretation argues that the site was a second century BC Gaulish sanctuary and the amphorae may have been deposited over a wider chronological period (Metzler *et al.* 1991:83–84). It has also



been argued that as Republican amphorae were manufactured in dispersed production centres that this would have prevented any morphological evolutionary trend (Goudineau and Mandy 1989:50, 54–55). However, as most sites contain a variety of fabrics and rim shapes, this suggest, that there was a general evolution of rim form throughout the different production centres (Poux 1999a:386).

#### 4.7 Productions areas for the Dressel 1

Dressel 1 production was concentrated along the western coast of Italy (Peacock and Williams 1986:87) including the regions of Etruria, Latium and Campania (Fig. 12). Classical writers referred to the wines from Latium and Campania, there are no references to high quality wines from Etruria during the Republican period. An inscription on a Dressel 1B refers to *Regium* in southern Italy (Sealey 1985:137).

Knowledge of Dressel 1 production sites in Italy is poor and there is a need for a detailed research programme. The evidence so far amassed comes from many regional studies (Arthur 1991a, 1991b; Attolini *et al.* 1991; Cherubini and Del Rio 1997; Del Rio *et al.* 1996; Hesnard 1977; Hesnard and Lemoine 1981; Hesnard *et al.* 1989; Pasquinucci *et al.* 1998; Peacock 1977a; Ricq-de-Bouard *et al.* 1989). It has been estimated that there were c.100 production sites for Republican amphorae along the western coast of central Italy (Thierrin-Michael and Picon 1994:144; Hesnard *et al.* 1989:59). Presently only a few fabrics can be traced back to areas of production, or to specific kilns. Although some of the identified kilns were important suppliers of amphorae to Gaul, still only one fifth of Republican amphorae fabrics can be identified back to known kilns (Thierrin-Michael and Picon 1994:144). Details of Republican amphorae fabrics can be found in appendix 5.

Many of the Republican amphorae kilns (Table 5, Fig. 12) are represented by finds of wasters however, many are designated as kilns simply by the presence of large dumps of amphorae sherds and few have been subject to excavation.

Recent surveys have uncovered 30 kilns in northern Etruria (between Pisa and Volaterrana) associated with Greco-Italic, Dressel 1, Dressel 2–4, and later regional types, such as the Empoli, Forlimpopli and Spello amphorae (Del Rio *et al.* 1996; Pasquinucci and Menchelli 1999; Pasquinucci *et al.* 1998). Five kilns were firing Dressel 1 (mainly Dressel 1B) amphorae: Il Gorgo, La Mazzantan, Podere del Pozzo, Rosignano and Vallimbuio (Pasquinucci *et al.* 1998; Cherubini and Del Rio 1997; Del Rio *et al.* 1996). A greater number of kilns (c.10) were associated with the later Dressel 2–4 (Pasquinucci *et al.* 1998; Menchelli 1990–91) and the Dressel 2–4 is the most frequent amphorae find in the region (Pasquinucci and Menchelli 1999). These Republican kilns are found clustered together along the coastal hinterland often located in the lower river valleys including the Arno (Del Rio *et al.* 1996), Chioma, Fine and Cecina and around Pisa (Pasquinucci *et al.* 1998).

In southern Etruria, there is presently no evidence for the dispersed manufacture of Dressel 1 amphorae and only four production centres are known (Fig. 12). The ancient port of Cosa was one of the main production centres for the Dressel 1A and the Dressel 1B (Will 1987a:174) and so too was the nearby kiln at Albinia (Peacock 1977a). Further concentrations of Dressel 1 amphorae are known from the *ager Cosanus* and hint at further kilns at Albenga and La Parrina (Attolini *et al.* 1991). Findspots of Dressel 2–4 amphorae are less frequent in the region (Attolini *et al.* 1991:149–150): only the Albinia kiln was firing them (Attolini *et al.* 1991:149) and the large-scale export of amphorae may have ceased by 50–40 BC.

Will has suggested that the production of Dressel 1 amphorae shifted from Etruria/Cosa, to southern Latium and Campania around 50 BC, when the Dressel 1B was replacing the Dressel 1A (1987a:184). Arthur has suggested that the decline in Cosan amphorae production was caused by the disruption to the Gaulish market, following Caesar's conquest of Gaul (1995:242).

The regions of southern Latium and northern Campania have been extensively studied (Arthur 1982, 1991a; Hesnard 1977; Hesnard and Lemoine 1981; Hesnard *et al.* 1989; Ricq-de-Bouard *et al.* 1989). Groups of kilns are found in the *ager Caecubus* around



*Terracine* in the plain of Fondi: Canneto, Monte San Biagio and Torre San Anastasia (Hesnard 1977; Hesnard and Lemoine 1981).

Arthur (1982, 1991a, 1991b, 1995) has studied the *ager Falernus* in northern Campania in detail (Fig. 13). This area showed an upturn in amphorae production around the middle of the second century BC (Arthur 1991b:155). Here the production of amphorae was concentrated along the coast, around the town and port of Sinuessa, and next to the main roads (Arthur 1982:23). Both the town and port of *Minturnae* and Sinuessa appear to have produced amphorae: kilns are lacking but deposits of amphorae wasters are common at Sinuessa and both settlements are near to clay sources (Arthur 1991a:74–75, 1991b:155). Many nearby rural settlements contained olive and winepresses (Arthur 1991b:155), but it appears that there was a clear dislocation between the wine producing *fundi* and the amphorae kilns (Arthur 1991a:74–75). Potters or *negotiatores*, who supplied amphorae to the local estates (Arthur 1991a:75; Paterson 1998:164), owned the coastal kilns. The concentration of such potteries around the port of Sinuessa suggests that wine was brought to the port from the immediate hinterland.

By the early Empire, there was a change in the settlement of the region, with a reduction in the number of rural settlements. There was also a change in the location of the amphorae kilns, which were found in inland positions (Arthur 1982:32) at Cales (Morel 1989), Massico (Arthur 1982:23–27 figs. 2–3), Teanum and the middle Liri valley (Arthur 1995:243). There was also a reduction in the volume of amphorae production and the Dressel 2–4 was less frequent than the Dressel 1 (Arthur 1991b:157). Although later Dressel 2–4 kilns are more numerous than Dressel 1 kilns, finewares not amphorae were the main products of these kilns (Arthur 1982:33). Arthur links the reduction in the number of settlements with the creation of larger estates, while the change in location of the amphorae kilns reflected a desire of the potters to be nearer to the wine producing areas of the interior (Arthur 1982:32; 1991b:157). The wine producing estates (Arthur 1995:75) most likely owned these inland kilns. This may indicate that the export of wine was no longer important, with trade geared to more local markets (Arthur 1982:32). By the late first to early second

century AD the inland Dressel 2–4 kilns were abandoned and Dressel 2–4 amphorae were no longer produced and exported (Arthur and Williams 1992:255).

Arthur has argued that during 50 BC-AD 50 Campania unlike other parts of western Italy continued to export amphorae and sought alternative markets, including Britain and the eastern Mediterranean (Arthur 1995:244). Dressel 2–4 amphorae in Campanian fabrics in Britain have been found at Colchester Sheepen, Skeleton Green and Stanmore (Arthur 1995).

Arthur has subsequently suggested that the inland Dressel 2–4 kilns were geared towards the export of amphorae (1995). In northern Etruria there is no evidence for a shift in the location of the Dressel 2–4 kilns which like the earlier Dressel 1 kilns are concentrated along the coast (Pasquinucci *et al* 1998), suggesting that the export of amphorae from northern Etruria was still important.

Fabric evidence has shown that Dressel 1 amphorae were produced in Calabria (Peacock 1971:165; Arthur and Williams 1992:258). Until recently no actual kilns were known, but a kiln has been discovered at a Roman villa at Cropani, which was associated with Dressel 1A and Dressel 1B amphorae (P. Arthur *pers. comm.*).

Two systems of amphorae production were utilised during the late Republican period: large amphorae production centres (Albinia, Cosa and Sinuessa) which produced amphorae for the *negotiatores*, who supplied amphorae to the surrounding wine producing farms; secondly, the more common production of amphorae at the wine producing estate. The decline of the large amphorae factories during the first century BC may not suggest a decline in the export of amphorae, but instead a change in the organisation of the system. This may have included an attempt to remove the middlemen (Arthur 1995:243). The concentration of kilns along the coast and the development of large amphorae factories may have been atypical.



#### 4.7.1 Production of the Dressel 1 outside Italy

Dressel 1 amphorae were also produced in southern France (Sabir *et al.* 1983; Laubenheimer 1985) (Table 6); many of these kilns were also producing Gauloise 1–4 amphorae. Most of this production dated to the second half of the first century BC, and production peaked during the Augustan period. Three kilns from the region of Narbonne (Azillanet, Boutenac and Saint-Laurent la Cabrerisse) have produced sherds of Dressel 1 amphorae (Sabir *et al.* 1983). Chemical analysis of wasters has shown that at least one kiln at Saint-Laurent la Cabrerisse, produced copies of the Dressel 1 (Sabir *et al.* 1983:112).

Dressel 1, Dressel 2–4, and Dressel 7–11 amphorae, were also made at Lyon (Dangéaux *et al.* 1992; Laubenheimer 1989:115). Two kilns within the city (La Murette and La Manuterntion) produced copies of the Dressel 1B (Dangéaux *et al.* 1992:37). Chemical analysis of the Lyon Dressel 1B fabrics has shown them to be local products and not Italian (Dangéaux *et al.* 1992:45–49). The Lyon Dressel 1Bs have a high collar rim (over 60mm) and ribbed handles that resemble the Dressel 1C (Dangéaux *et al.* 1992:38). Production of these amphorae occurred during the Augustan period (Dangéaux *et al.* 1992:38). A kiln at Saint Just in the Ardèche was also producing copies of the Dressel 1 and Dressel 2–4 amphorae during the Augustan period (Laubenheimer 1989:109, 116). It is not possible to gauge the scale of French Dressel 1 production and their distribution within France remains unknown.

Greco-Italic, Dressel 1A, 1B and 1C amphorae were manufactured in Spain in the region of Tarraco and the area around Barcelona (Carreté *et al.* 1995:80–84, 102) (Table 6). These copies have a restricted distribution on native sites in the Tarraco region (Carreté *et al.* 1995:277) and it is not known if they were exported abroad. Dressel 1A and 1B amphorae were also manufactured at Torre Alba in the Cadiz area (Rivera 1998).

#### 4.7.2 Dressel 1C production areas

Will (1987a:201–202) suggests that the Dressel 1C developed in Spain from the Greco-Italic type E (see chapter 2). A Dressel 1C has been found from the Algeciras/El Rinconcillo kiln in Spain (Peacock and Williams 1986:92; Tchernia 1971 fig. 13; Will 1987a:202). It is unlikely that this vessel was fired at the kiln as it was only active during the first century AD and there is no evidence that the kiln was active during the Dressel 1Cs period of manufacture (Peacock and Williams 1986:73).

New evidence has emerged for the production of the Dressel 1C in Spain at the Fontscaldes kiln in Tarraco and other possible production centres within this region (Carreté *et al.* 1995:84, 257, 305). Dressel 1C amphorae were also manufactured at Torre Alba in the Cadiz area (Rivera 1998) and at Gibraltar (Mayet 1999). The production of Dressel 1C amphorae in Spain may explain the number of Dressel 1C shipwrecks in Spanish waters (Parker 1992).

According to Peacock and Williams (1986:91), the Dressel 1C was primarily made in Campania, with some production in Etruria, but not in Latium. The finding of these vessels in the typical Cosan clay and the finding of a Dressel 1C with a SEST PALM BRANCH stamp (Will 1987a:203) indicate that this form was made at Cosa.

#### 4.8 Studies of Dressel 1 fabrics in France and Switzerland

Few studies of La Tène amphorae assemblages from France have included fabric analysis. Hénon's (1995) analysis of the amphorae fabrics from sites in the Aisne valley (northern France) is an exception. Even this study was carried out primarily by a visual and hand-lens examination, without recourse to thin-sectioning. Details on Hénon's Dressel 1 amphorae fabrics can be found in appendix 5.

Hénon (1995) examined the amphorae from the *oppida* of Condé-sur-Suippe (120–80 BC), Villeneuve-Saint-Germain (80–55 BC) and Pommiers (40 BC–AD 10), and the rural settlements of Berry-au-Bac (150–120 BC) and Bucy-le-Long (55–10 BC). The



classification of the fabrics was based on the following criteria: colour (the Munsell colour system was not employed), feel, hardness, presence of a slip, types of inclusions and their frequency and size (Hénon 1995:160–161). From the sample of 235 Dressel 1 rims and four Greco-Italic rims, Hénon identified 21 fabric groups (appendix 5). Given the visual inspection used by Hénon to create her fabric groups a question mark must be raised against their validity and Hénon has stated that many of her individual fabrics actually represent several sources from the same area (Hénon 1995:168).

Several of the fabric groups Hénon (1995:169) assigned to specific regions. Fabric A is from the Albinia kiln, fabric B and B' the Pompeii/false Pompeii fabric, fabric D Cosa, and fabric N the kiln of Saint Just in France. An origin in southern Italy for the granite fabric I can be suggested. Fabrics G, G' and O may be from the Latium region as an example of the stamp PHIL from the Latium/Campania region is found in fabric G.

Of the fabrics that could be assigned to known kilns (Tables 7–8), Albinia and Cosa were the most important suppliers of amphorae (Hénon 1995:169). Albinia supplied 12% and Cosa 13% of the amphorae to the Aisne valley and these 2 centres supplied one quarter of the amphorae (Table 7). At Villeneuve-Saint-Germain, these two sources represented 27% of the amphorae. The Albinia and Cosa fabrics show an increase in frequency with time. Amphorae from Albinia are found at all of the sites, while the lack of Cosan amphorae from the earliest sample from Berry-au-Bac, and from the latest of Pommiers may be significant. However, it could easily be due to the small sample sizes.

The most common fabric is fabric H with 38 examples (16%), the source of which is unknown (Table 8). Amphorae in the Pompeii/false Pompeii fabric are represented by only four examples (1.76%) (Hénon 1995:169). The Latium fabrics (G, G', O) account for 9% of the Republican amphorae. The French kiln from Saint-Just (Ardèche) was represented by one example at the *oppidum* of Villeneuve-Saint-Germain (Hénon 1995:169); the main period of occupation belongs to c.80–55 BC

(Haselgrove 1996:147) suggesting that French Dressel 1 production began before the Roman conquest. There are three examples of Dressel 1 amphorae from the Saint Just kiln in Burgundy (Olmer 1997:176) and one from Besançon (Laubenheimer 1992:191). Examples of Lyon Dressel 1s have been reported from Burgundy at Autun 'Lycée Militaire' (Olmer 1997:175) and in Switzerland at the Basel Gasfabrik (Dangéaux *et al.* 1992:38).

The granite Fabric I from southern Italy, is common in the Aisne valley, with 15 examples (6%) and accounts for 50% of the amphorae at the site of Berry-au-Bac and just over 18% of the amphorae at Condé-sur-Suippe, and there are two examples at Villeneuve-Saint-Germain (Table 8). Chronologically the findspots for this fabric are from the earlier sites, dating from c.120–55 BC and none have been reported from the later sites of Bucy-le-Long and Pommiers dating from the conquest to the late Augustan period (Haselgrove 1996:149). However, a Dressel 1B from the Welwyn Garden (England) burial is in the granite fabric (Sealey 1985:137) and is dated to c.50 BC. None of the Dressel 1C rims are in the Pompeii/false Pompeii fabric, but are in fabric A (Albinia) and fabric I (granite fabric) (Hénon 1995).

The *oppida* of Condé-sur-Suippe and Villeneuve-Saint-Germain show an increase in the number of fabrics with time however, this trend is more likely to be explained by the sample sizes: Villeneuve-Saint-Germain has the most fabrics, because it is the only site with a large sample of Republican amphorae. There are differences in the importance of certain fabrics at the different sites. The amphorae from Condé-sur-Suippe are dominated by fabrics I and K, and Villeneuve-Saint-Germain by fabrics A and H (Table 8). These *oppida* received a proportion of their amphorae from different sources (Hénon 1995:169).

#### 4.8.1 Basel Gasfabrik (Switzerland)

Poux has carried out a macroscopic analysis of the Republican amphorae from the Basel Gasfabrik (Switzerland), dating to LTC2-D1 (Poux 1999a:391–392). Vessels in the Albinia and Cosan fabrics dominate the Republican amphorae and account for



c.33% of the amphorae. Fabrics from Latium and Astura are also frequent and c.10% of the amphorae are in the Pompeii/false Pompeii fabric.

#### 4.8.1.1 Augst, Avenches and Vidy

Thierrin-Michael examined 120 Dressel 1 and Dressel 2–4 sherds from the Swiss sites of Augst, Avenches and Vidy (first century BC to the first century AD) (Table 9) (1990, 1992). Of the 120 sherds, 20 could not be assigned to either an Italian or a non-Italian source, 10 sherds were given a non-Italian source, leaving 90 sherds from Italian sources (Thierrin-Michael 1990:531). Seventy of the sherds could be assigned to known kilns (excluding the false Pompeii fabric) of which the most common was *Minturnae*, followed by Mondragone and Pompeii. Southern Italian sources (southern Latium and northern Campania) dominate the Swiss assemblages, but northern sources such as Etruria (Albinia and Cosa) are rare (Thierrin-Michael 1990:531).

#### 4.8.2 Chemical studies of Republican amphorae

Hesnard (*et al.* 1989) studied the chemical composition of Dressel 1 amphorae from four sites in southern and eastern France, and Spain. The samples were 25 Dressel 1 from Numance (abandoned by 133 BC), 115 Dressel 1 from La Lagaste (c.100–20 BC), 49 Dressel 1 from Lyon Verbe Incarné (c.120–80 BC) and 39 Dressel 1 from Lastours Les Martys (c.100–50 BC). The chemical compositions of Republican amphorae, from a series of known kilns were used as reference samples (Hesnard *et al.* 1989:38). As the samples came from sites that were occupied for long periods, it was not possible to discern any short-term changes in the areas that supplied amphorae to these sites.

The authors found that 70–80 Italian kilns supplied Dressel 1 amphorae to the four sites and for Lagaste 35–45 kilns supplied the amphorae (Hesnard *et al.* 1989:48). Of the fabrics that could be assigned to known kilns, Albinia and Cosa were the most common (Hesnard *et al.* 1989:59): at Lagaste, Cosa and Albinia supplied 15% of the amphorae and the figure for Lyon Verbe Incarné was 28% (Table 10). The absence of

amphorae in the Albinia fabric from Numance may be significant, but it may be down to the small sample size. The similar dated site of Berry-au-Bac in the Aisne valley contained one amphora in the Albinia fabric (Hénon 1995: 169 table 5). Apart from Numance Pompeii supplied few amphorae to these sites, although false-Pompeii fabrics are found in low to moderate numbers. Amphorae from southern Latium (Fondi) and northern Campania (Falerne) are rare or absent (Hesnard *et al.* 1989:49–53).

## 4.9 Conclusions

These Dressel 1 fabric studies suffer from a variety of problems. For the French studies, the failure to systematically describe the fabrics makes it impossible, or at best very difficult to compare results among the different studies. The fabric groups created by chemical analysis are hard to interpret. Firstly, they are not related back to physical differences. Secondly, the fabric groups created by chemical analysis contain groups of sherds with similar chemical compositions, which may be separate sources although from the same region. English studies, such as Williams in Carreté *et al.* (1995) and Williams (1985, 1987), have failed to keep pace with some of the developments on the continent, including the recognition of distinct fabrics whose area of production can be located and the existence of false Pompeii fabrics. A further drawback is that the samples, unlike those from the Auvergne, do not come from tightly dated sites and only major long-term changes can be observed.

The Dressel 1 fabric studies show a broadly consistent picture. Most sites have a large number of different fabrics each represented by a small number of amphorae, and a couple of fabrics with many examples. This would suggest that most amphorae cargoes were made up of amphorae from a variety of sources and regions. These studies also confirm that Etruria was the most important supplier of amphorae to Gaul. Amphorae from Albinia and Cosa dominate the Republican amphorae in the Aisne valley, at the Basel Gasfabrik and Lyon Verbe Incarné. For Southern France although these two sources are not so dominant they are still important. The exception is Thierrin-Michael's studies of amphorae in Switzerland (1990, 1992),



which found few amphorae from Cosa and Albinia, but with a dominance to material from southern Italy accounting for 33% of the amphorae. The later date of this material dating from first century BC to the early first century AD may explain this difference. Alternatively, Switzerland may have received its Republican amphorae from via different trade routes than France, however Etrurian amphorae are frequent at the Basel Gasfabrik. There is evidence that many of the Campanian finewares in Switzerland are from northern Italy and may have arrived via different trade routes from the Campanian that entered France (Fitzpatrick 1989:36). Several different trade routes may have then supplied Mediterranean goods to Switzerland.

When Etruria achieved this dominant position and how long it continued for is not clear. The sites of Numance and Berry-au-Bac show that the export of amphorae from Cosa and Albinia was underway by c.150 BC. The lack of Greco-Italic amphorae in Cosan or Albinian fabrics at Pech-Maho and Ampurias (see chapter 3), which were occupied from c.250–175 BC may hint that the export of Etrurian amphorae began between c.180–150 BC. When the large-scale export of Etrurian amphorae ended is not clear, although amphorae in Etrurian fabrics have been reported from sites in the Aisne valley from after the conquest (Hénon 1995:169 table 5). Similarly classic Dressel 1Bs are also found in Etrurian fabrics from the late Plane 1 shipwreck dated to c.50 BC (Liou and Pomey 1985:556–557).

The Pompeii region was not an important supplier of amphorae to southern France and northern France during the late second to first century BC. An exception is the site of Basel Gasfabrik in Switzerland, which has a high frequency of these amphorae, but as this group also includes amphorae in the false Pompeii fabric it probably does not accurately reflect the true number of Pompeii amphorae. Overall, there is little evidence to support Arthur's (1995:243) view that many late Republican wine amphorae in France were of Campanian origin. Other Latium and Campania amphorae are rare at first century BC sites in southern France. Altogether Campania does not appear to have been an important supplier of Dressel 1 amphorae and the importance of Latium varied. The regions of Calabria and Regio in southern Italy were not important suppliers of amphorae, and are very rare after LTD2.

## Chapter 5 Lamboglia 2 amphorae

### 5.1 Morphology

This form was originally described by Lamboglia (1952) (see also Riley 1979:152) and is a bag shaped amphora, c.0.8m high with a stub base (Figs. 35, 38, 44). The body is thick walled with a carination on the shoulder, the rim is thickened, and is either triangular or square in profile, and the handles are oval in section. This form shows many morphological similarities with the Dressel 1A and rim fragments from the two may be indistinguishable.

### 5.2 Chronology

The Lamboglia 2 dates from the late second to the early first century BC (Riley 1979:152). This form has been reported from several shipwrecks dating from c.110–50 BC (Albenga, Cavalière, Madrague de Giens, Plane 1 and Planier 3) but is absent from wrecks predating 120 BC such as the Chrétienne C and Punta Scaletta wrecks (Désy 1989:11). A Lamboglia 2 has been reported from Geneva in Switzerland, from a context predating 123 BC (Haldimann 1989:12). In the light of this, a late second century BC origin is preferred. Most of the Lamboglia 2s in Burgundy date to the first half of the first century BC, apart from one example in a late LTD1 context at Petit Chauvort Verdun-sur-le-Doubs (Olmer 1997:82 note 43). Lamboglia 2s have been found at the Athenian Agora in layers pre-dating the 86 BC destruction layer (Will 1987a:204) and in the destruction layers at Delos dated to 88 BC (Désy 1989:11). The terminal date for this form is c.50 BC, but a possible Lamboglia 2 rim was found at the Magdalensberg in a context dating to 30 BC (Riley 1979:152). Lamboglia 2s have been reported from 40 BC-AD 15 contexts at Besançon (Laubenheimer 1992:190) and 30–20 BC layers at Saint-Romain-en-Gal (Desbat and Martin-Kilcher 1989:344 fig. 2). The Dressel 6 replaced the Lamboglia 2 during the second half of the first century BC.



### 5.3 Provenance

An origin in Apulia (Déry 1989:10; Olmer 1997:168; Riley 1979:152) and Calabria (Tchernia 1986:54) is favoured. Will believes that it was also produced in Istria and the northern Adriatic region (Will 1987a:204). It has been suggested that it was also produced in Cisalpine Gaul, because of the number of examples from this region (Déry 1989:10). Five Lamboglia 2 kilns have been found along the coast of northern Adriatic Italy (Cipriano and Carre 1989:80–85 fig. 13). According to Cipriano and Carre, production of the Lamboglia 2 was concentrated in the regions of Picenum and Venetia and not Apulia-Calabria (Cipriano and Carre 1989:80–82). Cambi (1989) has argued that the Lamboglia 2 stamped KANI relates to Marcus Papius Kanus from Naron in Dalmatia, and therefore the production of this form in Dalmatia. Production in western Italy alongside the Dressel 1 amphorae has also been suggested (Cipriano and Carre 1989). Only one Lamboglia 2 has been found at the port of Cosa and there is no evidence to link the production of this type with the *ager Cosanus* (Will 1987a:204).

### 5.4 Distribution

The distribution of this form is biased to the eastern Mediterranean and the Adriatic region (Will 1987a:204). Findspots of Lamboglia 2s are common in northern Italy and along the Adriatic coast (Cipriano and Carre 1989:84 fig. 14) and in Dalmatia (Cambi 1989). There is also a scatter of finds in central and southern Italy and along the Spanish coast (Cipriano and Carre 1989:84 fig. 14).

Land finds from north-western Europe remain scarce, although it is a slightly more frequent component of western Mediterranean shipwreck cargoes. The under-representation of this form in land contents may reflect that many Lamboglia 2s have been wrongly classified as Dressel 1As. More findspots are being recognised in France: Lyon Verbe Incarné, Saint-Roman-en-Gal (Desbat and Martin-Kilcher 1989), along the Rhône at Massongex (Laubenheimer 1992:190). Five Lamboglia 2s were found at Besançon (Laubenheimer 1992:189 table 119, 190) and they have been found

at Toulouse (Bats 1986). Five Lamboglia 2s have been found at the *oppidum* of Baou-Roux (Gateau 1990:175–176). Olmer has identified Lamboglia 2s at several sites in Burgundy, including Alesia, Bibracte and Tournus Clos Roy (Olmer 1997:169). The biggest single collection is the 82 vessels at Bibracte (Olmer 1997:169).

## 5.5 Fabrics

Little work has been carried out on Lamboglia 2 fabrics (Riley 1979:152) which tend to be light buff, micaceous, with red and dark inclusions. A Lamboglia 2 fabric, from the Cologna Marina kiln, was dark rose coloured with many black mineral grains (Cipriano and Carre 1989:81). A fabric from the Timavo kiln (near Aquileia), has a yellowish, fine, hard fabric with small red inclusions (Cipriano and Carre 1989:81). A Lamboglia 2 from the Madrague de Giens shipwreck was in a Pompeii/false Pompeii fabric (Désy 1989:10 note 10).

## 5.6 Contents

Both Will (1987a:204) and Riley (1979:152) believe that olive oil was carried in these vessels. The region of Istria (northern Italy) according to Pliny was famous for the quality of its olive oil (*Naturalis Historia* 15.9), but the limited evidence suggests that wine was carried in these vessels (Tchernia 1986:54). A Lamboglia 2 from the Madrague de Giens shipwreck contained the remains of a red wine (Formenti *et al.* 1978) and so in addition did a vessel from the Tre Senghe shipwreck (Parker 1992:435). A Lamboglia 2 from the Colonia de Sant Jordi A shipwreck contained traces of a resin lining and thus could not have been used to carry olive oil.



## Chapter 6 The morphology of Republican amphorae from Mediterranean shipwrecks

### 6.1 Introduction

This section provides a summary and analysis of the morphology of Republican amphorae from Mediterranean shipwrecks (Table 11). This analysis concentrates on rim morphology and involves comparing the height, inclination, and width, the ratio between rim height and width, and diameter. These analyses will indicate the range of morphological variation for Greco-Italic, Dressel 1A, Dressel 1B and Dressel 1C rims and therefore aid in the recognition of these amphorae in land assemblages.

Many studies have dealt with the morphology of terrestrial Republican amphorae, but little work has been carried out on the ideal assemblages from shipwrecks (Maza 1998a:28). This is down to problems with the available data. Firstly, there is a limited number of published drawings and profiles of Republican amphorae from shipwreck cargoes. For most wrecks, only a selection of amphorae drawings are provided and it is impossible to judge how representative they are of the whole cargo. The dating of these wrecks is imprecise (*cf.* Tchernia 1990) as apart from the amphorae there tend to be few other dateable materials and there is inevitably an element of circular reasoning, given that the amphorae date the shipwreck. Finally, the measurements taken from the published drawings are obviously imprecise (different measurements of the same Republican amphorae cargoes can be found in the literature), although not enough to render the analysis meaningless.

However, there have been several noticeable attempts at comparing the morphology of terrestrial amphorae assemblages, with those from Mediterranean shipwrecks. Initial work by Uenze (1958), Stöckli (1979) and Tchernia (1986:309–320), has been followed by work by Metzler *et al.* (1991:85–86; Metzler 1995:447–461), Guichard (1997:133–135 fig. 116) and see Fig. 9, Maza (1996–1997, 1998a, 1998b) and Poux (1999a).

Metzler compared the amphorae from the Clemency tomb (Metzler *et al.* 1991) and from the Titelberg (Metzler 1995:448–461), with amphorae from the Albenga, Briande, Dramont A, Grand Congloué 1 and 2, and Planier 3 wrecks (Metzler *et al.* 1991:85–86 fig. 71). Metzler for his analysis used only rim height and diameter (*et al.* 1991:85–86 fig. 71). He argued that the Republican amphorae from the Clemency tomb could be divided into two forms (Metzler *et al.* 1991:80–81). The first type has an oblique or triangular rim between 40–50mm with a diameter of 145–185mm; total vessel height was 1.11–1.14m. The second type had higher (50–60mm), vertical shaped rims with a diameter between 165–190mm. These amphorae show a mixture of Dressel 1A and 1B features. By comparing them with the Republican amphorae from his sample of shipwreck assemblages Metzler dated them to 80–60 BC after the Spargi and Sant Andrea B wrecks, but before the Madrague de Giens wreck (Metzler *et al.* 1991:86). Poux compared the Republican amphorae from Basel Gasfabrik and Basel Münsterhügel in Switzerland (Poux 1999a:396–399 figs. 9, 15) with the sample of shipwrecks used by Metzler, but also with the Cavalière, Madrague de Giens, Plane 1, Punta-Scaletta and Spargi shipwrecks. Maza has used the same sample of shipwrecks as Poux to compare with the Republican amphorae from Lyon (Maza 1996–1997:92–99, 1998a:24–27, 1998b:60–62). Both Poux and Maza used only rim width and rim height measurements for their comparisons (Poux 1999a:396–399 figs. 9, 15).

The most detailed analysis was carried out by Guichard (1997:134–135 fig. 116) who used the following wrecks for his study: Albenga, Briande, Cap Roux B, Carqueiranne, Cavalière, Chrétienne C, Ciotat A, Grand Congloué 1 and 2, Dramont A, Grand Ribaud A, Jaumegarde A, Madrague de Giens and Spargi. This study compared vessel height against rim height, and rim inclination.

#### 2.2.2 THE RESEARCH DESIGN

This chapter builds upon these studies, by using a greater sample of wreck assemblages, and a wider number of analyses. Although not all available wrecks have been used, representative samples for the different Republican amphorae types have been employed and this study represents the most comprehensive analysis so far carried out. The samples utilised should give an indication of the range of



morphological variation for Republican amphorae from the third to the first centuries BC. Greater knowledge of the rim morphology and of other diagnostic features for the different Republican amphora types will aid the analysis of terrestrial Republican amphorae assemblages. The majority of the wrecks unless otherwise stated are off the Mediterranean coast of France and precise details of their locations can be found in Parker (1992). Drawings of the amphorae can be found in Figs. 18–65.

## 6.2 Greco-Italic

Data for Greco-Italic amphorae are provided from 15 shipwreck assemblages (Tables 11–12). The Briande wreck (200–180 BC) contained a cargo of Greco-Italic (Will type D) amphorae (Parker 1992:77; Will 1982:352) similar to those from the Grand Congloué 1 wreck (Tchernia 1969:473). Drawings of the amphorae are given in Stöckli (1979:121 fig. 14) and Joncheray (1971:10 plate 3 no. 2a, 1975a:84 fig. 35d–e). The Capistela wreck (Italy) contained c.80 Greco-Italic (Will type A) amphorae with a cargo of pre-Campanian and Campanian A and is dated to 300–280 BC (Frey *et al.* 1978). The Chrétienne C wreck contained a cargo of c.500 Greco-Italic (Will type D) amphorae, dated to 175–150 BC (Parker 1992:141–142; Will 1982:352) and drawings can be found in Joncheray (1975a:80 fig. 34). Greco-Italic amphorae (Will type E) from the Ciotat A wreck dated to 200–150 BC have been published by Joncheray (1975a:84 fig. 35g) and Benoit (1958:23, 26).

The Grand Congloué 1 wreck (Benoit 1961; du Plat-Taylor 1965:66–76) contained c.400 Greco-Italic vessels and a cargo of Campanian A pottery and is dated to 210–180 BC (Parker 1992:200–201). Drawings of Greco-Italic amphorae from the wreck have been published in Stöckli (1979:119 table 6, 121 fig. 14, 128 fig. 19; Benoit 1961:37 fig. 2; Poux 1999a:389 fig. 3) and the amphorae have been classified as Will type C (Py 1993:47; Will 1982:354). The Héliopolis wreck contained c.60 Greco-Italic (Will type C) amphorae and are similar to vessels from the Grand Congloué 1 wreck and are dated to 200–180 BC (Pomey *et al.* 1989:39–40 fig. 43).

Drawings of four different types of Greco-Italic amphorae from the Mont Rose shipwreck are given in Liou (1975:583 fig. 14). This wreck is dated to 200–150 BC and contained many Greco-Italic (Will type E) amphorae, and a Campanian vessel (Bats 1986:396; Liou 1975:583; Parker 1992:281). The Punta Scaletta wreck (Italy) contained Greco-Italic (Will type E) and a cargo of Campanian A pottery (Parker 1992:359; Will 1982:355) and a drawing is given in Lamboglia (1964:fig. 11b). The wreck contained 13 coins dating from 181–146 BC and Parker suggests a date of c.150–130 BC for the wreck (Parker 1992:359).

The Sanguinaires A wreck off the coast of Corsica contained a broken cargo of 40 Greco-Italic (Will type A<sup>2</sup>) amphorae, 50 Rhodian and several Punic amphorae, and a small cargo of Campanian A pottery (Alfonsi and Gandolfo 1997). The wreck is well dated to 250–200 BC by its Campanian pottery and by several Greek coins (Alfonsi and Gandolfo 1997:70–72). The Tour d'Agnello wreck contained a cargo of Greco-Italic amphorae (Will type D) in two sizes, and is dated to 300–275 BC (Liou 1982:454, 452–453 figs. 16–17; Will 1982:352).

Greco-Italic amphorae (Will type D) that have been recovered from Cap Gros 2 off Antibes may be from a wreck (Fiori 1974:88 plate 3 nos. 4–5; Will 1982:352) and are poorly dated to the second century BC. Drawings of Greco-Italic amphorae from possible wrecks have been published for Cala Rossa (Corsica) (Will type A) (Parker 1992:90; Liou 1975:604 fig. 42), Lazai (Benoit 1961:37 plate 2 no. 6), Porquerolles (Will type E) (Bats 1986:398; Benoit 1960:46 fig. 9), and Porte-Vendres/Cap Béar (Liou and Pomey 1985:551 fig. 4).

### 6.2.1 Analysis

For Greco-Italic, vessel height ranges from 0.63–0.91m, but most heights are 0.88–0.89m (Table 12, Fig. 14). Rim height ranges from 10–40mm, but the majority of rim heights are under 30mm. Rim inclination ranges from 20–73° but most are under 60°. Rim width ranges from 16–44mm, although the majority of the examples are in the



upper 20mm to low 30mms. Many of the rim height-width ratios are 1.0 or less, but there are a several with ratios over 1.0.

One of the vessels from the Mont Rose wreck has a rim ratio of 1.7 and a rim height of 40mm and inclination of 73°. Several of the vessels from the Héliopolis wreck have rim heights over 30mm and up to 37mm, but they all have rim height-width ratios that are under 1, and low angles of inclination (under 48°). Amphorae from the Ciotat A and Porquerolles, Punta Scaletta, Sanguinaires A and the Tour d'Agnello wrecks have rim height-width ratios over 1.0, but their rims heights and angles of inclination are under 30mm and 60°.

Hesnard's (Hesnard and Lemoine 1981:252 note 33) criterion that Greco-Italic amphorae always having a rim height-width ratio of 1.0 or less, is not always correct, and this might support Gateau's (1990: 169) alternative scheme, which suggests that Greco-Italic vessels have rim height-width ratios of 1.29 or less. Both Gateau's and Hesnard's schemes fail to take into account rim height and angle of inclination. Both schemes need to be modified in that the majority of Greco-Italic vessels have rims with heights under 30mm, inclinations under 60° and rim ratios under 1.4.

Rim diameter is low with a range of 100–150mm, however, most have diameters between 130–150mm and overlap with the later Dressel 1A (see below). Rim diameter therefore does not appear to be a suitable criterion for differentiating between Greco-Italic and Dressel 1A amphorae.

There is little evidence for any chronological trends for vessel height, rim height, inclination; apart from the earliest Greco-Italic amphorae (Will type A) possessing much lower vessel heights (*e.g.* Capistela). Greco-Italic amphorae from the Grand Congloué 1 and Tour d'Agnello shipwrecks resemble the later Greco-Italic amphorae from the Chrétienne C and Punta Scaletta wrecks.

Figure 1.1. Greco-Italic amphorae.

Several of the Greco-Italic vessels have characteristically tall (from 100–130mm), slender bases (diameter 20–45mm), which on some examples can be off-centre (Will

1982:349). Greco-Italic vessels from the Chrétienne C, Grand Congloué 1 and Tour d'Agnello wrecks have such bases. Most base diameters are under 50mm and so differ from bases belonging to the Dressel 1, which have diameters greater than this figure. Many of the tall slender bases have a terminal cap: examples can be found in the Chrétienne C, Grand Congloué 1 and the Tour d'Agnello shipwrecks. According to Will (1987a:178) capped-bottomed bases are typically found on Greco-Italic type C and D vessels.

### 6.3 Dressel 1A

Twenty-three Dressel 1A assemblages have been studied (Tables 11, 13). The Basses du Can wreck contained c.60 Dressel 1A amphorae dated to c.120–75 BC (Pomey *et al.* 1989:45–46) and drawings of four amphorae are given in Long (1988:fig. 16). It has been estimated that the Cap Gros 1 shipwreck contained a cargo of c.440–550 Dressel 1 amphorae and a small quantity of Campanian pottery (Joncheray 1989). Joncheray classified the amphorae as Dressel 1B and Dressel 1C (Joncheray 1989:78–80), however, one of the vessels is clearly a Dressel 1A and the remainder are an unusual form of Dressel 1A (see below). Joncheray dated the wreck to the late second or early first century BC (Joncheray 1989:83).

The Cap Roux B wreck (120–80 BC) contained 40–60 amphorae and drawings of several Dressel 1As are given in Joncheray (1974). One of the Dressel 1 amphorae from the wreck was stamped SES COURONNE and there was a Lamboglia 2 amphora (Joncheray 1974). The Capo Sant Andrea B wreck (Italy) contained Dressel 1A, Dressel 1C amphorae, and a form that appears to be a cross between a Dressel 1A and Lamboglia 2, and a quantity of Campanian A or Campanian B pottery (Maggiani 1982:72–79; Parker 1992:124). This wreck dated to 125–100 BC (Parker 1992:124) and photographs of the amphorae are given in Maggiani (1982:73–76 fig. 49–52).

The Cavalière wreck contained seven Dressel 1A amphorae, eight Dressel 1Cs and 10 Lamboglia 2s and is dated to 125–100 BC (Charlin *et al.* 1978; Parker 1992:133–134). Drawings of three Dressel 1As and two Dressel 1Cs are provided in Charlin *et*



*al.* (1978:19 fig. 11). The Chrétienne A/Anthéor wreck dated to 150–100 BC, contained c.2,000 Dressel 1A amphorae and several Lamboglia 2s (Parker 1992:140–141). Drawings of the Dressel 1A amphorae from the wreck are given in Joncheray (1971:10 plate 3 no. 3c) and Tchernia (1986:316).

The Colonia de Sant Jordi A wreck (Majorca) contained 30 Dressel 1C, nine Dressel 1A and 11 Lamboglia 2 amphorae and a small quantity of Campanian B, ceramic lamps and fine wares (Colls 1987:90–91, 67–69 plates 1–3). Cerdá originally dated the wreck to 125–100 BC (1980:97); however, Colls from the ceramic finewares, suggests a date of 100–80 BC (1987:89–90).

Dated to 125–75 BC the Fourmigue A shipwreck contained five varieties of Dressel 1A amphorae and a quantity of Campanian A pottery (Parker 1992:182–183; Pollino 1975:75 fig. 2). The Fourmigue C wreck contained c.100 Dressel 1B and two Dressel 1As and is dated to c.80–60 BC (Parker 1992:183; Liou and Pomey 1985:574–576; Baudoin *et al.* 1994:4, 20 figs. 3–4).

The Grand Congloué 2 wreck contained 1,200–1,500 Dressel 1A amphorae, the majority of which were stamped SES ANCHOR, or SES TRIDENT (Parker 1992:201; Long 1987a, 1987b). There was also a small quantity of Campanian B and C pottery dated to 150–100 BC, and a 120–80 BC date for the wreck is likely (Parker 1992:201; Long 1987a:165). Drawings of a selection of the amphorae can be found in Benoit (1961:43 fig. 3). The Grand Ribaud A wreck is dated between 120–100 BC and contained a cargo of Dressel 1A (including one stamped SES ANCHOR) and Dressel 1C amphorae (Carrazé 1975:figs. 7–8, 10–11).

The l'Esterel shipwreck contained c.40 Dressel 1A from an originally larger cargo of amphorae from La Parrina (Etruria). The wreck is dated to c.120–80 BC (Tchernia 1969:475–476) and drawing of two of the amphorae can be found in Liou (1975:589–590 fig. 25). This wreck also contained a small cargo of Dressel 1C amphorae and a drawing of one is provided in Carrazé (1975:27 fig. 7, 32).

The l'îlot Barthélémy wreck contained c.60 Republican amphorae, from a much bigger cargo, including several Dressel 1As and 15 Dressel 1Cs, and is dated to the late second century BC (Liou and Pomey 1985:573; Parker 1992:215). The wreck contained several Republican amphorae that are hard to classify, and share morphological features with the Dressel 1A, 1C and the Lamboglia 2 (Liou and Pomey 1985:573; Parker 1992:215). Drawings of the amphorae are given in Liou and Pomey (1985:570–571, figs. 22–23).

The Pointe du Brouil wreck has been dated to c.140–120 BC via its cargo of Dressel 1A amphorae, and Campanian A and B, and two bronze coins dated to 169–158 BC (Pomey *et al.* 1989:28 fig. 27). The Riou 3 shipwreck contained a cargo of c.30 Dressel 1A and Dressel 1C amphorae, and a small quantity of Campanian B, and is dated to c.120–90 BC (Long and Ximénès 1988). Drawings of the amphorae are provided: however, none of the recovered amphorae were intact (Long and Ximénès 1988:figs. 8, 10). A drawing of a Dressel 1A amphora from the Roche Fouras wreck, which is dated to c.150–100 BC (Parker 1992:369) is provided in Long (1987c:105 fig. 8g).

Drawing of two Dressel 1A amphorae from a possible shipwreck at Saint Tropez dated to 150–100 BC have been published (Liou 1975:596–597 fig. 33). The Spargi wreck (Italy) contained 400–450 Dressel 1A amphorae in two forms, one of which has been classified either as Dressel 1A or Dressel 1B while the other form shows similarities with the Greco-Italic Will type E and the Dressel 1C (Lamboglia 1961; Parker 1992:409–410; Will 1984; Pallarés 1986). Drawings of a selection of the Dressel 1 rim profiles and complete vessels from this wreck are given in Pallarés (1979:156 fig. 8). A range of possible dates have been suggested for this wreck from 130–75 BC, but a date of 120–100 BC is a strong possibility (Parker 1992:410; Tchernia 1990:297–298; Will 1984). Drawings of two Dressel 1A amphorae from the Taillat wreck have been published in Joncheray (1987:144). The ship also contained a Campanian C vessel dated to 150–140 BC, but a date around 100 BC for the shipwreck is favoured by Joncheray (1987:145, 150).



Isolated examples of Dressel 1A amphorae include the Badine 1 (c.120–75 BC) wreck (Pomey *et al.* 1989:32–33 fig. 32). A drawing of one of the c.500 Dressel 1As from the Cap Bénat wreck dated to the late second century BC has been published (Parker 1992:99; Liou and Pomey 1985:566–567 fig. 18). A drawing of one Dressel 1A from the Ciotat C wreck, dated to the end of the second BC to early first century BC, has been published by Pomey *et al.* (1989:11 fig. 11). A drawing of a Dressel 1A from a possible wreck at Pointe Pommegues that is dated to c.100 BC has been published in Sciallano and Sibella (1994).

### 6.3.1 Analysis

Total vessel height ranges from 0.86–1.17m: however, the majority of vessels have heights of c.1m (Table 13, Fig. 15). Dressel 1A rim height ranges from 25–60mm: most vessels however, have rim heights of 30–50mm. Rim inclination ranges 36–97°, but most are in the range 70–80°. The majority of Dressel 1A wrecks contain vessels that have vessel heights, rim heights and rim inclinations greater than Greco-Italic vessels.

Most of the rim height-width ratios are over 1.0. Exceptions include the Saint Tropez wreck, and several of the vessels from the Cap Roux B and Spargi wrecks. Several of the assemblages do have rim height-width ratios just over 1.0, and under 1.29 (*e.g.* Badine 1, Basses du Can, Chrétienne C/Anthéor and Fourmigue A) that according to Gateau (1990:169) would qualify as Greco-Italic vessels. These examples tend to have rim heights and angles of inclination higher than those associated with Greco-Italic vessels.

Rim diameter shows a considerable range of figures from 125–195mm: most figures fall within 140–160mm. Some of the Dressel 1A rim diameters overlap with the earlier Greco-Italic and can not be used to differentiate between the two. Dressel 1A bases tend to be low and squat, and most have diameters greater than 50mm.

For the Dressel 1A there appears to be a much greater range of morphological variation than is seen for the Greco-Italic and the Dressel 1B (see below). Examples of classic Dressel 1A amphorae are found in the Badine 1, Ciotat 3, Fourmigue A, Riou 3 and Taillat wrecks. From the published Dressel 1A amphorae vessel profiles, several distinct amphorae types can be seen, many of which defy simple classification as either Dressel 1A or 1B.

The most frequent subtype is a group of Dressel 1As which show similarities with the Greco-Italic (Will type E) and the Dressel 1C. Examples of these amphorae have been found in many Republican amphorae wrecks: Basses du Can, Capo Sant Andrea B, Cap Bénat, Cavalière, l'îlot Barthélémy, Pointe du Brouil and Roche Fouras wrecks. These resemble the late Greco-Italic (Will type E) vessels from the Bandol (Tchernia 1969:482–483 fig. 34), Ciotat A (Benoit 1958:23 fig. 26), Mont Rose (Liou 1975:583) and the Punta Scaletta wrecks (Lamboglia 1964:252 Fig. 11b), which are often classified as late transitional Greco-Italic amphorae (Maza 1998b:12 fig. 1). Long (1987c:104–105) has already drawn attention to this amphorae type and dates many of them to c.130–110 BC. These amphorae have triangular rims 38–50mm high (however, most are between 38–46mm), with inclinations from 68–80° and rim diameter of 125–150mm although most are between 130–140mm. They have a rounded shoulder that resembles the earlier Greco-Italic and curved handles that join the neck, like the Dressel 1C, and a vessel height of 1.0–1.10m.

Laubenheimer (1980) has recognised this form and classified it as Ruscino 1 or Dressel 1A/C. According to Laubenheimer, this form has a vessel height of 0.95–1.00m (slightly taller than the Greco-Italic) with a spindle shaped body and a concave rim c.40mm high (Laubenheimer 1980; Bats 1986). This type has been reported from several sites in southern France: Azalia, Laissac, Marseilles, Ruscino and Saint Nazaire, and dates to c.125–75 BC (Bats 1986).

*3.1.2 Dressel 1A subtypes*

There is a further Dressel 1A subtype that resembles the Dressel 1A/C and is represented by examples from the l'îlot Barthélémy wreck. This form has a lower vessel height (0.90–0.95cm), with ribbed curved handles that join at the base of the



neck and high triangular rims (40–50mm). This form shows many similarities with the Lamboglia 2. A similar type of Dressel 1A amphora is found in the Capo Sant Andrea B wreck (vessel height 0.88m) (Maggiani 1982:75 fig. 51c).

The two amphorae from the Saint Tropez wreck have an overall body shape that resembles the Dressel 1A (cylindrical shape, with a slightly angular shoulder and a small stub base) but the height of these vessels (0.93–0.95m) straddles the height range for the Greco-Italic and the Dressel 1A. The rims of these two vessels resemble Greco-Italic rims: both have heights under 30mm, inclinations under 65° and both have rim height-width ratios under 1.0. Two of the amphorae from the Cap Roux B wreck have vessel heights in the Dressel 1A range (0.99–1.03cm) but have low out-flaring Greco-Italic-like rims. As with the Saint Tropez amphorae, the overall body shape of these vessels resembles the Dressel 1A, but their rims do not.

A third subtype of Dressel 1A amphorae shows morphological similarities with the Dressel 1B. One of the amphorae from the Grand Congloué 2 wreck has a high vertical rim (50mm) with a very pronounced angular shoulder, but a low vessel height (1.01m) that is clearly within the range of the Dressel 1A. Another similar form comes from the Spargi shipwreck, and Olmer has created a subtype of the Dressel 1A: the ‘Spargi’ type (Olmer 1997:153; Olmer *et al.* 1995). This form has a vertical rim (inclination 90–100°), with a height 48–52mm, a small stub base, while the vessel height again clearly falls within the range of the Dressel 1A (1.0–1.6m). Olmer has identified the Dressel 1 ‘Spargi’ in a deposit of Dressel 1 amphorae at Bibracte (Olmer *et al.* 1995). Similar types of ‘Spargi’ Dressel 1 rims have been reported from Rodez with consular dates of 120–104 BC (Gruat 1993a). Olmer argues that the Dressel 1 ‘Spargi’ amphora was produced during c.120–100 BC (Olmer *et al.* 1995:314). Similar Dressel 1 ‘Spargi’ amphorae have been found in the Capo Sant Andrea B (Maggiani 1982:73 fig. 49c, 74 fig. 50a-b), Cap Roux B (Joncheray 1974:164 no. 7) Pointe Pommegues (Sciallano and Sibella 1994) and Fourmigue C wrecks (Baudoin *et al.* 1994:4, 20 figs. 3–4).

Examples of Dressel 1 'Spargi' amphorae are found in the Cap Gros 1 wreck (Joncheray 1989). Four of the published amphorae profiles from this wreck are of a group of amphorae with a vessel height from 1.07–1.09m (near the Dressel 1A-1B division) with high vertical collar rims (height 52–64mm, inclination 86–98°). Two of the vessels have an angular profile that resembles the Dressel 1B, whereas the profile of the other two are more rounded and resembles the Dressel 1A. The Burriac amphorae (Figs. 7–8) with a consular date of 96 BC has a high Dressel 1B rim (58mm) but the height of the vessel is within the Dressel 1A range (1.06m) (Miró 1986). The Dramont C wreck, which contained a cargo of Dressel 1B and Lamboglia 2 amphorae, also contains two Dressel 1 'Spargi' amphorae (Joncheray 1994:35). This Dressel 1 'Spargi' form appears to be a frequent component of Mediterranean shipwrecks and dates to the late second to early first century BC.

There is a second group of Dressel 1A amphorae, which are transitional with the Dressel 1B. This group is represented by finds from the l'Esterel shipwreck, the Panarelli wreck (Bound 1991:43–46) and from the port of Olbia (Dell'Amico 1986:125 fig. 1 b-c). These examples are characterised by higher vessel heights than the 'Spargi type', ranging from 1.06–1.11m and at the high range of the Dressel 1A and towards the Dressel 1B. However, the rim and overall body shapes of these vessels differs from the Dressel 1B, as the rims although high (47–52mm), have moderate angles of inclination, giving the rim a slightly triangular shape. Similar rims have been reported from the Athena Agora (Greece) and Caceres El Viejo (Spain) (Fig. 7), in deposits that pre-date 90–80 BC (Poux 1999a:388, 390 fig. 4). The body of these vessels shows more morphological features with the Dressel 1A with a slightly rounded shoulder. The examples from the l'Esterel shipwreck also have distinctive high, banded bases. This Dressel 1A type l'Esterel would appear to date to the late second century BC to early first century BC.

Several easily recognisable distinct types (Dressel 1A/C, Dressel 1 'Spargi', and Dressel 1 'l'Esterel') are distinguishable in the cargoes of Dressel 1A amphorae. The 'Spargi' and 'l'Esterel' Dressel 1A amphorae that resemble the Dressel 1B seem to have developed around the late second century BC to the early first century BC. The



Dressel 1A 'Spargi' type may have still have been produced during the period 80–50 BC, as indicated by the example from the Fourmigue C wreck (Baudoin *et al.* 1994:4, 20 figs. 3–4). The c.15 Dressel 1As from the Madrague de Giens wreck (Poux 1999a:388) may also be of this form, although there are no drawings in the publication (Tchernia *et al.* 1978). The Dressel 1A 'Spargi' is a rare component of Republican amphorae wreck assemblages during 80–50 BC and is more common during c.120–80 BC. Some of these types have distinct features that should allow them to be recognised in fragmented land assemblages. The Dressel 1A is not a coherent morphological group, and a few of these sub-types have been identified here, but more remain to be identified.

## 6.4 Dressel 1B

There are 21 samples of Dressel 1B cargoes from Mediterranean shipwrecks (Tables 11, 14). The Albenga wreck (Italy) is one of the earliest cargoes of Dressel 1B amphorae dating between 100–80 BC: it contained c.5,000–10,000 amphorae, and a cargo of Campanian A and imitation Campanian pottery (Lamboglia 1952; Parker 1992:49–50; Tchernia 1990:297). Over 1,200 amphorae were raised from the wreck and they have been divided into four types (Parker 1992:49–50).

The Cap Béar C wreck (Parker 1992:97–98; Liou and Pomey 1985:547–551), dated c.50–25 BC, contained a cargo of c.200 Dressel 1B and a number of Pascual 1 and Dressel 12 amphorae (Parker 1992:97). Four varieties of Dressel 1B are reported from the Carqueiranne wreck which is dated c.75–25 BC (Parker 1992:128; Carrazé 1976). The Cassis Dressel 1B wreck is poorly dated to the first century BC (Parker 1992:131) and a drawing of one Dressel 1B is given in Joncheray (1971:14 plate 4 no. 3).

The Dramont A wreck, dated c.50 BC contained a cargo of c.1,000 Dressel 1B amphorae in three varieties (Parker 1992:165–166) and Stöckli has drawings of several of the rims (1979:121 fig 14). The cargo also contained one Pascual 1 and two Dressel 2–4 amphorae (Parker 1992:166). The Dramont C wreck probably contained

a small cargo of c.120 Dressel 1B amphorae, of which 17 amphorae were recovered (Joncheray 1994). This wreck also contained two Dressel 1As and is dated to 80–60 BC (Joncheray 1994:34). A Dressel 1B amphora from Dramont F may be from a wreck (Joncheray 1975b:129 no. 3).

The Fourmigue C wreck dated to 80–60 BC, contained a small cargo of Dressel 1B amphorae (c.100 vessels), a consignment of Campanian B and a variety of metal furniture, including several decorated bronze couches (Parker 1992:183; Baudoin *et al.* 1994). The Grand Avis wreck contained a cargo of Dressel 1B amphorae and Campanian B pottery, and is dated to c.100–75 BC (Carrazé 1976:156 fig. 3; Tchernia 1969:473–474). A drawing of a Dressel 1B from the Gros Mur wreck (dated to 100–25 BC) has been published (Carrazé 1976:156 fig. 3; Parker 1992:206).

The Jaumegarde A wreck is poorly dated (c.100–25 BC) and contained a cargo of Dressel 1Bs (Parker 1992:221), drawings of which are found in Carrazé (1972). The Madrague de Giens wreck contained c.6,000–7,000 Dressel 1B amphorae in three subtypes, and Campanian pottery (Parker 1992:249–250; Tchernia *et al.* 1978). Twenty-five coins were recovered from this wreck: nine date from 155–75 BC, but as five of the coins are dated to 95–75 BC (Tchernia 1990:296) a date soon after 75 BC for the wreck is probable.

The Plane 1 wreck (c.50 BC) contained a large cargo of Dressel 1B amphorae in three subtypes (Parker 1992:313; Liou and Pomey 1985:556–557, fig. 10). The Planier 3 wreck contained a cargo of Dressel 1Bs, Campanian B and a few pieces of Arretine ware. There were also several Lamboglia 2 and Panella 2 amphorae the latter were stamped M.TVCCIL.F.TRO.GALEONIS; possibly the *Tuccius* mentioned by Cicero who died c.47 BC and a similar date is likely for the wreck (Parker 1992:316; Poux 1999a:388, 390 fig. 4; Tchernia 1969:487). The Tradeliere wreck contained a small number of Dressel 1B amphorae but many Dressel 2–4 and Dressel 6 amphorae, and is dated 20–10 BC (Carrazé 1976:156 fig. 3; Parker 1992:433–434). The Cap Camarat (Pomey *et al.* 1989:37–38 fig. 39 b; Parker 1992:178), Garoupe B (Tchernia



1969:467–468 fig. 3) and Pointe du Blé (Parker 1992:322; Carrazé 1976:156 fig. 3) wrecks are poorly known and dated to c.100–25 BC.

#### 6.4.1 Analysis

The morphology of the Dressel 1B shows much less variation than the Greco-Italic and the Dressel 1A. Dressel 1Bs have a vessel height that ranges from 1.12–1.24m, rim heights are between 47–70mm and inclination between 75–103° (Table 14, Fig. 16). Mouth diameter is greater than 150mm, and in some cases as high as 195mm.

Many Dressel 1B amphorae from shipwreck cargoes (Albenga, Carqueiranne, Dramont A, Jaumegarde A) have rim heights under 55mm (*contra* Olmer 1997:134; Tchernia 1986:313). These rims only slightly overlap with earlier Dressel 1A rims, but they have higher mouth diameters (170–180mm). As very few of the Dressel 1B have rim heights under 50mm, this figure instead of the 55mm cut off point, should be used.

Dressel 1B bases tend to be plainer without caps on the bottom and have a basic massive cylindrical appearance. Base height ranges from c.150mm to over 200mm and the base diameter tends to be slightly greater than the Dressel 1A.

#### 6.5 Dressel 1C

The majority of Mediterranean wrecks with examples of the Dressel 1C have been previously mentioned apart from the Cap Negret and the Capo Mele wrecks. The Cap Negret wreck (Ibiza) contained a cargo of Dressel 1C and Punic amphorae of which c.50 were raised from the wreck and are dated to c.110–90 BC (Parker 1992:105–106). Tchernia (1986:319) has published a drawing of 1 of the Dressel 1Cs from the wreck. Several Dressel 1A amphorae including a Dressel 1C have been recovered from the second century BC Capo Mele wreck (Italy) (Parker 1992:121; Tchernia 1986:319).

### 6.5.1 Analysis

Dressel 1C morphology (Table 15, Fig. 17) is very homogenous with the vessel height in the range 1.13–1.22m (similar to the Dressel 1B). Rim height is 52–88mm, but most examples are 60–70mm and tend to be higher than the Dressel 1B. Rim inclination shows a very narrow range (80–92°), with most values in the low 80s and most rims have a concave profile: vertical collar rims are not found. Rim diameter is low (110–150mm) and smaller than Dressel 1B rim diameters. Many of the rims are narrow, (25mm or less), which gives them a high rim height-width ratio (2–3).

The Miladou wreck (see below) contained two types of Dressel 1C amphorae, one with the typical Dressel 1C morphology, but a second type with a high convex almond shaped rim, with rounded handles and longer, more cylindrical body (Dumontier and Joncheray 1991:148–149, 163). This form has not been reported from any other Republican amphorae cargoes.

## 6.6 The Miladou wreck

The Miladou wreck carried a cargo of 230–250 Republican amphorae and several Punic amphorae (Dumontier and Joncheray 1991). The wreck is not well dated, as apart from the amphorae, (which are difficult to date exactly, see below), the wreck carried no other ceramic cargo, but the excavators suggest a late second to early first century BC date (Dumontier and Joncheray 1991:174).

A detailed study of the Republican amphorae from the wreck by Dumontier and Joncheray (1991:151–173), found 17 types of Republican amphorae several of which can not be easily classified as Dressel 1A or Dressel 1B (Table 16). The majority of the forms can either be classified as Dressel 1A, 1B or 1C, although many show slightly unusual features. Types 2 and 3 have the morphology of the Dressel 1A; they both have thick sturdy handles like the Dressel 1B. Types 1, 8, 9, 11, 12, 13, 14 and 15 are not so easily classified. Type 1 has the height of a Greco-Italic vessel, but the rim and the body shape of a Dressel 1A. Types 8 and 9 are similar; both have heights towards the tail end of the Dressel 1A, and have Dressel 1B like rims. However, type



9 has a Dressel 1A shoulder profile and type 8 has a high sturdy base and more angular shoulder of the Dressel 1B. These two types appear to be a Dressel 1 'Spargi' type. Type 11 has the height of a Dressel 1B but a square profiled rim with handles that join at the lower neck like the Dressel 1C.

Type 12 and 13 are similar and have the rim and body shape of the Dressel 1A, but a vessel height approaching the Dressel 1B, these vessels resemble the Dressel 1 'l'Esterel' (however, the rims heights are slightly lower than those found on the l'Esterel wreck). Types 14 and 15 have high vessel heights, clearly in the Dressel 1B range, solid high bases and thick handles, but their rims are triangular. The overall body shape of type 14 resembles the Dressel 1B while that of type 15 shows a slight resemblance to the Dressel 1C. These two vessels appear to be Dressel 1B, but with Dressel 1A rims and are unique.

## 6.7 Conclusions

The analysis of Republican amphorae from shipwreck cargoes has demonstrated that the Dressel 1A shows the greatest range of morphological variation, while the Greco-Italic, Dressel 1B and the Dressel 1C show less variation and are more easily recognisable. The Dressel 1A actually contains several subtypes and more are likely to be recognised in the future. Rims from the Dressel 1A/C and Dressel 1 'l'Esterel' are distinctive and should be able to be identified in land assemblages. Only the rims from the Dressel 1 'Spargi' will be indistinguishable from the rims of non-classic Dressel 1B rims and these two amphorae types may have to be combined.

Many of the different Dressel 1A subtypes appeared around the late second to the early first century BC, just before the appearance of the Dressel 1B. The existence of Dressel 1A subtypes might initially be seen to invalidate the gradual evolution of Greco-Italic into the Dressel 1A and then into the Dressel 1B, on closer inspection this is not necessarily so. Many of the subtypes, on the admittedly slender dating evidence, appeared late in the evolution of the Dressel 1A (*e.g.* 120–80 BC) and show transitional features with the Dressel 1B (*e.g.* rim height, body profile). Naturally,

some vessel forms invalidate this morphological trend (some of the types from the Miladou wreck), but these appear to be relatively unimportant and so do not invalidate the general scheme.

This chapter has demonstrated that the study of complete Republican amphorae from shipwreck cargoes has great potential. Future work must involve studying the original cargoes instead of from the published reports, as this will provide a more accurate assessment of the work conducted in this chapter. It would also have the advantage of allowing the morphology and fabrics of Republican amphorae to be compared: perhaps distinct Republican amphorae types are found in distinctive fabrics?



## Chapter 7 Details on the Republican amphorae assemblages from the Auvergne

This section describes the amphorae assemblages studied (Fig. 66) with brief details about the sites and the contexts of discovery. For the Republican amphorae assemblages details are provided on the number, weight of sherds and the number of diagnostic sherds (rims, bases, handles and shoulders). The number of vessels is given as rim estimated vessel representation (rim *evrep.*), which is provided by re-fitting all the rim fragments. The morphology of the Republican amphorae rims is provided by details on the median rim height and angle of inclination (excluding Dressel 1C rims). The median value was chosen, as it is less affected by extreme values. Rims are also classified into rim classes (excluding Dressel 1C rims) using Guichard's scheme. Details are provided on the rim height-width ratio for each rim: in Hesnard's scheme rims with a ratio of 1.0 or under are Greco-Italic (Hesnard and Lemoine 1981:252 note 33), while for Gateau's scheme (1990:169) Greco-Italic rims have a ratio under 1.29 and transitional rims a ratio of 1.3–1.39. The percentage of rims (excluding Dressel 1Cs rims) with a rim height under or equal to 30mm, equal to or greater than 45mm, 50mm and 55mm are given. For each assemblage there are three scattergrams showing rim height against inclination, rim width against rim height and rim diameter against rim height. Details on the distribution of the amphorae are provided. All the morphological details of the amphorae rims (height, inclination, width, diameter, rim width-height ratio, and rim class) can be found in Tables 20, 22–27, 31–32, 34–38, 40–46, 48–51. Tables 17–18 provide the main details for all of the amphorae assemblages studied. Drawings of a selection of the amphorae rims can be found in appendix 4.

## 7.1 Aigueperse 'Clos Clidor'

The site of Clos Clidor at Aigueperse is 28km north-east of Clermont-Ferrand, near to the northern border of the Grande Limagne (Fig. 66). This rural settlement covers c.1.5ha and was larger than a simple farm. The occupation spans LTC2-D2 (Charly and Gaime 1995; Guichard *et al.* 1999a), but the main phase belonged to LTD1 (Mennessier-Jouannet and Dunkley 1996:11).

The excavation uncovered two square enclosures; one delineated by a ditch (St.69) the other by a 'pavement' of finds (St.39/41/75), and several pits and one possible building (Fig. 67) (Mennessier-Jouannet and Dunkley 1996). The excavation produced evidence for iron working, including the manufacture of swords (Lionel Orengo *in prep.*). Other finds include sherds of Campanian and a *pâte claire* vessel.

There were 399 amphorae sherds weighing 37kg, 26 rim fragments and *evrep* gives 19 vessels (Tables 17–18, 20, Fig. 68). The median rim height and inclination are low: 35mm and 69° respectively (Table 20) which is between the Greco-Italic and the Dressel 1A range. Most of the rims are in Guichard's rim classes 1 or 2 (47%), and 2 (29%) (Tables 18, 20): two rims are Greco-Italic (in Guichard's rim class 1), while eight rims belong to class 1 or 2 and are either Greco-Italic or Dressel 1As.

The rim height-width ratio figures for Aigueperse suggest that only one rim (7%) is Greco-Italic using Hesnard's scheme (Hesnard and Lemoine 1981:252 note 33) (Fig. 69), while Gateau's scheme (1990:169) has seven Greco-Italic rims (47%), but no transitional rims (Table 19, Fig. 69). Hesnard's scheme matches the rim class data, while the number of Greco-Italic rims according to Gateau's scheme is very similar to the number of rims in rim class 1 or 2.

There are no rims with a height greater than 55mm (Table 55, Fig. 68), while 6% of rims are over 50mm and 18% are under or equal to 30mm. Classic Dressel 1B and Dressel 1C rims are therefore absent, but there are a couple of possible early Dressel 1B rims, or Dressel 1 'Spargi' rims.



Rim diameter and rim height values show a weak relationship with many of the values clustered together (Fig. 70).

### 7.1.1 Distribution

Sherds of amphorae were found in 13 features with two features (St.39/41/75 and St.69) accounting for the majority of the amphorae (Table 21, Fig. 67). The pavement St.39/41/75, dated to LTD1 by its ceramics and a Nauheim brooch, contained c.50% and ditch St.69, which is dated to LTD2 (Orengo *in prep.*), c.20% of the stratified amphorae. Only five other features contained moderate amounts of amphorae generally under 10% of the stratified amphorae. Pit St.68, dated to LTC2, contained a Mötschwil brooch (a type fossil for LTC2) and two Republican amphorae sherds including a Greco-Italic rim with a height of 34mm and inclination 57° (in Guichard's rim class 1 or 2). The two rims in Guichard's rim class 2 or 3 (early Dressel 1B or Dressel 1 'Spargi' rims) are found in features St.21 and St.69, which are dated to LTD2 (Orengo *in prep.*).

## 7.2 A710 excavations

In advance of the construction of the A710 (a 7km motorway extension running across the southern Grande Limagne), (Fig. 71) two trenches were cut along the motorway route, to sample the archaeology (Guichard *et al.* 1995). Republican amphorae from the main La Tène features were examined (Tables 17–18, 22–27).

### 7.2.1 Ditch 2628, Chalonnnet

This ditch was 0.8m wide and 0.5m deep and is dated to LTD1 (V. Guichard *pers. comm.*). This feature contained 70 amphorae sherds weighing 11.6kg and rims sherds from five vessels (Tables 17, 22, Fig. 72). Figure 72 plots the rim height and inclination values for this feature, which shows a strong positive relationship. The rims have a median height of 39mm and inclination of 75° figures that are clearly within the Dressel 1A range (Tables 18, 22). Four of the rims are in Guichard's rim

class 2 (80%) and one in class 2 or 3 (20%) and the rims all belong to Dressel 1As (Table 18). Hesnard's rim height-width ratio scheme indicates that there are no Greco-Italic rims (Figure 73), while Gateau's scheme suggests that there is one Greco-Italic rim (20%), while all the remainder are transitional rims (Table 19, Fig. 73). No rim heights for this feature are under or equal to 30mm, or equal to or greater than 50mm (Tables 22, 54, Fig. 72). There is a weak positive relationship for rim diameter and rim height (Fig. 74).

### 7.2.2 Ditch 3950, Pâtural Redons, Ormeau de Bontemps

There were 72 amphorae sherds, weighing 8.3kg (Table 17) and this feature is dated to LTD1 (V. Guichard *pers. comm.*). The four rim fragments are from separate vessels and there is a strong positive relationship between rim height and rim inclination (Fig. 75). Both median rim height and inclination are low: 31mm and 60°, in the Greco-Italic range (Tables 19, 23). The rims are equally divided between Guichard's rim class 1, and class 2. Two of the rims are Greco-Italic and the remaining two Dressel 1As according to Guichard's rim class scheme (1997:133–135). Using Hesnard's rim height-width ratio scheme there is one Greco-Italic rim (25%) while the rest are from Dressel 1As (Table 19, Fig. 76). Gateau's alternative rim width-height ratio scheme gives three Greco-Italic (75%) and one transitional rim (25%), but no Dressel 1A rims (Table 19). There are no rims with a height equal to or greater than 50mm, while 50% of the rims height are under or equal to 30mm (Table 54, Fig. 75). Rim diameter and rim height shows a very weak positive relationship (Fig. 77).

### 7.2.3 Pit 4191, Chaniat Pre-Guillot, Le Mas 1

This feature is dated to LTD1 (V. Guichard *pers. comm.*) and contained 205 amphorae sherds weighing 35.5kg (Table 17), but there was only one rim (Fig. 78) from a Dressel 1A in Guichard's rim class 2 with a rim height of 31mm and inclination of 71° (Tables 18, 24). The rim height-width ratio suggests that this vessel is either Dressel 1A according to Hesnard (Fig. 79), or Greco-Italic according to Gateau (Table 19, Fig. 79). There were several shoulder sherds from four vessels. For this feature, it is



apparent that amphorae lacking their necks, handles and rims were deposited into this feature.

#### 7.2.4 Pit 4596, Malintrat Villevaud

This pit is dated to LTC2 (V. Guichard *pers. comm.*) and contained one amphora shoulder (Table 17). This shoulder is very thin with a wide diameter and clearly belongs to a Greco-Italic vessel.

#### 7.2.5 Ditch 5516, Lussat Chaniat

This feature (Fig. 81) may have contained a small cremation (although no human remains were recovered) with Campanian A and B, imitation Campanian and a *pâte claire* vessel and is dated to c.100–50 BC or LTD2a (Guichard *et al.* 1999b). It also contained 340 burnt amphorae sherds weighing 41kg, including 15 rim sherds from seven vessels (Table 17, Fig. 82). The spread of rim height and rim inclination values shows a weak positive relationship (Fig. 82). The median rim height is 52mm and median inclination 93° (Tables 18, 25). The rims are in Guichard's classes 2 or 3 (57%) and 3 (43%), and most are Dressel 1Bs, apart from one Dressel 1A rim (Table 18). The rim height-width ratio's for these rims, classifies them as Dressel 1 according to both Hesnard's (Fig. 83) and Gateau's schemes (Table 19). None of the rim heights are under 30mm, while 71% are greater than 50mm, 33% of the rims have a height greater than 55mm and are from classic Dressel 1Bs (Fig. 82). The plot of rim diameter and rim height values shows a strong negative relationship (Fig. 84).

#### 7.2.6 Malintrat 'Chaniat'

Chaniat contained several LTC2-D2 ditches and a later first to fourth century AD farmstead. The 16 rim fragments are from 10 vessels, one of which was from an Italian Dressel 2–4 while all the remainder are Dressel 1 (Table 17), but only six rims were complete to allow both rim height and inclination too be measured (Table 26, Fig. 85). Rim height and rim inclination values show a weak positive relationship

(Fig. 85). The median rim height is 54mm and the median inclination 87° and two rims are found in each of the following rim classes: 2, 2 or 3, and 3 (Tables 18, 26). Two rims belong to Dressel 1As, the remaining four to early and classic Dressel 1Bs. Rim height-width ratio indicates that there are no Greco-Italic rims according to both Hesnard's (Fig. 86) and Gateau's schemes. For rim height, 67% of the rims have a height over 50mm, while 50% are over 55mm and none are under 30mm (Table 54, Fig. 85). Rim diameter and rim height figures show a strong positive relationship (Fig. 87). There was one shoulder from a Greco-Italic vessel and a base of a handle from an Italian Dressel 2–4.

### 7.2.7 Cremations 2828, 5902 and 5903, Lussat Chaniat

This site consists of four structures (Fig. 88): a rectangular enclosure ditch (8m x 14m) (2772), within this ditch there were two scatters of pottery and amphorae (5902 and 5903). Within the northern half of the enclosure covering c.25m<sup>2</sup>, was a third scatter of pottery, amphorae and cremated human bone (2828). In the southern end of the enclosure was a pit (5889) with several offerings; including a sword, a spear and 14 pottery vessels, some of which contained joints of meat. The scatter 2828 contained many shallow dishes and plates (*terra rubra* and imitations), several large pouring/serving vessels and a Aco beaker: this assemblage probably dates to c.50–20 BC (Guichard *et al.* 1999b). The deposit 5903 also contained many dishes, plates and pouring vessels, including an Arretine vessel (Haltern 14) that did not appear until after 20 BC, suggesting a date for this deposit of 20–1 BC (Guichard *et al.* 1999b). The ditch scatter 5902 included an Arretine Drag. 11 vessel (possibly from central France) that only appeared after AD 15 and an early Lezoux Goblet dating to the reign of Tiberius, suggesting a date of AD 15–20 (Guichard *et al.* 1999b).

The cremation deposit 2828 contained 12 Dressel 1 amphorae and 5903 three vessels (Table 17, Fig. 89). All of which have high rim heights and angles of inclination (Table 27, Fig. 89). The plot of rim height and rim inclination values shows a weak negative relationship (Fig. 89). The median rim height and rim inclination for 2828 is 58mm and 98°, while for 5903 the figures are 62mm and 96° (Tables 18, 27); both are



within the classic Dressel 1B range. For both 2828 and 5903 33% of the rims were in Guichard's rim class 2 or 3 and 67% in class 3. All the rims are from Dressel 1Bs and the most belong to classic Dressel 1B rims. The rim height-width ratio's for all the vessels classify them as being Dressel 1 according to both Hesnard and Gateau (Table 19, Fig. 90). None of the rims for this feature were under 30mm, while 93% have heights over 50mm and 87% over 55mm (Table 54, Fig. 89). The plot of rim diameter and rim height values shows a weak positive relationship (Fig. 91).

For cremation 5902 there were three Spanish amphorae: a Haltern 70 (mostly complete), a Pascual 1 (only represented by a complete rim and one complete handle) and a Dressel 7-11 (only represented by a handle and some body sherds).

The presence of Dressel 1B amphorae in 5903 (dated to 20-1 BC) makes this one of the latest dated assemblages of Dressel 1 amphorae in France. Although it is difficult to generalise from just one example, it suggests that the Dressel 1B was still exported during the late Augustan period (*contra* Desbat 1998; Pion 1996 II:177-178), but was no longer produced by the time that context 5902 was deposited in AD 15-20.

#### 7.2.7.1 Taphonomy

None of the three cremation scatters contained the remains of complete amphorae and around one third of the vessels were deposited (Table 28). Many of the amphorae sherds (even conjoining ones) showed no signs of burning and the vessels were broken before they were placed on the funeral pyre. Only partial offerings were deposited within the features.

#### 7.2.7.2 Comparison with other rich late La Tène burials

Late La Tène Funerary structures similar to the Lussat cremation/enclosure are found in northern France, especially the Aisne valley, Belgium, Luxembourg and the Rhine (Metzler *et al.* 1991:166 fig. 113) (Fig. 92). This distribution mirrors the distribution of the earlier Hallstatt/early La Tène rich tombs (Metzler *et al.* 1991:166). This

includes rich burials either in central tombs, or sometimes within timber chambers, and with surrounding enclosure ditches, or more simply rich burials in pits or mounds. The best-known burial of this type is the Clemency tomb (Metzler 1993; Metzler *et al.* 1991) near to the Titelberg *oppidum*, and further rich burials are known from this area (Metzler *et al.* 1991:166–168 figs. 113–114). However, the distribution map ignores an increasing number of examples from central France in Berry (Villard 1993), south-west France (Gomez de Soto 1994:175) and western France (Pautreau 1999). The examples however from Berry, southern and western France do not contain human skeletons, nor cremated human bone (Gomez de Soto 1994:177–178). The example from the Auvergne suggests that these graves/votive deposits had a much wider distribution in France than currently suggested.

In England first century BC Welwyn type burials, within round or rectangular graves, often containing Dressel 1B amphorae and cremated human bone (but without enclosure ditches), are concentrated in south-east England north of the Thames (Farley 1983:296; Stead 1967). Many of the Dressel 1B amphorae found in Welwyn type burials were old vessels and had been empty for some time before they were placed in the tombs (Sealey 1985; Stead 1967). The Welwyn graves lack animal bones, cooking pots and weapons (Stead 1967:45) unlike the continental examples. A series of small rectangular enclosure ditches have been excavated at Folly Lane Saint Albans (Niblett 1999), Stanway near Colchester (Crummy 1997) and at King Harry Lane Saint Albans (Haselgrove and Millett 1997). These enclosures contain several graves, and in some cases larger central chambers however, some are empty. The Lussat enclosure ditch and cremations resembles the situation at Stanway, and the excavated enclosure may be just one of many similar structures.

These late La Tène funerary structures are interpreted as representing ‘aristocratic burials’ of a new rich elite, believed to have served in the Roman army, or who made their wealth from the ownership of land and/or via industrial production (Metzler *et al.* 1991:172–173; Villard 1993). A burial from Paris contained a male skeleton buried with a Gallic sword, an early Roman auxiliary belt buckle, several broken and burnt Dressel 1B amphorae and a small quantity of ceramics and animal bones (Poux



1999b). The majority of these features on the continent contain swords, spears, shield bosses and horse equipment, suggesting that these were the graves of Auxiliary cavalry (Metzler *et al.* 1991:173). Burials lacking deposits of weapons are rare, one example is the tomb of Primelles in Berry, which contained a mirror, bronze brooches and a glass bracelet, and has been interpreted as a female burial (Villard 1993:255, 264). Also lacking from this tomb are metal wine serving vessels, although the tomb did contain several amphorae (Villard 1993:250 fig. 7, 253, 264).

Pearce (1997:179) from studying the late pre-Roman cemetery at King Harry Lane has argued that these burials indicate new strategies of representation by elites. These burials should not simply be interpreted as indicating the burial rite of a new elite who gained their wealth and authority via service in the Roman army. Instead, these burials represented a new form of display by established elites and a change in the sphere for the location of military equipment away from sanctuaries and cult centres to individual burials.

For Folly Lane, Clemency and tombs from the Aisne valley there was a two staged funerary process, involving the exposure of the body above ground (or in specially dug pits), the cremation of the body and then feasting and processional dancing around the tomb (Niblett 1999:395–398). Only a selection of the cremated human bone and the broken ceramic offering were placed within the tomb at Folly Lane (Niblett 1999:929). The grave goods in the Lexden tumulus were also broken and incomplete (Niblett 1999:395). For the examples from Berry, western and southern France the amphorae and other grave goods were deposited whole (Villard 1993).

Comparing the types of amphorae found within the Lussat cremation with those found in other rich late La Tène graves shows many similarities (Table 29). Most contained Dressel 1B amphorae although some contained non-wine amphorae. A Dressel 20 olive oil amphora was found in the Primelles tomb, while Spanish Dressel 7–11 amphorae have been found in the pavement associated with the Clemency tomb, and at Goeblange-Nospelt B, Mont Bures and Stanway Doctor's grave.

The quantity of amphorae from 2828 is comparable to the other examples, with most of these graves containing c.10–20 amphorae (Table 29). The Lussat cremations (2828, 5902 and 5903) differ from the other rich graves from southern and central France in that the amphorae and other grave goods were not deposited intact: although for the grave shaped-pit (5889) the ceramic goods were deposited intact. This would suggest some form of two stage funerary rituals like at Folly Lane, Lexden and Clemency.

Most of the northern French rich graves have been dated from LTD2 to the end of the first century BC (Table 30) (Metzler *et al.* 1991:160–161, fig. 110) and the Lussat structures date to the same period. An exception is the tomb at Tesson (Charente-Maritime), which is dated to the second century BC and contained 15 Dressel 1A amphorae (Gomez de Soto 1994:175). Several of these tombs date to the first century AD including Antran in the department of Vienne (Pautreau 1999).

### 7.3 Clermont-Ferrand ‘La Grande Borne Aulnat’

La Grande Borne Aulnat is a concentration of middle-late La Tène material covering c.5ha (Collis 1975b:6) around Aulnat on the Grand Limagne, 5km east of Clermont-Ferrand (Figs. 66, 93). The amphorae from Chantier 4, excavated by Collis (Collis 1975b, 1980, 1983, *n.d.*1) and Chantiers 1–3 excavated by Périchon and Chopelin (Périchon 1975, 1981, 1983, 1992) will be considered here.

#### 7.3.1 La Grande Borne Aulnat/Chantiers 1–3

Périchon excavated three areas at La Grande Borne Aulnat/Chantiers 1–3 (Fig. 94). Only for Chantier 1 does a detailed plan exist showing the main features uncovered, which included 14 large pits (A–P) (Périchon 1981). Pit A was used for metalworking and dates to the Hallstatt period, the remaining pits are dated to LTC2–D1, including pit D ‘*fosse à amphores*’, pit E which contained two adult inhumation burials and pits F and G which contained burnt deposits (Périchon 1981). No plan exists for Chantier 2–3, but a 2m wide by 4m deep wood-lined well, containing



animal bones, Campanian A and amphorae was uncovered in Chantier 3 (Giraud 1993:50–51). Giraud examined a small proportion of the Chantiers 1–3 amphorae at the Museum Diana at Montbrison (1993, 1994). For this present study all the amphorae held at Montbrison and at Lezoux was examined.

The collection of Republican amphorae from Chantiers 1–3 consists of c.4,600 sherds, weighing 773.9kg and includes 210 rim fragments (Table 17). The 210 rim fragments are from 176 vessels (Fig. 95) and the median rim height and median angle of inclination are 36mm and 70°, which is within the Dressel 1A range (Tables 18, 31). The plot of the rim height and rim inclination values shows a strong positive relationship (Fig. 95). Most of the rims are in Guichard's rim classes 1 (16%), 1 or 2 (17%) and 2 (64%), while only 3% were in class 2 or 3 and there were no rims in class 3 (Table 31). According to Hesnard's rim height-width scheme, 17% of the rims are Greco-Italic (Fig. 96): similar to the percentage of rims in Guichard's rim class 1. In contrast Gateau's rim ratio methodology has a higher figure of 45%, with 16% of transitional rims (Table 19). The Dressel 1B is absent as there are no rims with a height greater than 55mm and only one rim (0.6%) with a height over 50mm (Table 54, Fig. 95), which has a very narrow mouth diameter (130mm) and may be an early Dressel 1C. Nineteen percent of the rims are under or equal to 30mm in height. Rim diameter and rim height values show a very weak positive relationship and most of the values are dispersed (Fig. 97).

#### 7.3.1.1 Distribution

The majority of the amphorae came from the *fosse à amphores* in Chantier 1. This pit was 2m in length by 1.8m wide and 2.1m deep. It contained many complete amphorae rims, necks and shoulders, while a child's skull was associated with several complete amphorae necks and burnt ceramic vessels (Giraud 1993:52–54; Périchon 1981, 1992). This feature also contained many animal bones, Campanian A and fragments of quern stones. The base of the feature was rectangular and grave shaped and contained two amphorae complete from the shoulder to the base (Giraud 1993:52–54; Périchon 1981). For this feature, 1,544 amphorae sherds weighing

223.2kg were uncovered, including rims from 35 vessels of which several were from Greco-Italic vessels. This feature alone contains 35% of the amphorae sherds and 30% of the total weight of sherds from Chantiers 1–3.

### 7.3.2 La Grande Borne Aulnat/Chantier 4

An area 12m x 24m was excavated, although the difficult digging conditions meant that only the major features were recognised (Fig. 98). A trackway (LTB2) and ditch (LTC1–2) dominated the site, while for LTC2-D1 the main features were several pits and wells (Collis *n.d.* 1, 1975b, 1980, 1983). For LTB2-C1/2, the site has been interpreted as a rich aristocratic settlement. Deposited during this period were several swords, spears and shields bosses (Guichard and Orengo 1999:71–72) and the site was involved in the working of iron, copper alloy, silver and gold, bone and horns (Orengo *in prep.*). For the LTC2-D1 occupation, there was little intensive metalworking, only the working of copper alloys, and coin production (Collis 1980:44). Deposits of weapons and military equipment are lacking and the site was probably a small village (Orengo *in prep.*).

The coin assemblage from Chantier 4 includes an imitation gold stater of Philip II of Macedon (stratified in the La Tène C1–2 ditch) and a Massaliote obol and a *monnaies à la croix* from Aquitania/Languedoc (in pit B47AT). There are also 11 potin coins (in pits B38AQ, B47AT, B49AS and B49AU), but inscribed coins are absent (Malacher and Collis 1992:197; Nash and Collis 1983). The site has produced a rich range of imported goods in LTC-D contexts: including Italian Campanian A pottery, mortaria and *pâte claires* from southern France, Spanish *grise Ampuritaine*, schist bracelets from the department of the Allier and fragments of Mediterranean coral (Collis 1975b, 1980; Périchon 1975, 1983). La Grande Borne has also has a *Graphittonkeramik* vessel from southern Germany (Collis 1975b:186).

La Grande Borne/Chantier 4 contained comparatively little amphorae: 6,382 sherds, only weighing 77kg (Table 17). The majority of the amphorae sherds tended to be small and worn. The 23 rim fragments are from 20 vessels (Fig. 99) and the median



rim height is 35mm and the median inclination 74° (Tables 19, 32); both figures are within the morphology of the Dressel 1A. The plot of rim height and rim inclination values shows a strong positive relationship (Fig. 99). Most rims are in Guichard's rim class 2 (71%) with a smaller number in class 1 (23%), while very few rims are found in class 2 or 3 (6%), and none in class 3 (Table 18). The majority of rims are Dressel 1As, with a smaller number of Greco-Italic rims, but there are no Dressel 1B rims.

Hesnard's rim height-width ratio scheme has two Greco-Italic rims (13%) (Fig. 100), while Gateau alternative ratio scheme has six Greco-Italic rims (38%), and one transitional rim (6%) (Table 19, Fig. 100). There were no rims with a rim height greater than 50mm, while 24% of the rims have a height equal to or less than 30mm (Table 54, Fig. 99). The plot of rim diameter and rim height values shows a strong positive relationship (Fig. 101).

59% of the amphorae were stratified in Iron age features, while 37% were not stratified and the remainder contamination of earlier features (Table 33). Amphorae were found in 22 features however most features contained only small number of sherds. Republican amphorae are absent from ditch 12–13, dated to c.250–190 BC (LTC1), which contained many imported finewares including examples of *pâte claires*, Campanian A and *grise Ampuritaine* (Guichard and Orengo 1999). Pit B38AQ dated to LTC2/D1 (c.175–150 BC) (Orengo *in prep.*) contained 79 amphorae sherds including one Greco-Italic rim (height 27mm, inclination 62°, in Guichard's rim class 1 and with a rim width-height ratio of 0.93). A typical Dressel 1A rim (height 34mm, inclination 81°, in Guichard's rim class 2 and with a rim width-height ratio of 1.8) was stratified in pit B47AT which is dated to 125–100 BC (Orengo *in prep.*).

Most of the amphorae were deposited in pits B38AQ, B47AT and the well B49AT (LTC2/D1): these three features account for 94% of the stratified amphorae. The pit B47AT contains 45% of the total amphorae found in Chantier 4. The well B49AT contained several human bones including a human skull (Cumberpatch *n.d.*).

### 7.3.3 Clermont-Ferrand 'Aulnat rue Elisée Reclus'

This small-scale excavation of a narrow strip of land c.8m x c.70m in the La Grande Borne Aulnat area uncovered c.40 wells and storage pits dating to LTC2-D1 (Fig. 102); although several of the features are not dated and may date to the medieval period. It is possible that this represents an extension of the settlement at La Grande Borne Aulnat/Chantiers 1–4.

A total of 228 amphorae sherds weighing 8.45kg were uncovered (Table 17). There were six rim fragments from four vessels (Fig. 103) and the plot of rim height and rim inclination values shows a strong positive relationship. The median rim height was low: 32mm and the inclination 63° (Tables 18, 34) which is within the Greco-Italic range. Two rims are in Guichard's rim class 1, one in class 1 or 2, and one in class 2. Two rims are Greco-Italic, one is transitional between Greco-Italic and the Dressel 1A, while the remaining rim is a Dressel 1A. Both Hesnard's and Gateau's rim height-width ratio scheme's indicate that there are two Greco-Italic rims (Table 19, Fig. 104). For this assemblage, there are no rims with a height over 50mm, while 50% are under or equal to 30mm (Table 54, Fig. 103). The plot of rim diameter and rim height values shows no relationship (Fig. 105).

### 7.3.4 Clermont-Ferrand 'Le Brézet Iveco'

Many findspots and '*depôts*' of Republican amphorae have been uncovered in the Le Brézet (Fig. 66) area of Clermont-Ferrand between La Grande Borne Aulnat and Pontcharaud (Mennessier-Jouannet 1997:7 fig. 3).

A rescue excavation carried in 1997 uncovered several pits, wells and ditches, all containing deposits of Republican amphorae, animal bones and ceramics (Fig. 106). A large spread of amphorae sherds covering 40m<sup>2</sup> and other isolated concentrations of amphorae and ceramics were also uncovered (Vernet 1997; Mennessier-Jouannet 1997, 1998). Several inhumation burials of adults and infants in graves or pits dating from the Neolithic to the Bronze age, and one to LTC2-D1 were uncovered (Vernet



1997). These features are adjacent to the Neolithic and LTD1/2 cemeteries of Pontcharaud.

It is possible that this area was divided by a series of ditches into several ritual enclosures, used for burials and/or other ritual practices including the deposition of amphorae and other archaeological materials (Mennessier-Jouannet 1998). The situation at Le Brézet resembles the site of Caserne Rauch at Rodez, which too has many pits and ditches rich in amphorae (Gruat *et al.* 1991).

In total 731 amphorae sherds, weighing 139kg were found, including 34 rim fragments (Table 17) from 24 vessels (Fig. 107). Rim height and inclination values show a strong positive relationship (Fig. 107). The median rim height of 35mm and inclination of 74° is within the Dressel 1A range (Tables 18, 35). The majority of the rims are found in Guichard's rim class 2 (58%), a smaller number of rims are found in classes 1 (17%), and 1 or 2 (25%), while no rims were found in classes 2 or 3, and 3 (Table 18). Apart from four rims in class 1 that are Greco-Italic, all the remaining rims are from Dressel 1As and there are no Dressel 1B rims.

Hesnard's and Gateau's rim height-width ratio schemes give conflicting results with the former suggesting only two Greco-Italic rims (9%) (Fig. 108) while the later suggests 10 (43%) and three transitional rims (3%) (Table 19, Fig. 108). For Le Brézet, there are no amphorae rims with a height over 50mm, while 25% have a height under or equal to 30mm (Figure 107). The plot of rim diameter and rim height values shows a very weak positive relationship.

A small wood-lined well at Le Brézet contained several painted pots, a sherd from a Greco-Roman *balsamaire* and sherds from 25 Dressel 1A amphorae, including several partially complete vessels (Deberge *in prep.*). One of the larger fragments consisting of the upper shoulder neck and rim of a Dressel 1A, contained a complete cork bouchon with its cement cover within the lower neck. The cement seal over the cork was stamped with several round impressions and similar stamps have been reported

from the Fourmigue A wreck (Pollino 1975:plate 4), Dramont A, Madrague de Giens, Mahon, Planier 4 and San Ferrol wrecks (Hesnard and Gianfrotta 1989:430–431).

### 7.3.5 Clermont-Ferrand ‘Le Brézet 51 rue Jules Verne’

During the construction of a house foundation, a large rectangular pit cut into the bedrock was uncovered. This structure contained many complete or partial Dressel 1A amphorae, laid side-by-side parallel to the main axis of the feature (Dumontet and Romeuf *n.d.*). No other archaeological materials were recovered from this feature, but the amphorae are consistent with a LTD1 date. The length of the pit was at least 30m of which 16m contained amphorae, the canal was 2m wide and 3m deep.

The remains of 36 complete or partial Dressel 1A amphorae weighing 446.8kg were uncovered (Table 17). There were 25 rim fragments (Fig. 110) with a median height and inclination of 35mm and 75° in the Dressel 1A range. Most of the rims are in Guichard’s rim class 2 and belong to Dressel 1As (Tables 18, 36). None of the rims has a height greater than 50mm or under or equal to 30mm (Table 54, Fig 110). The rim diameter and rim height values show a weak positive relationship (Fig. 111).

Of the amphorae, nine vessels were complete enough to make it possible to measure their heights and capacities (Table 37). Total vessel height ranges from 0.96–1.01m (in the Dressel 1A range) while there is negative relationship between vessel height and rim height (Fig. 112). The capacity of the Dressel 1A is c.20l: however all but one of these amphorae have capacities below this figure. The median figure is 17l while the lowest value is 16l and when their capacity is compared with their empty weight, most have low capacity/weight ratios of 0.7–0.8 (Table 37).

Dumontet and Romeuf (*n.d.*) vessel no. 13 is clearly a Dressel 1A/C with a vessel height of 0.99m, with a rim height of 45mm and inclination of 80°. The handles are s-shaped and are attached to the base of the neck. There is one Dressel 1A/C vessel at Roanne in Horizon 3 (110–100 BC) (Lavendhomme and Guichard 1997:271 plate 54 no. 16) and at Aix-en-Provence ‘Terrain Coq’ (Poux *pers. comm.*).



There were 10 other vessels complete from the shoulder/neck down to the base and five vessels represented by upper shoulder, neck and rim. The majority of the amphorae were placed within this feature intact and many of the large isolated fragments probably go with the partially complete amphorae. As no cork bouchons were uncovered (the waterlogged conditions should have preserved them), the amphorae must have been deposited without their corks and probably empty.

### 7.3.6 Clermont-Ferrand 'Le Pâtural'

Le Pâtural is 3km to the north of La Grande Borne, on the Grande Limagne (Fig. 66) and 1ha of this settlement has been excavated (Dunkley 1993, 1994; Dunkley and Collis 1992; Dunkley *et al.* 1990). Most of the activity on the site dates to LTC2-D1 (Fig. 113), although there is a Hallstatt D1 inhumation cemetery, several features dating to LTA, and a small Augustan-Flavian cremation cemetery.

Le Pâtural is a small rural establishment possibly no more than one farming unit c.150m x 100m in size. The settlement was divided up by a series of ditches into several enclosures given over to different activities (Fig. 113). There are traces of buildings and domestic activities in some of the enclosures, while others appear to have been used for metal-working, some have wells and ovens, and others may have been used to hold animals and for other agricultural activities. The settlement has limited evidence for industrial production unlike La Grande Borne, with only the production of iron nails and brooches being attested and only on an occasional basis (Orengo *in prep.*). There was also small-scale bone working. The site has a collection of Campanian A, mortaria, *pâte claires* vessels and two sherds from imported Greco-Roman glass vessels.

The amphora collection from Le Pâtural consists of 10,245 sherds weighing 580.5 kg (Table 17). Rim *evrep* gives 117 vessels and rims with low angles of inclination and height dominate the assemblage (Tables 18, 38, Figs. 114). The plot of rim height and rim inclination figures shows a wide range of values with a non-monotonic (curvilinear that does not go in the same direction) relationship (Fig. 114). The

median rim height is 32mm and median rim inclination 69°, both figures are low and between the Greco-Italic and the Dressel 1A. There are several rims with very low angles of inclination and height: height under 25mm and inclination below 50°, which are clearly early Greco-Italic rims (Fig. 114).

37 rims are in Guichard's rim class 1 (32%) (Greco-Italic), 24 rims are in class 1 or 2 (21%) (Greco-Italic, transitional or Dressel 1As), 42 rims (36%) are in rim class 2 (Dressel 1As) and 14 of the rims are in classes 2 or 3, and 3 (12%) (Dressel 1A or Dressel 1B, and Dressel 1Bs).

Hesnard's rim height-width ratio scheme indicates that 18 of the rims are Greco-Italic (15%) (Fig. 115), while Gateau's scheme has 56 Greco-Italic rims (47%) and a further 18 (15%) transitional rims (Table 19, Fig. 115). At Le Pâtural 8% of the rims have a height over 55mm, 10% have a height greater than 50mm and 41% have a height equal to or less than 30mm (Table 54, Fig. 116). The plot of rim diameter and rim height values shows a positive relationship (Fig. 116).

The amphora assemblage from Le Pâtural differs from the nearby site of La Grande Borne Aulnat, Le Brézet and Pontcharaud, which generally lack Dressel 1B rims. This may indicate that the occupation at Le Pâtural continued later than at La Grande Borne. However, several of the Dressel 1Bs are associated with the Augustan cemetery and its presence may explain all the Dressel 1B rims. Other amphorae types from the site include a sherd from a Massaliote amphora from a LTC2 context and a Pascual 1 handle from the Augustan cemetery.

#### 7.3.6.1 Distribution

A total of 6,373 amphorae sherds came from stratified contexts (c.62%) and amphorae were found in 42 features (Table 39). Of the stratified amphorae, most came from the northern part of the site, in the two fills of the stream (PA 1936 and PA 5557) and the features adjacent to it (PA 1313 and PA 3231). These four features account for 91% of the stratified amphorae. Only seven other features contain more than 20 sherds of



amphorae and five are adjacent to the stream: PA 3268, PA 5517, PA 6623, PA 6672 and PA 15919.

### 7.3.6.2 Deposits

Two distinct deposits were found on several of the amphorae deposited in the stream (PA 1936 and PA 5557): a soft yellow-brown powder and a hard black deposit. These deposits are the remains of resin linings (Jongkees 1955; Peacock and Williams 1986:49–50). The yellow powder indicates a resin that still contained its volatile components, which would have reacted with the wine to give it a resinous taste (but not a true resinated wine) (Heron and Pollard 1987:443–444). The hard black deposit comes from a heated resin, which removes the volatile and active components (Heron and Pollard 1987:443–444) thus there would be no reaction between the resin and the wine.

### 7.3.7 Clermont-Ferrand ‘Pontcharaud III’

The site of Pontcharaud III is c.300m away from La Grande Borne Aulnat/Chantiers 1–4 and was excavated quickly under poor conditions. Two small but separate cemeteries were uncovered, one dating to the Neolithic and the other to LTD1 (Loison *et al.* 1991). The La Tène cemetery consisted of 15 inhumation burials, many of which contained a variety of ceramic vessels, including some painted wares and imitation Campanian, although none were obviously rich burials and none contained weapons. Small rural settlements with adjacent cemeteries are a common feature of the La Tène period in Western Europe (Roymans 1990:240). The amphorae studied came from four pits and one well, not directly associated with the cemetery but from the surrounding area (Loison *et al.* 1991:102). Owing to the rushed nature of the excavation, most of the amphorae from the separate features have been mixed together.

The amphora collection from Pontcharaud III contains 1,693 sherds, with a weight of 489kg (Table 17). The 67 rim fragments gave a rim *evrep* of 47 (Figure 117). The

rim height and rim inclination values show a strong positive relationship and the points are tightly distributed (Fig. 117). The median rim height and inclination are 34mm and 63°, both of which are transitional between the Greco-Italic and the Dressel 1A (Tables 18, 40). The majority of the rims are in Guichard's rim classes 1 (16%), 1 or 2 (35%), and 2 (47%), and the assemblage is made up of a small number of Greco-Italic rims (16%) and many Dressel 1A rims. There is one rim in Guichard's rim class 2 or 3, with a height of 50mm, an inclination of 82° and a diameter of 155mm, which is possibly a Dressel 1B rim. None of the rims has a height over 55mm, while 2% are greater than 50mm and 22% have a height under or equal to 30mm (Fig. 117).

According to Hesnard's rim height-width ratio scheme, 24% of the amphorae are Greco-Italic (Table 19, Fig. 118). Gateau's methodology suggests that over half of the amphorae are Greco-Italic (59%), while there are a further 14% transitional Greco-Italic/Dressel 1A rims, and only a small number of Dressel 1A rims. Hesnard's figure of 24% Greco-Italic rims is nearer to the number of rims in Guichard's rim class 1 (16%), so it can be suggested that around a fifth of the amphorae are Greco-Italic. The plot of rim diameter and rim height values shows a very weak negative relationship (Fig. 119).

Many large fragments of complete to partially complete Republican amphorae were deposited in the features at Pontcharaud III. There are 34 large shoulder fragments and a minimum of c.20 vessels complete from the base to the shoulder, but lacking their necks, handles and rims. Space and time in France precluded comparing and refitting all the amphorae; there appears to be a bias towards sherds from the lower half of the amphorae, with neck, handle and rim sherds less frequent. For several of the partially complete amphorae, the breaks across the shoulder/lower neck were worn and old. Although it can not be proved, many of the rim fragments probably do not go with the partially complete vessels.



## 7.4 La Roche Blanche 'plateau de Gergovie *Chemin de la Croix*'

The plateau of Gergovie covers *c.*70ha and rises to 734m above sea level (Figs. 4, 66, 120) and has been identified as the location of Caesar's defeat by the Arvernian chieftain Vercingetorix (Brogan and Desforges 1940:1, 4).

The plateau has seen archaeological work since the end of the nineteenth century, while modern excavations have been limited (Fig. 120). During the-1930–1940s, parts of the defences and the main gate were excavated (Lassus 1943–1944; Hatt 1943), an industrial quarter (Hatt 1943, 1947), a temple and several stone houses (Brogan and Desforges 1940). Most of the finds from the site date from LTD2b to the Augustan period (Guichard *et al.* 1994:279–290), but there is a minor amount of material dating to LTD1-2a including some Campanian A. The site was abandoned during the first century AD.

The site has produced a rich assemblage of imported Arretine and imported Roman metal vessels (Guichard *et al.* 1994). Previous archaeological work has uncovered considerable quantities of amphorae, mostly of the Dressel 1. Republican amphorae were found on the base of the man-made terrace below the rampart and underneath the base of the stone rampart (Brogan and Desforges 1940:8, 11). Limited finds have been made of the Dressel 2–4, Dressel 20 and a Richborough 527 (Guichard *et al.* 1994:283).

The amphorae examined came from the excavation of seven large pits at *Chemin de la Croix*, located near the centre of the plateau (Fig. 120) by Leguet and Tournalias (1997, *n.d.*). Most of the pits are dated to *c.*50–20 BC and contained Campanian B, roller stamped wares and fineware goblets, but Arretine ware was lacking except from pit seven which is dated to *c.*30–10 BC (Leguet and Tournalias 1997, *n.d.*). Pit seven had been used as a dump for the waste from metalworking (Leguet and Tournalias *n.d.*). A further 69 rims from fieldwalking were also studied.

The excavation of the pits produced 164 rim fragments (Tables 18, 41) from 113 vessels, while the 68 rims from fieldwalking came from 66 vessels. For the assemblages there were 179 Dressel 1 vessels (Figure 121). Most of the rims have high heights and angles of inclination and there is a positive relationship between the two variables (Fig. 121). The median rim height is 56mm and median rim inclination 90°, which is in the range of the classic Dressel 1B (Table 18). Most of the rims are in Guichard's rim classes 2 or 3 (57%) and 3 (40%) (Table 18) and belong to Dressel 1Bs, while there are only five Dressel 1A rims.

Gateau's rim height-width ratio scheme suggests the presence of one Greco-Italic rim! However, this rim's height and angle of inclination are within the Dressel 1A range (Table 19, Fig. 122). There were no rims with a height under 30mm, while 86% had a height over 50mm and 59% greater than 55mm (Table 54, Fig. 121). Rim diameter and rim height figures show a weak positive relationship (Fig. 123).

There were five Lamboglia 2 rims, plus a stub base typical of this form and a further shoulder with a complete handle and part of the neck, though missing the rim. There was one rim and two basal spikes from Haltern 70s, and a grooved handle and one rim from the Dressel 7–11. The Dressel 7–11 diagnostic sherds were all very fragmentary, making the estimation of the minimum number of vessels difficult, although there appears to be three vessels.

## 7.5 Le Cendre 'Gondole'

The *oppidum* of Gondole is located on the Allier floodplain on an old river terrace (Figs. 4, 66, 124). Gondole is a triangular piece of land c.33ha, between the river Allier and a tributary stream the Auzon, enclosed by a large *Fécamp* rampart (Collis *n.d.* 2). There is evidence for occupation both within and outside of the rampart (Malacher and Collis 1992:194). The start of occupation at Gondole is contemporary with the last phase at Corent, and the later occupation is contemporary with Gergovie (Malacher and Collis 1992:195–196). The occupation of the site spans c.80–40 BC (Guichard *et al.* 1993:38 fig. 8) or LTD2a/b.



The amphorae examined came from fieldwalking and test pitting carried out in 1989 (Collis *n.d.* 2). The test pits uncovered the corner of a timber building with a courtyard and a large pit or well. Such timber buildings are a characteristic of the *oppida* from the Aisne valley (Haselgrove 1996) and the Czech Republic (Cumberpatch 1995a; Collis 1984a).

The limited test pitting uncovered 861 amphorae sherds weighing 43.5kg (Table 17). Rim *evrep* gives 49 vessels (Fig. 125) and there is a weak positive relationship between rim height and inclination. The median rim height and inclination figures are high: 53mm and 89°, which are towards the classic Dressel 1B range. Most of the rims are in Guichard's rim classes 2 or 3 (72%), or 3 (23%) (Tables 18, 42) and belong to the Dressel 1B, with a smaller number of transitional Dressel 1A/1B rims, while Dressel 1A rims are rare. There are two Dressel 1C rims.

None of the rims from Gondole has a height under or equal to 30mm, while 71% of the rims have a height over 50mm and 34% a height greater than 55mm (Fig. 125). Gateau's rim height-width ratio scheme suggests that one of the rims is from a transitional Greco-Italic/Dressel 1A vessel, however this rim has a high rim height and angle of inclination and is clearly from a Dressel 1A vessel. Hesnard's rim height-width ratio scheme has no Greco-Italic rims (Table 19, Fig. 126). The plot of rim diameter and rim height values shows that there is a very weak negative relationship between the two variables (Fig. 127).

The clear bias of the Dressel 1B at Gondole and the very few Dressel 1A rims signifies that the Dressel 1A had been replaced by the Dressel 1B by the start of the occupation at Gondole. This gives a much earlier date for the replacement of the Dressel 1A of c.80–70 BC.

### 7.5.1 Le Cendre 'Gondole south of the rampart'

Loison carried out a small excavation of a LTD2(b?) pit just outside of the rampart. No record was kept of the number of amphorae sherds but there were five rim sherds

(Tables 18, 43, Figs. 128–130). One rim came from a Dressel 7–11, the remaining four from Dressel 1Bs (Fig. 128). The plot of rim height and rim inclination values shows a strong positive relationship (Fig. 128). Both Hesnard's (Fig. 129) and Gateau's rim height-width ratio scheme's indicates that there are no Greco-Italic rims. All the rims were in Guichard's rim class 2 or 3, with a median rim height of 56mm and inclination of 89°. The plot of rim height and width values shows that there is no relationship between the two variables (Fig. 130).

### 7.6.1 Les Martres-de-Veyre 'Corent'

Corent is a plateau which rises up to 570m above sea level, adjacent to the river Allier (Figs. 4, 66, 131). The *oppidum* is naturally defended with sheer rock cliffs on many sides, and has no evidence of La Tène fortifications. The surface of the plateau covers 70ha, of which 30–40ha contains late La Tène ceramics and amphorae. Over 2000 late La Tène coins have been recovered from the site (Malacher and Collis 1992) and three late Iron age coin dies (Malacher and Collis 1992:192) including one for a Biturgian issue (Nash 1981:10). Several Arvernian coin types (*e.g.* the *Adcanavnos*, the '*au renard*' and the '*a long cou*') were minted there (Malacher and Collis 1992). Of the brooches uncovered from the site, most are of the Nauheim type (LTD1) with several *filiforme* brooches typical of LTD2 (Orengo *in prep.*). The late La Tène occupation on Corent would seem to date from c.120/100–70/60 BC (Guichard *et al.* 1993).

Only recently has systematic archaeological work taken place on the site (Guichard 1991; Guichard and Collis 1992; Guichard and Jemima Dunkley 1993; Guichard *et al.* 1993). The amphorae examined comes from fieldwalking carried out in 1989, 1990, 1991, test-pitting in 1991 and open area excavations in 1992 and 1993.

The open area excavations were carried out in the centre of the plateau (Fig. 132). This uncovered part of a stone platform with two large stone-lined post-holes. Underneath was a pavement of amphorae and pottery, which contained many bronze and silver coins and brooches. This layer also contained several shield bosses (LTD1



types), one sword of the *Ludwigschafen* type (LTD1 and rarely found in France) and fragments from metal cauldrons (Orengo *in prep.*). The layer also contained a large quantity of animal bones and two human skulls. This platform with large post-holes and military equipment resembles the Belgic ritual sites such as Gournay-sur-Aronde (Brunaux 1988).

A block of land was excavated directly to the south of the 1992 excavation in a field that has been interpreted as being a Roman temple. The excavation uncovered a small late La Tène ditched ritual enclosure. One side of the enclosure ditch contained c.200 sheep/goat mandibles in the 3m excavated. Next to this enclosure, there was a wall of amphorae sherds mainly consisting of complete shoulders and necks, possibly delineating the outline of a rectangular building.

The amphorae collection from Corent contains 13,797 amphorae sherds weighting 1,750kg (Table 44). These figures do not take into account the material collected from fieldwalking in 1989, 1990 and 1991. All the rims from the 1992 and the 1993 excavations were compared and refitted, to give 632 vessels (Fig. 133). The plot of rim height and rim inclination figures shows a great range of values with a weak positive relationship (Fig. 133). The median rim height is 40mm and the median rim inclination 77°, which are within the range of the Dressel 1A. The majority of the rims are found in Guichard's rim class 2 (63%) and belong to the Dressel 1A (Tables 18, 44), while a moderate number of rims were found in rim class 2 or 3 (22%) and only 2% in class 3. A small number of rims are in class 1 (4%) and 1 or 2 (9%).

Rim height-width ratio suggests that 4% of the rims are Greco-Italic according to Hesnard's scheme (Fig. 134), or 22% by Gateau's ratio scheme (Table 19), which has a further 8% of transitional rims. The figures from Hesnard's scheme correspond with the data from the rim classes. Rims with a height greater than 55mm account for 5%, while the number with a height over 50mm is 13% and 6% of the rims are under or equal to 30mm in height (Table 54, Fig. 133). The plot of rim diameter and rim height figures shows a weak positive relationship and the are very dispersed (Fig.

135). There were 22 Dressel 1Cs, from the site, and several rims possibly from Lamboglia 2s with short vertical or overhanging rims.

The Corent amphora assemblage has many archaic elements (a small number of Greco-Italic and the relative lack of Dressel 1B amphorae) and resembles the LTC2-D1 assemblages from the Grande Limagne. A second century to early first century BC date for this assemblage is likely, which suggests that the site was occupied for a shorter period and was abandoned during the first quarter of the first century BC and not at around the time of the Roman conquest.

### 7.6.2 Distribution

The majority of the amphorae from the 1992 excavation came from the amphora layer underneath the stone platform, which accounted for 82.5% of the total amphorae found in 1992. The remaining amphorae came from unstratified contexts or mixed layers. For the 1993 excavation, most of the amphorae came from mixed contexts and only a small part of the total area excavated actually contained preserved late La Tène deposits. The three ditches from the small ritual enclosure contained 82 amphorae sherds. The other main Iron age feature was the wall of amphorae sherds, which consisted of 889 amphorae sherds.

### 7.6.3 Les Martres-de-Veyre 'Le Bay' and 'Pont de Longues'

The site of Le Bay is located at the foot of the plateau of Corent, adjacent to the river Allier (Figs. 4, 66) and was positioned to control trade along the river. Late La Tène finds including a few '*depôts* of amphorae' and inhumation burials have been found over an area of c.5ha (Guichard and Collis 1992:22).

A small rectangular parcel of land 6m x 16m, covering c.90 m<sup>2</sup> was excavated to the east of the main concentration of late La Tène finds and uncovered evidence for late La Tène and Gallo-Roman occupation (Fig. 136). For the La Tène period, several large pits and a shallow linear depression were uncovered (Jemima Dunkley and



Guichard 1994). The late La Tène finds from Le Bay are similar to those found on Corent and appears to have been contemporary with the *oppidum*. There is however, evidence which suggests that Le Bay might predate Corent, as sherds of *jatte d'Aulnat*, a typical find on the second century BC settlements on the Grande Limagne (Guichard *et al.* 1993:32), have been found at Le Bay (Guichard and Collis 1992:23), but not on Corent.

In total 6,155 sherds, weighing 275kg were uncovered, including 61 rims (Table 17). A further 33 unstratified diagnostic amphorae sherds from another part of the settlement at Pont de Longues (Guichard and Collis 1992:22) were also examined. Rim *evrep* gives a minimum of 42 vessels for Le Bay and 11 for Pont de Longues (Fig. 137). The plot of rim height and rim inclination values shows a weak positive relationship between the two variables (Fig. 137). The median rim height is 37mm and median rim inclination 75° within the range of the Dressel 1A (Figs. 137–139). For Le Bay and Pont de Longues the majority of the rims fall into Guichard's rim classes 2 (70%), and 2 or 3 (13%) but there are five rims (11%) in class 1 (Tables 18, 46). The majority of the rims are from Dressel 1As, but there are several Greco-Italic rims. There were two rims belonging to Dressel 1Cs and one rim from a Dressel 2–4.

For rim height-width ratio (Table 19, Fig. 138) Hesnard's and Gateau's scheme suggest a similar number of Greco-Italic rims between 10–15 (20–30%), although this is at least double the number suggested by Guichard's rim class data. Gateau's scheme only suggests 12% of transitional rims and both schemes show a dominance of Dressel 1 rims. None of the rims for this assemblage has a height greater than 55mm, while only 6% of the rims are over 50mm and 15% have a height under 30mm (Table 54, Fig. 137). The plot of rim diameter and rim height figures shows a weak positive relationship (Fig. 139).

Of the total number of sherds, 77% were stratified within features and the remainder unstratified (Table 47). Most of the amphorae sherds came from pit LB 1081 and LB 1112, which together contained 72% of the stratified amphorae.

## 7.7 Le Puy-en-Velay, Cathedral Notre-Dame

A small excavation of 10m<sup>2</sup> carried out inside the Cathedral of Le-Puy-en-Velay in Haute-Loire, uncovered Bronze age, late Hallstatt/early La Tène (including a sherd of Attic ware) and a quantity of LTD1 ceramics (Liégard 1996:54–55). A small assemblage of 42 Republican amphorae sherds weighing 1.9kg was uncovered. There were no rim fragments, but shoulder and handle fragments. One of the handle fragments was large and from a Dressel 1B.

## 7.8 Lussat ‘Le Breuil’ (Nord du Village)

This rural settlement is located on the Grand Limagne dating to LTC2-D2 and is represented by finds from fieldwalking (Rogers and Guichard 1994). There are three rim fragments from a Greco-Italic, Dressel 1A and a Dressel 1B vessels (Tables 17, 48, Figs. 140–142). There was also a sherd from a Greco-Italic shoulder.

### 7.9.1 Pont du Château ‘Le Courret 1’

This site has not been excavated, but fieldwalking finds indicate a small Gallo-Roman settlement with a diameter of c.100m, which also has some LTC2-D1 material suggesting a possible La Tène settlement as well (Provost and Mennessier-Jouannet 1994, II:253). A few sherds of Campanian have also been recovered from this site. The Republican amphorae assemblage from this site is represented by a collection of 13 rim fragments from separate vessels, one shoulder and a base fragment (Table 17, Fig. 143). The plot of rim height and inclination values shows a positive relationship (Fig. 143). The median rim height and median inclination is 34mm and 78° both figures are well within the Dressel 1A range. The rims are in Guichard’s classes 1 or 2 (15%), and 2 (85%) only, and most are from Dressel 1As (Tables 18, 49, Figs. 143–145). Rim height-width ratio according to Hesnard’s scheme suggests no Greco-Italic rims (Fig. 144), however, Gateau’s scheme has four examples (31%) (Table 19). Rim diameter and rim height values shows a weak positive relationship (Fig. 145).



### 7.9.2 Pont du Château ‘Le Courret 2’

The site of Le Courret 2 adjacent to Le Courret 1 is a small rural Gallo-Roman site with a diameter of c.75m. Finds collected from fieldwalking include late Bronze age/Hallstatt and Gallo-Roman ceramics but no LTC-D material (Provost and Mennessier-Jouannet 1994, II:253). One Dressel 1B amphorae rim in Guichard’s rim class 3 has been collected (Tables 18, 49, Figs. 146–148).

### 7.9.3 Romagnat ‘Maréchal’

The site of Maréchal (Fig. 66) contained a large LTD1 palisade v-shaped ditch, cutting across the valley that leads to the *oppidum* of Gergovie. In addition, there was a Roman villa, that starts in the Augustan period (Liégard and Fourvel 1996). Both the ditch and the villa have Republican amphorae and the total number of sherds for the site is 178 weighing 29.4kg (Table 17). There were nine rim fragments all from separate vessels (Fig 149) with a median rim height and inclination of 37mm and 75° (Figs. 149–151). The rims are found in several of Guichard’s rim classes (Tables 18, 50) and there are examples of Greco-Italic, Dressel 1A and Dressel 1B rims. According to Hesnard’s rim height-width ratio scheme there are two Greco-Italic rims (Fig. 150) and Gateau’s scheme four Greco-Italic rims (Table 52). Several rims have a height under or equal to 30mm (22%) while there is one rim with a height over 55mm (Figure 149). The plot of rim diameter and rim height values shows a weak positive relationship between the two variables (Fig. 151).

### 7.9.4. Saint-Paulien, ‘Roche Ambert Marcilhac’

Roche Ambert Marcilhac is a naturally defended hilltop *oppidum* in Haute-Loire, which controlled the Loire valley and routes leading to Rodez. The site is poorly known, but limited archaeological work has uncovered ceramics dating from LTD2. Finds from the site have included many Republican amphorae sherds, sherds from 25 Campanian vessels (types A and B) and a fragment of a *pâte claire*, and an Arretine vessel (Simonnet *et al.* 1983; Quinqueton and Guichard *n.d.*).

There were 15 rim fragments and an *evrep* of 12 (Fig. 152). The plot of rim height and rim inclination values shows a positive relationship (Fig. 152). The median rim height is 45mm and median rim inclination 86°, and the majority of the rims were in Guichard's rim classes 2 (50%), and 2 or 3 (42%) (Tables 18, 51, Figs. 152–154). Most of the rims are Dressel 1As with a few possible Dressel 1Bs. Only one rim has a rim height-width ratio under 1.5 and its ratio of 1.1 according to Gateau classified it as Greco-Italic (Table 19). There are no rims with a height under 30mm, nor with a height greater than 55mm and only one rim (8%) has a height over 50mm (Table 54, Fig. 152). Rim diameter and rim height values show a weak positive relationship (Fig. 154).



## Chapter 8 Morphological analysis of Republican amphorae from the Auvergne and comparison with Republican amphorae assemblages from Western Europe

There are two main parts to this chapter: a comparison of the Auvergne assemblages and then a comparison with other Republican amphorae assemblages from France, Germany, Spain and Switzerland. The first part of this chapter deals with the morphology of the Republican amphorae in the Auvergne and for brevity mostly concentrates on the morphology of the Republican amphorae rims, although a brief analysis of the Republican handles and bases is also made. For the rims, the analysis involves comparing the height, inclination, width, rim height-width ratio, diameter, and classifying them into Guichard's rim classes. These analyses will demonstrate whether there are any chronological trends in the morphology of the Republican amphorae rims in the Auvergne.

### 8.1 Rim height-width ratio (Hesnard and Gateau)

The recognition of Greco-Italic amphorae is important as these are believed to be rare outside Mediterranean France (see chapter 10). Using Hesnard's rim height-width ratio scheme (Hesnard and Lemoine 1981:252 note 33), Greco-Italic amphorae are found in small numbers at most of the second century BC sites in the department of the Puy-de-Dôme (Table 52). The Aulnat rue Elisée-Reclus (Table 52) assemblage has the largest percentage of Greco-Italic rims with 50% (however, this is a very small sample with only two vessels). For Pontcharaud III Greco-Italic rims account for 24% of the vessels, Le Pâtural has 18 Greco-Italic rims (15%) and at La Grande Borne/Aulnat Chantiers 1–3 and Chantier 4 the percentage of Greco-Italic rims are 17% and 13% respectively (Table 52). Generally for the second century BC sites on the Grande Limagne plain Greco-Italic vessels account for between 10–20% of the vessels. The LTD1 assemblage from A710–2628, contains no Greco-Italic rims, but the sample size is small. Greco-Italic amphorae are still found at the LTD1/2 site of Corent, although in smaller numbers (4%), but for Le Bay Greco-Italic rims account

for 20% of the vessels. For the LTD2 (A710–5516, Gondole, Gergovie) and Augustan assemblages (A710–2828, 5903) there are no Greco-Italic rims.

Gateau's (1990:169) rim height-width ratio scheme gives considerably higher numbers of Greco-Italic amphorae. According to this scheme 59% of the rims at Pontcharaud III, 62% at Le Pâtural, 47% at Aigueperse and 45% at La Grande Borne Aulnat/Chantiers 1–3 are Greco-Italic. For the A710–3950 and 2628 assemblages, Greco-Italic and transitional rims account for all the amphorae (but small sample sizes). For the LTD1/2 assemblages of Corent and Le Bay Gateau's scheme gives figures of 22% and 30% respectively and according to this scheme there is one Greco-Italic rim at Gergovie!

At most of the second century BC assemblages transitional rims represent between 10–20% of the Republican amphorae according to Gateau and the figures are similar for the LTD1/2 assemblages (Table 52). Gateau's scheme suggests that Greco-Italic and transitional rims account for 40–70% of the amphorae at the second century BC sites. For Le Pâtural 73% of the rims are Greco-Italic or transitional, while for La Grande Borne Aulnat/Chantiers 1–3 the figure is slightly lower but still high (61%).

It is possible under Gateau's scheme, and less so Hesnard's scheme, for high triangular rims that clearly belong to Dressel 1As to qualify as Greco-Italic. Gateau's scheme for the recognition of Greco-Italic and transitional Greco-Italic/Dressel 1A vessels is questionable, as amphorae rims meeting Gateau's requirements for Greco-Italic vessels and transitional vessels, are found on the late first century BC sites of Gondole and Gergovie. Gateau's scheme clearly subsumes Dressel 1 amphorae into her Greco-Italic category.

Hesnard's scheme should be modified by taking into account rim height and angle of inclination; accordingly Greco-Italic rims should be those which have a width equal to or greater than their height, but with a height under 30mm and with an inclination less than 65°. Using this form of analysis (Table 53, Fig. 155) Greco-Italic amphorae are



still found in moderate quantities for the second century BC sites in the Auvergne, although the values tend to be slightly lower than those from Hesnard's scheme are.

The highest values again come from the smallest assemblages (Aulnat rue Elisée-Reclus, A710–3950 and Maréchal). For the largest assemblages, Le Pâtural has the highest number of Greco-Italic rims with 15%, while La Grande Borne/Aulnat Chantiers 1–3 and Chantier 4, Le Brézet Iveco and Pontcharaud III have similar figures of 8–12%. The proportion of Greco-Italic rims at Corent (2%) and Le Bay (13%) is reduced, although the figure for Le Bay is still in the range of the second century BC sites.

### 8.1.2 Rim height

From the analysis of Greco-Italic amphorae from shipwrecks (chapter 6) most tended to have rims with a height of 30mm or less and Table 54 shows the percentage of such rims (without taking into account their rim inclination) for the assemblages studied. Rims with a height of 30mm (Fig. 156) or less are very frequent on the LTC2-D1 sites representing between 11–50% and are only slightly higher than the figures for Guichard's rim class 1 (see below). Rims with a height under 30mm are found in moderate numbers at Corent and Le Bay (LTD1/2), but are missing from the LTD2 and Augustan assemblages.

Rims with a height greater than 45mm are rarely found in the LTC2-D1 assemblages (Table 54, Fig. 157). These rims are absent from the assemblages of A710–2628, A710–3950, rue Elisée-Reclus, Le Brézet Iveco, Le Courret 1 and are only found in small numbers at La Grande Borne Aulnat/Chantiers 1–4 and Pontcharaud III. They are more frequent in the LTD1/2 assemblages accounting for 27% of the rims at Corent and 17% at Le Bay. By LTD2, they represent the majority of rims: 100% for A710 Lussat Chaniat 5516, 2828, and 5903, 89% at Gondole and 95% at Gergovie. Rims with a height over 45mm only appeared after the LTC2-D1 period and by LTD2, they dominate Republican amphorae assemblages in the Auvergne (Table 54).

It has been suggested that Dressel 1B rims tend to have a height of more than 50mm although this will also include examples of Dressel 1 'Spargi' rims (chapter 6). For LTC2-D1 sites rims with a height over 50mm are very rare and are only found at five sites, of which three have later LTD2-Augustan material (Aigueperse, Le Pâtural and Maréchal) (Table 54, Fig. 158). This leaves only two assemblages La Grande Borne Aulnat/Chantiers 1–3 and Pontcharaud III with examples. For both of these assemblages rims over 50mm in height only account for a small percentage of the rims (0.6–2%). Furthermore, the example from La Grande Borne Aulnat/Chantiers 1–3 is probably from a Dressel 1C rim (see below). For the LTD1/2 assemblages, these only represent 13% of the rims at Corent and 5.5% at Le Bay. Rims with a height greater than 50mm dominate the LTD2-Augustan assemblages: 100% of the rims at Gondole south of the rampart, 72% Gondole and 93% Lussat Chaniat 2828 and 5903.

Classic Dressel 1B rims (rim height 55mm or higher) are lacking from the second century BC sites apart from examples at Le Pâtural and Maréchal, both of which have LTD2 and/or Augustan occupation (Table 54, Fig. 159). Classic Dressel 1B rims (those with a rim height greater than 55mm) are absent from Le Bay and they only account for 5% of the amphorae at Corent. For the LTD2 sites of Lussat Chaniat 5516 and Gondole, a third of the amphorae rims are classic Dressel 1Bs. The proportion of rims with a height greater than 55mm increases with the latest assemblages: 58% at Gergovie to 87% at A710–2828 and 5903.

### 8.1.3 Guichard's Rim classes

Rims in Guichard's rim classes 1, 1 or 2, and 2 (Table 55) dominate the second century BC sites on the Grande Limagne (La Grande Borne Aulnat/Chantiers 1–3 and Chantier 4, Le Brézet Iveco, Le Pâtural and Pontcharaud III etc). Several sites have a high proportion of rims in Guichard's rim class 1 (Greco-Italic): at Le Pâtural they represent 31% of the amphorae, 16% at La Grande Borne/Aulnat Chantiers 1–3, 23% at La Grande Borne Aulnat/Chantier 4 and 25% (one rim only) at Aulnat rue Elisée-Reclus. These figure are similar to the percentages of Greco-Italic rims from Hesnard's rim height-width ratio scheme, but have little similarity with the figures from Gateau's alternative rim height-width scheme. The site of Le Pâtural has several



rims with very low rim heights and angles of inclination that are clearly early Greco-Italic amphorae possibly dating to the late third century or early second century BC. These rims resemble third century BC Greco-Italic rims from Ampurias (Sanmartí-Grego 1985:152–153 fig. 28–29) and early second century BC Greco-Italic rims from Carthage (Poux 1999a:389 fig. 3) and Lattes (Py 1990b, 1994). Rims from Guichard's rim class 1 are absent from the LTD2 and Augustan assemblages and are only found in small numbers at Corent (4%) and Le Bay (11%).

Rims in Guichard's class 1 or 2 (Greco-Italic, transitional Greco-Italic/Dressel 1A or early Dressel 1As) are also common at the second century BC sites (Table 55). At Aigueperse, they represent 47% of the rims, Pontcharaud III 35%, 25% at Le Brézet Iveco and 21% at Le Pâtural. Rims in classes 1, and 1 or 2 account for 52% of the amphorae rims at Le Pâtural, 51% at Pontcharaud III, Le Brézet Iveco 42% and La Grande Borne Aulnat/Chantiers 1–3, 33%. Rims in class 1 or 2 are very rare in the LTD1/2-Augustan assemblages with a high of only 9% at Corent. The percentage of rims in class 1 or 2 does not show much correspondence with the figure for transitional vessels from Gateau's scheme.

Rims in Guichard's rim class 2 (Dressel 1A) account for a high proportion of the rims at the second century BC sites and the LTD1/2 assemblages of Corent and Le Bay (Table 55). For these sites, the percentage of rims in class 2 ranges from 29–85%. The numbers of rims in class 2 for the LTD2 to Augustan sites are rare, apart from Malintrat 'Chaniat', but this is down to the small sample of rims from this site. At Gondole they represent 5% of the rims, 3% at Gergovie and 0% for A710 Lussat Chaniat 2828, 5516 and 5903.

For the second century BC sites rims in Guichard's classes 2 or 3, and 3 are rare or absent (Table 55). Only Le Pâtural has rims in rim class 3 (12%) but most of these are associated with the Augustan cemetery at the site and not the La Tène settlement. Rims in class 2 or 3 account for 12% of the rims at Aigueperse, but this site also has some LTD2 occupation. For the second century BC sites, Dressel 1B and Dressel 1C rims are lacking. Corent and Le Bay have a higher proportion of rims in class 2 or 3

than the preceding LTC2–D1 Grande Limagne sites, but rims in class 3 are rare: Corent has a small percentage (2%) of rims in class 3 and there are none at Le Bay. The LTD2 (A710–5516, Gondole and Gergovie) and Augustan assemblages (Lussat Chaniat 2828 and 5903) clearly differ from the preceding assemblages and mostly contain rims from classes 2 or 3, and 3. Transitional Dressel 1A/1B and Dressel 1B amphorae dominate these assemblages. It is possible to divide these later amphorae assemblages into two groups; an earlier phase dominated by rims in class 2 or 3, and the latest phase dominated by rims in class 3. This suggests two sub-types of Dressel 1B; an earlier group with high rim inclinations, and a second group with the same rim inclination but higher rims (these are likely to correspond to the classic Dressel 1B with a rim height greater than 55mm). This change suggests a quick change from amphorae assemblages dominated by the Dressel 1A to those by the Dressel 1B. This change would appear to date to between c.80–60 BC in the Auvergne and there is no evidence for a longer and gradual replacement of the Dressel 1A by the Dressel 1B.

The rim class data from the Auvergne can be divided into four broad groups. Firstly, the second century BC assemblages which are dominated by Greco-Italic, transitional vessels and Dressel 1As. Secondly, the late second to early first century BC assemblages of Corent and Le Bay, which are dominated by the Dressel 1A with small numbers of transitional Dressel 1A/B and very few Dressel 1Bs and Dressel 1Cs. Thirdly, assemblages dominated by transitional Dressel 1A/B and Dressel 1B amphorae, and finally assemblages containing the classic Dressel 1B.

#### 8.1.4 Median rim height and inclination

The median value for rim height and rim inclination has been chosen for analysis because it is more accurate than the mean, as it is not affected by extreme values. For the LTC2–D1 assemblages median rim heights range from 31–37mm however, most figures are clustered around 34–36mm (Table 56). Median rim inclination for the same group of sites ranges from a low of 60° at A710–3950, 63° at Pontcharaud III and Aulnat rue Elisée-Reclus, to a high of 78° at Le Courret 1, but again most figures are in the range of 69–74°. These median rim height and rim inclination figures for



the second century BC sites are in the range of the Dressel 1A, while A710–3950 and Aulnat rue Elisée-Reclus the figures are within the Greco-Italic range. The median rim height and median rim inclination for the LTD1/2 assemblages are very similar to the LTC2-D1 figures and only differ from the preceding group by having slightly higher rim heights (in the upper 30mms) while rim inclination values are very similar (Table 56). These figures are also in the Dressel 1A range and not the Dressel 1B. When it comes to the LTD2 and Augustan assemblages (Table 56), there is a clear break for both median rim height and median angle of inclination values with the preceding assemblages. For these assemblages, the figures for median rim height are 52–58mm and the values for rim inclination are 87–98°. These figures are clearly within the range of the Dressel 1B. There is a gap between the median rim height and median rim inclination figures for Corent and Gondole of 13mm and 11°.

The evolution of rim height and inclination can be clarified by only using the large assemblages from the more short-lived settlements. The samples used are LTC2-D1 (La Grande Borne Aulnat/Chantiers 1–3), LTD1/2 (Corent), LTD2a (Gondole), LTD2b (Gergovie), and Augustan sample (A710–2828, 5903). A gradual increase in both rim height and angle of inclination can be seen; for the second century the median rim height is around 36mm and median rim inclination 70°, by the Augustan period median height is 58mm and median inclination 97° (Fig. 160). This suggests the gradual evolution of one form into another. However, within this general trend, there is a sudden increase in rim height and inclination between LTD1/2 and LTD2a. For LTD1/2 median rim height is 40mm, and median rim inclination 77°, for the LTD2a median rim height is 53mm and median rim inclination of 89°. The LTD1/2 measurements fall within the morphology of the Dressel 1A and the LTD2a measurements fall within the range of the Dressel 1B. There does appear to be a distinct morphological difference between the amphorae assemblages at Corent and Gondole, suggesting a sudden change from the Dressel 1A to the Dressel 1B. Alternatively, it could be argued that there was a large gap between the end of occupation at Corent and the start of occupation at Gondole.

### 8.1.5 Rim diameter

Several researchers have used rim diameter as a criterion for the differentiation of Republican amphorae types (Maza 1996–1997:79–81; 1998b; Metzler *et al.* 1991; Olmer 1997; Poux 1999a). The data from the Auvergne does not suggest this criterion is diagnostic, a conclusion also suggested by the analysis of Republican amphorae from shipwrecks (chapter 6). The LTC2-D1-D1/2 sites have a median rim diameter of 150mm (Table 57). The LTD2 to Augustan sites have higher rim diameters in the range 170–180mm. For the LTC2-D1 assemblages it is apparent that Greco-Italic, transitional and early Dressel 1A vessels have similar rim diameters. The figures for the correlation between rim height and rim diameter for the individual assemblages (Table 57) show a great range of figures. The majority of values are of low correlation and there are even several negative values. The Malintrat ‘Chaniat’ assemblage with a high positive correlation of 0.88 is an exception (Table 57).

## 8.2 Statistical Analysis

Standard deviation for rim height remains relatively constant for all the assemblages and most figures range from 5–7mm (Table 58), although there are several exceptions: Maréchal with 11mm and Malintrat ‘Chaniat’ with 12mm. Standard deviation for rim inclination shows a clear trend of higher values for the LTC2-D1 to LTD1/2 assemblages (10–13°) to lower figures of 5–8° for the LTD2 to Augustan assemblages. The LTD2-Augustan assemblages show as much variation in the height of rims as the LTC2-D1 assemblages. For rim inclination, the LTD2-Augustan assemblages stand out by their reduced variation in rim inclination.

As different values are being compared, it is more accurate to use the coefficient of variation (Table 59). This is created by dividing the standard deviation by the mean and provides a comparative value on a scale from 0 (no variation) to 1 (extreme variation). The coefficient of variation figures does not show an obvious trend as the standard deviation figures do, although the latest assemblages are characterised by lower levels of variations in rim inclination than the earlier assemblages. For all the



assemblages, the pattern is reversed (when compared with the standard deviation figures) with the coefficient of variation of inclination showing less variation than the coefficient of variation for rim height.

### 8.2.1 Correlation: rim height and inclination, rim height and width

The second century BC sites have high positive rim height and inclination correlation ranging from 0.93–0.55, although the Le Brézet 51 rue Jules-Verne has a low correlation of 0.19 (Table 60). The LTD1/2 assemblages both have slightly lower positive correlation of 0.63 and the LTD2 assemblages have lower positive correlation in the range of 0.61–0.22. Finally, the Augustan assemblage has a moderate negative correlation of 0.30. For the Augustan assemblage, higher rim heights tend to have lower angles of inclination. Correlation between rim height and rim width tends to show a low negative correlation for the majority of the assemblages, one exception is Lussat Chaniat 2628 with a positive value of 0.91. There is no evidence for any chronological trend for rim height-width correlation.

The technique of squaring the correlation value gives the amount of variation explained by another independent variable; ranging from 0 in which none of the variation is explained by the other variable, to 1 where all the variation is explained by the variable (Table 60). For the LTC2-D1 assemblages the variables of height and inclination account for between 30–86% of rim variation, 40% for the LTD1/2 assemblages, 20–41% for the LTD2 assemblages (Malintrat ‘Chaniat’, Gondole, Gergovie) and under 10% for the Augustan assemblage.

## 8.3 Dressel 1C

The Dressel 1C is most common at the *oppidum* of Corent with 22 examples (but only 3% of the total number of amphorae) and rims from two vessels have been found at Le Bay. The Dressel 1C is generally absent from all of the second-century BC sites on the Grande Limagne plain, apart from one possible example from La Grande Borne Aulnat/Chantiers 1–3. There are two Dressel 1C rims at Gondole, but this form is

absent from Gergovie. It may be that the Dressel 1C was only produced or exported to Gaul after the sites on the Grande Limagne were abandoned (c.120–100 BC) and the lack of examples at Gergovie would suggest that this form was not made or exported after LTD2a (c.55 BC).

Rim height for the Dressel 1C ranges from 52–83mm and the median value is 67mm. For inclination, the range is 78–91° and the median 84° and the median diameter is 135mm. There is weak negative correlation value for height and inclination and for height and diameter.

### 8.3.1 Dressel 1A/C and Dressel 1 'l'Esterel' rims

Dressel 1A/C rims (see chapter 6) are found in small numbers in the LTC2-D1 assemblages (Table 61) with La Grande Borne Aulnat/Chantiers 1–3 with the most examples (11%). These rims are more frequent in the LTD1/2 assemblages where they represent between 11–13% of the rims at Corent and Le Bay. By LTD2 Dressel 1A/C rims are lacking except for Malintrat 'Chaniat' where they represent 10% of the rims: however the sample size is small.

Dressel 1 'l'Esterel' rims (see chapter 6) are absent from the LTC2-D1 assemblages apart from Pontcharaud III where they account for only 4% of the rims (Table 61). For the LTD1/2 assemblages of Corent and Le Bay these rims are slightly more frequent representing 6% of the rims and they account for 8% of the rims at Marcilhac. At both Gondole and Gergovie these rims are still found but only in small numbers representing 4% of the assemblages, and they are absent from the Augustan A710 Lussat Chaniat 2828 and 5903 assemblages.

## 8.4 Conclusions

The rim height-width ratio and rim height analyses have demonstrated the presence of Greco-Italic rims at many of the second to early first century BC sites in the department of the Puy-de-Dôme. This indicates that there was clearly a phase of



imports to the Auvergne before the conquest of southern Gaul in 120 BC. The frequent examples of rims in Guichard's rim class 1 or 2 suggests that the first large-scale exportation of amphorae to the Arverni dates to the origin of the Dressel 1A (c.150–140 BC). Dressel 1B and Dressel 1C rims are generally absent from the second century BC sites. Amphorae assemblages show a change from assemblages dominated by the Dressel 1A, to those dominated by the Dressel 1B around 80–70 BC. There is no evidence for a long period of overlap between the two forms.

The rim class data, median rim heights and median inclinations, and the statistical analyses (standard deviation, correlation) of the assemblages all indicate that LTC2-D1 and LTD1/2 assemblages show more similarities than with later LTD2 and Augustan assemblages. There appears to be a substantial morphological difference between LTC2-D1 and LTD1/2 and later assemblages. This would tend to reinforce the existence of two types of Dressel 1 amphorae: 1A and 1B.

## 8.5 Handles

Republican amphorae handles are frequent finds: however, few studies make use of them for morphological analysis. Stöckli demonstrated a morphological trend of increasing handle size, from the Greco-Italic to the Dressel 1B (1979:135–137, fig. 25). In his study Stöckli plotted the handle width and thickness for Greco-Italic amphorae from the Briande and Punta Scaletta wrecks, Dressel 1A amphorae from the Grand Congloué 2 and Spargi wrecks and for the Dressel 1B from the Albenga and Dramont A wrecks (1979:135–137, fig. 25). The relative size ranges for the handles from the three different types of Republican amphorae are given in Table 62, which demonstrates a simple evolution in handle size. Handle thickness appears to be more distinctive than handle width, in that for the latter there is an element of overlap between the three different forms. Stöckli argued that Dressel 1B handles tend to have a width greater than 55mm (1979:137).

As well as a size difference among the handles from the different forms, there is also a difference in the overall cross-section. The handles of Greco-Italic vessels have a

slight triangular cross-section with a ridge along one face (Stöckli 1979: 136 fig. 24; Will 1982). Dressel 1A handles tend to have oval or rounded cross-sections (Stöckli 1979: 136 fig. 24) and finally Dressel 1B handles tend to be more oval to rectangular (Stöckli 1979: 136 fig. 24). Recently Maza has used the same technique to study the Republican handles from several sites in Lyon (1996–1997:109–110, 1998b:42–43) and Poux for the material from a funerary pit at Paris (1999b:30–32 fig. 26).

The morphology of the handles from sites in the Auvergne (Tables 63–73, Figs. 161–172) shows a simple pattern with the assemblages clearly being divisible into two groups. Firstly assemblages with handles with a median handle width under 50mm, and secondly those with a median width over 50mm (Table 74). The first group corresponds with the second to early first century BC sites, and the second group with the later first century BC assemblages. There is a morphological break between these groups (also seen with rim morphology).

For the Auvergne the second to early first century BC sites are dominated by handles with a width under 35mm, while massive handles with a thickness greater than 55mm are absent or found only in very small numbers (Table 74). Only the site of Le Pâtural with 10% and A710–4191 with 33% has a high proportion of larger Dressel 1B handles. However, the latter may be explained by the small sample size (only three handles) and that Le Pâtural has several Dressel 1B rims. Interestingly the LTD1/2 sites of Corent and Le Bay both have only a small percentage of Dressel 1B handles (5% and 1% respectively) which are similar to the number of Dressel 1B rims from these two sites. The three later assemblages (A710–5516, Gondole and A710–2828) have a much higher percentage of handles with a width greater than 55mm, accounting for the vast majority of the handles.

## 8.6 Bases

The diameter and heights of bases were measured, and their overall form used to classify them. Olmer (1997:150–152, 164; Olmer *et al.* 1995:310–313 figs. 18–20) has divided Republican amphorae bases into the following types: concave, conical, convex, evolved straight, straight, straight convex, terminating with a button, and



terminating with a band. Poux (1999a) has used a similar system and divided bases into six groups: straight with a diameter under 50mm, straight diameter greater than 50mm, conical, terminating with a button, ending in a spike/point, and ending with a band and a spike/point. A modified version of the scheme developed by Poux has been adopted and bases were classified into 10 groups:

B1=Cylindrical with a diameter under 50mm.

B2=Cylindrical with a diameter under 50mm, capped bottom.

B3=Cylindrical straight, often massive.

B4=Conical.

B5=Diameter greater than 50mm, with button.

B6=Diameter greater than 50mm, moulded bottom ends in small spike or bump.

B7=Diameter greater than 50mm moulded bottom, with band and ends in small spike or bump.

B8=Diameter greater than 50mm, banded.

B9=Diameter greater than 50mm, ends with band.

B10=Diameter greater than 50mm concave, convex no moulding.

### 8.6.1 Base heights and widths

Drawing meaningful conclusions from the base height and width data is made difficult by the small sample sizes, especially of complete bases and only three assemblages provide more than 10 intact bases (Tables 75, 76–84). Nonetheless, bases from the LTC2-D1 assemblages have median heights from 79–96mm, while later sites have higher base heights ranging from 103–104mm for LTD1/D2 Corent and Le Bay, to 110mm for A710–5516 and 168mm for the Augustan A710–2828 and 5903 assemblage (Table 75). Median base diameter shows a similar increase with time from 52–57mm for the LTC2-D1 assemblages, to 60mm for Corent and Le Bay and 68–71mm for the LTD2-Augustan assemblages.

For the second century BC assemblages, many of the bases have base diameters under 50mm, with tall heights: these delicate bases belong to Greco-Italic vessels (see chapter 6). Such bases represent 22–50% of the bases at the second century BC sites (Table 85), but are rarely found in the LTD1/2 sites of Corent (5%) and Le Bay (0%) and are absent from the LTD2-Augustan assemblages.

Dressel 1B bases tend to be high cylindrical with a height over 150mm (see chapter 6). Bases with a height greater than 150mm are generally absent from the LTC2-D1 assemblages, apart from several examples at Le Pâtural (but this site has some later LTD2-Augustan material and Dressel 1B amphorae) (Table 85). Bases with a height over 150mm are more frequent in the LTD2-Augustan assemblages they account for 50% of the bases at A710–5516, 75% at Gergovie and 50% at A710–2828 and 5903. However, apart from the Gergovie sample, the sample sizes are small. Bases with a height greater than 120mm are rare at the LTC2-D1 assemblages, but more frequent at Corent (19%) and Le Bay (17%) and account for the majority of bases at the LTD2-Augustan assemblages.

### 8.6.2 Base types

The LTC2-D1 and the LTD1/2 assemblages contain examples of most of the different base types. The later LTD2-Augustan assemblages tend to contain fewer base types and mostly contain massive cylindrical bases and plain concave/convex bases (Table 86). The banded bases (typical of the amphorae from the l'Esterel wreck, see chapter 6) are only found at Corent (3%) and Le Bay (11%), but are absent from the earlier and later assemblages. Roanne has one 'l'Esterel' type base in Horizon 3 (110–100 BC) and Horizon 6 (20–10 BC) (Lavendhomme and Guichard 1997:272 plate 55 no. 15, 308 plate 91 no. 14). The bases that end with a button are found in the LTC2-D1 and LTD1/2 assemblages but absent from LTD2 onwards. Olmer (*et al.* 1995) has suggested that these bases characterise the Dressel 1 'Spargi' (120–100 BC), however the presence of bases ending in a button at LTC2-D1 sites in the Auvergne might cast doubt on this interpretation.



## 8.7 Comparison with other Republican amphorae assemblages from Western Europe and France

The sample of assemblages utilised in this section includes a diverse range of sites, giving particularly widespread coverage of France (Fig. 173, Table 87). Some of the assemblages are tightly dated because of dates from historical events (Carthage, the Roman camps at Numance), and dendrochronological dates and consular dates (Agen and Rodez) (*cf.* Poux 1999a). The analysis for brevity concentrates upon rim morphology (rim height-width ratio, height, Guichard's rim classes, and rim diameter). The measurements are taken from the published drawings, although many reports provide the raw data. It is hoped that by comparing the morphology of the Auvergne Republican amphorae assemblages with those from Western Europe this will them to be more tightly dated.

### 8.7.1 Rim height-width ratio (Hesnard and Gateau)

For rim height-width ratio, only Hesnard's scheme (Hesnard and Lemoine 1981:252 note 33) has been used, as chapter 4 has demonstrated that this technique provides an accurate indication of the number of Greco-Italic amphorae.

At Carthage (destroyed in 146 BC) 75% of the rims are Greco-Italic and the two Roman camps (Peña Redonda and Renieblas V) from Numance (both abandoned by 133 BC) contain between 5–31% Greco-Italic rims (Table 88). Greco-Italic rims are found at many of the LTC2-D1 sites in France and the figures range from 3% to 87%. Assemblages with a high proportion of Greco-Italic vessels include Vaires-sur-Marne 71%, Levroux Les Arènes 38%, Berry-au-Bac 25% (although small sample size), Montantambre, Eynesse both 22% and Lyon Souvenir à Vaise 21%, and there are several sites with under 10% Greco-Italic vessels. Many of the rims from Rodez (very low heights and angles of inclination) are from Greco-Italic vessels, although rim width measurements are not available.

For the LTD1/D2 and LTD1–2 assemblages, Greco-Italic amphorae are still found, but in smaller percentages (Table 88). At Amboise, they account for 8%, Amplepuis Terrail 3% and at the Titelberg for just 1% of the amphorae. Greco-Italic rims are absent from many of these later sites including Cersot, Condé-sur-Suippe, Chézieux and Villeneuve-Saint-Germain. Overall Greco-Italic vessels are rare or absent from the LTD1/D2 period onwards. One anomaly is the site of Hengistbury Head, where 10% of the rims are Greco-Italic, although this amphora assemblage is dated to 75–50 BC (Williams 1987:271), some of the material is likely to date to the second century BC.

### 8.7.2 Rim height

Rims with a height equal to or under 30mm are frequent in the LTC2-D1 assemblages (Table 89) and at many of the sites they account for the majority of rims (Amplepuis Rousson, Lattes, Levroux Les Arènes, Lyon Souvenir à Vaise, Numance and Vaires-sur-Marne). At several of the remaining LTC2-D1 assemblages, they are found in smaller numbers (Basel Gasfabrik, Lyon Verbe Incarné, and Manching). These rims are rare or absent from the LTD1–2 assemblages (Titelberg, Varennes-sur-Seine) apart from the Lyon assemblages of Marietton (23%) and Zac Charavay (28%). The high proportion of these rims at Hengistbury head (24%) further suggests that this assemblage should be dated to the second century BC.

Rims with a height equal to or greater than 45mm are very rare in the LTC2-D1 assemblages (Table 89). The majority of rims at these sites have rim heights less than 45mm and at many of the assemblages most rims are under 35mm high (*e.g.* Basel Gasfabrik, Berry-au-Bac, Lattes, Levroux Les Arènes, and Roanne Horizon 2). The Camp of Renieblas V at Numance has two rims that resemble rims from the Spargi wreck (Sanmartí-Grego 1992:423) with heights of 45mm and 48mm and inclinations of 75° and 92°. Given the similarity of the previous LTC2-D1 assemblages with the well-dated amphorae from the Roman camps at Numance, they can be assigned a date in the range of *c.*170–130/120 BC. It is with the LTD1–2 assemblages that rims with a height of over 45mm are more frequent and rims under 35mm are very rare. At



Amboise, Condé-sur-Suippe, Chézieux and Meulan between 35–72% of the rims have heights of 45mm or more (Table 89). By the LTD2a assemblages 50–80% of rims are over 45mm in height and the figures for the LTD2b assemblages are 80–100%.

An alternative criterion for the recognition of Dressel 1B rims is a rim height of over 50mm (chapter 6). These rims are absent in the LTC2-D1 assemblages, apart from the site of the Basel Gasfabrik with 0.7%, Levroux Les Arènes 1.5%, Lyon Souvenir à Vaise 0.5% and Rodez 2% (Table 89). The percentage of rims over 50mm high is variable for the LTD1–2 assemblages: none at Amplepuis Terrail, 10% at Condé-sur-Suippe and 6% at Roanne Horizon 3, to higher figures for Agen with 63% (but the sample size is small), Chézieux 47% and the Titelberg 61%. For the LTD2a assemblages, they represent 30–40% of the rims and 50–100% for the LTD2b sites.

For the majority of the second century BC sites, rims with a height greater than 55mm (classic Dressel 1Bs) are absent, or only found in small numbers (Table 89). Even for the LTD1–2 sites the proportion of rims over 55mm is very variable; they are absent from Roanne Horizon 3, and are only found in small percentages at Cersot, Condé-sur-Suippe and Clemency. Rims with a height greater than 55mm are more frequent in the LTD2 assemblages. At Basel Münsterhügel, they represent 30% of the rims, 18% at Chézieux and 30% at the Titelberg. The LTD2b amphorae assemblages tend to be dominated by rims with a height over 55mm: Lyon Croix 43%, Paris A19 86% and Saintes Ma Maison 75%.

### 8.7.3 Rim classes (Guichard)

The LTC2-D1 sites show a dominance towards rims in classes 1, 1 or 2, and 2, however rims from classes 2 and 3 and 3 are absent or rare (*e.g.* Amplepuis Rousson, Basel Gasfabrik, Berry-au-Bac, Eynesse and Levroux Les Arènes) (Table 90). Importantly the sites of Numance Peña-Redonda and Renieblas V (abandoned by 133 BC) generally lack rims from classes 2 and 3, and 3 (2% of the rims at Numance Renieblas V are in class 2 or 3). Several sites have a small number of rims in classes 2 or 3, and 3, but these are all sites whose occupation runs from LTC2-D2 such as

Chartres rue Sainte-Thérèse and Essalois. The frequency of class 1 rims at the LTC2-D1 sites is similar to the proportion of Greco-Italic amphorae from using Hesnard's rim height-width ratio scheme. For the two sites at Numance between 46–48% of the rims are in classes 1, and 1 or 2 and these sites are dominated by Greco-Italic, transitional and early Dressel 1A amphorae.

The LTD1–2 sites have fewer rims in classes 1, 1 or 2, and a greater number of rims in class 2 and moderate numbers in class 2 or 3 and very few rims in class 3 (Table 90). The site of Manching is nearly completely dominated by rims in class 2 (91%). The sites of Condé-sur-Suippe and Roanne Horizon 4, all have very similar rim assemblages dominated by rims from classes 2, and 2 and 3. The LTD2a-b assemblages are similar with very few rims in classes 1, 1 or 2 and most rims are in classes 2 or 3, and 3. Rims in class 3 are not frequent until LTD2a at Clemency with 27%, 23% at Bucy-le-Long and Lyon Saint-Vincent Etat III (33%). One exception to this is the assemblage of Hengistbury Head, which is dominated by rims in classes 1, 1 or 2 and 2 and resembles the LTC2-D1 assemblages. For the LTD2b assemblages, the majority of the rims are in classes 2 or 3, and 3.

#### 8.7.4 Median rim height and inclination

Median rim heights, median angles of inclination ranges from 27mm, 51° at Carthage to 56mm, and 90° at Roanne Horizon 6 by the end of the first century BC (Table 91). Median rim heights and angles of inclination for the LTC2-D1 sites are low. For the sites of Amplepuis Rousson, Levroux Les Arènes, Numance Peña-Redonda and Renieblas V, Rodez and Roanne Horizon 2 median rim height is in the range of 30–32mm and median inclination is between 62–69°. These figures are very close to the range of the Greco-Italic and not the Dressel 1A and indicate that these assemblages are dominated by Greco-Italic, transitional and early Dressel 1A vessels. The other LTC2-D1 assemblages tend to have median rim heights and angles of inclination that fall within the range of the Dressel 1A (*e.g.* Berry-au-Bac, Arnac-la-Poste, Manching and Amboise). For three LTD1 sites median rim height and inclination values are transitional between the Dressel 1A and 1B: Villeneuve-Saint-Germain the figures are



48mm and 86°, 48mm and 92° for Clemency and 46mm and 90° for Bucy-le-Long (Table 91). The LTD1-2 and LTD2a assemblages have slightly higher median rim heights and angles of inclination. The range for median rim height is 42–51mm although most are around 48mm; figures for median inclination range from 76–92° but most are around 90° or just under.

Overall, the LTC2-D1 and LTD1 assemblages differ from the LTD2 and later assemblages. For the former median rim heights and angles of inclination conform to the Dressel 1A, for the latter, median rim heights and angles of inclination indicate more transitional amphorae between the Dressel 1A and 1B. Only four of the assemblages have median rim heights greater than 55mm: Paris A19, Pommiers, Roanne Horizon 6 and Saintes Ma Maison.

For median rim diameter most of the LTC2-D1 assemblages have diameters between 145–160mm (Table 91). Several later LTD1/2 assemblages have median rim diameters of 145mm. For the latest assemblages, many have similar medium rim diameters to the earlier assemblages: Condé-sur-Suippe and Roanne Horizon 5. However, several of the LTD2 assemblages such as Bucy-le-Long, Lexden Tumulus, Lyon Croix and Roanne 6, have higher median rim diameters in the range of 170–190mm.

## 8.8 Comparing the Auvergne assemblages with those from Western Europe and France

Comparing the results from the different types of analyses for the Auvergne assemblages with those from Western Europe and France shows many similarities. The Auvergne LTC2-D1 sites contain similar percentages of Greco-Italic vessels as the assemblages from Amplepuis Rousson, Eynesse, Levroux Les Arènes, Lyon Souvenir à Vaise and Numance Peña Redonda and Renieblas V. Median rim height and inclination for the Auvergne assemblages of A710–3950, Aulnat rue Elisée-Reclus and Le Pâtural are similar to the figures for Amplepuis Rousson, Eynesse, Levroux Les Arènes, Lyon Souvenir à Vaise, Numance Peña Redonda and Renieblas

V, and Roanne Horizon 2. Colin suggests that the start of the occupation at Levroux Les Arènes pre-dates 150 BC: the site has many LTC2 brooches, but fewer of the Nauheim type and Campanian A pottery (1998:77–76, 90–97). Greco-Italic rims have been found stratified with Mötschwil brooches, potin coins and Campanian A in several features at Levroux Les Arènes (Colin 1998:91). From this the earliest phase of amphorae importation to central France and the Auvergne can be dated to c.170–150 BC. The similarity in rim heights, median height and inclination between the Auvergne LTC2-D1 assemblages and Numance Peña Redonda and Renieblas V, and Roanne Horizon 2 would suggest that the amphorae assemblages at these sites predate 130/120 BC.

The assemblages of Corent and Le Bay rim height figures resemble Condé-sur-Suippe and the median rim height and inclination are similar to the values for Arnac-la-Poste, Basel Gasfabrik, Condé-sur-Suippe and Fossé des Pandours. The rim class data for Le Bay and Corent are similar to the values for Cersot, Condé-sur-Suippe, Fossé des Pandours and Roanne Horizons 3–4. The occupation at Condé-sur-Suippe has been dated to 120/110–80/70 BC by Guichard *et al.* (1993:37–38 fig. 8) and 120–90 BC by Pion (1996). Roanne Horizons 3–4 are dated to 110–70 BC (Lavendhomme and Guichard 1997; Guichard *et al.* 1993:37–38 fig. 8.) and Fichtl (1999) suggests dates of c.130–80 BC for Fossé des Pandours. From these lines of evidence a date of c.120–80 BC for the Corent and Le Bay amphorae assemblages can be suggested.

The Auvergne La Tène D2-Augustan assemblages (Gondole, Gergovie and A710–2828, 5516 and 5903) resemble the assemblages of Lyon Croix, Paris A19, Pommiers, Roanne Horizon 6 and Saintes Ma Maison. As the occupation of Pommiers starts from c.60 BC (Pion 1996; Guichard *et al.* 1993:37–38 fig. 8), a similar date can be assigned to the assemblages of Gergovie and Gondole. A date of c.60 BC for the Gondole assemblage would leave a gap of 20 years with the suggested end of occupation at Corent of c.80 BC. Intriguingly amphorae assemblages dated to 80–60 BC elsewhere in France including the assemblages from the Clemency tomb (Metzler *et al.* 1991:86) and the *oppidum* of Villeneuve-Saint-Germain (Guichard *et al.* 1993:37–38 fig. 8; Pion 1996) do not resemble the amphorae assemblages either from



Corent or Gondole. In-fact the Marcilhac amphora assemblage is the only assemblage from the Auvergne to resemble the amphorae from Clemency and Villeneuve-Saint-Germain. Either there was a break in occupation, in the Clermont-Ferrand area, between Corent/Le Bay and Gondole or the Gondole assemblage should be dated to c.80 BC.

## 8.9 Conclusions

Greco-Italic amphorae were widely distributed throughout France and most LTC2-D1 sites have small numbers of examples. At several sites Greco-Italic amphorae account for a substantial proportion of the amphorae *e.g.* Levroux Les Arènes, Lyon Souvenir à Vaise and Châteaumeillant (Colin 1998:148). For several sites the level of importation of Greco-Italic amphorae was high: Châteaumeillant, Levroux Les Arènes, Lyon Souvenir à Vaise.

Vertical rims with a height under 50mm are rare before 120 BC, but are more frequent after 120 BC, and rims with a height over 50mm appear around this time. LTD1/2 assemblages show more morphological variation containing Dressel 1A rims, transitional Dressel 1A/B rims with heights greater than 45mm and small numbers of classic Dressel 1Bs. Classic Dressel 1B rims with only small numbers of Dressel 1A rims dominate the LTD2b assemblages. Most of the rims in the LTD2-Augustan assemblages have rims with a height greater than 45mm and many are over 50mm high.

Republican amphorae rims have great potential as a dating mechanism. This has been demonstrated by comparing the Auvergne Republican amphorae assemblages with the sample of assemblages from Western Europe, which has allowed dates to be assigned to the Auvergne assemblages.

## Chapter 9 Republican amphorae fabrics in the Auvergne

### 9.1 Introduction

The thin-sectioning of ceramics is now a fundamental part of ceramic analysis and extensive reviews can be found in the literature (Whitbread 1987). The term fabric group is used to denote a number of homogenous samples (Whitbread 1987:61). Fabric is commonly taken to mean the “arrangement, size, shape, frequency and composition of the components of the ceramic material” (Whitbread 1995:368). Fabric analysis involves the recognition of the different components, their composition and frequency, the nature of the components such as their form and possible origin and the relationship between the different constituents.

The main use of fabric data has been to aid in the sourcing of pottery to its region of manufacture or the provenance postulate (Bennett *et al.* 1989). At the simplest level pottery can be sourced via the finding of mineralogical fingerprints (Whitbread 1987:59) that can point to specific regions of production. The provenance postulate holds that differences in composition will be greater between sources than within them (Bennett *et al.* 1989:32).

Pottery fabrics are made up of two constituents, the clay matrix (under 30 microns); which can form the majority of the ceramic volume (Freestone 1991:400) and the larger inclusions. The division between matrix and inclusions is artificial, as all the material represents the products from the breakdown of igneous, metamorphic and sedimentary rocks. This division is reflected in the quantity of data provided and whereas the material greater than 30 microns is studied and described in great detail, little information is provided on the clay matrix.

Fabric descriptions vary greatly in the details that are provided (Freestone 1991:400–402) and many studies only identify the common inclusions, with no attempt to provide quantitative details on their frequency, nor on their nature. According to Freestone (1991:402), a fabric description should provide the following information:



1. A list of all inclusions above the trace level, with indication of their relative abundance.
2. Indication of the overall frequency of all inclusions (*i.e.* common, abundant).
3. The degree of sorting.
4. Typical grain size.
5. Estimate of roundness.
6. Colour of the ceramic matrix and whether it is birefringent.

Developments have been made on the recognition and description of argillaceous inclusions; such as grog, clay pellets, clay temper and argillaceous rock fragments and for the description of the clay matrix (Whitbread 1986, 1995). Systems proposed for the description of the textural properties of inclusions tend to be under used with details on the sorting and roundness of inclusions rarely given; this may reflect the difficulty of recording these attributes (Freestone 1991:401).

## 9.2 Methodology

For the fabric analysis 408 rim sherds were sampled from the following assemblages: Aigueperse, A710–2628, 3950, 5516, 2828, 5903, La Grande Borne Aulnat/Chantier 4, Aulnat rue Elisée Reclus, Le Pâtural, Corent (random sample of rims from the 1992 and 1993 excavations), Le Bay/Pont de Longues, and Gondole. The sequence of short-lived sites in the Auvergne is ideal for comparing how the sources of Republican amphorae changed from the second to the end of the first century BC. It was not possible to sample the Republican amphorae from La Grande Borne Aulnat/Chantiers 1–3, Le Brézet 51 rue Jules Verne, Le Brézet Iveco, Gergovie and Pontcharaud III. The amphorae samples were originally sorted into fabric groups via a visual examination, by creating a fresh break on the amphorae sherd, which was then examined by use of a hand lens. It was deemed ideal to split the amphorae into as many fabrics as possible, it would be possible to lump similar fabric later when the thin-sections were studied. The fabric samples were compared with a group of reference amphorae sherds from Italian amphorae kilns (Albinia, Astura, Canneto,

Cosa, Falerne interior, Mondragone kiln 40, Mondragone Peacock's kiln etc) and sherds from the regions of Etruria, Latium and Campania (Table 92). Sherds from stamped amphorae (C.SEX, L.M, SESTIUS) from known regions of production and kilns have also been used. See Appendix 6 for a selection of photographs of the fabrics of these reference Republican amphorae sherds.

It was decided to use a standardised recording system for the visual examination of the amphorae fabrics. The most widespread used visual recording scheme is the one drawn up by Peacock (1977b). This scheme uses the following traits; colour, hardness, feel, fracture, composition of inclusions, frequency of inclusions, sorting, average size of inclusions, rounding and surface treatment (Peacock 1977b:29–32). Colour is given using the Munsell soil colour chart. Hardness is recorded by use of 3 categories: soft scratched by a fingernail, hard scratched with a penknife (or scratched by steel) and very hard not scratched by a penknife. For the feel category Peacock uses five categories: harsh, rough, smooth, soapy, and powdery. The fracture category or the natural break of the sherd, is covered by the following categories: conchoidal (glass like fracture), smooth, hackly (jagged) and laminated (layered).

For the types of inclusions Peacock has created a detailed scheme for their recognition and recording (1977b:30–31). The overall frequency of inclusions is recorded as one of the following: sparse, moderate, common or abundant. The category of sorting refers to the size range of the inclusions. The more narrow the range of grain sizes the better the sorting and Peacock recommends that average grain size also be recorded. For the degree of rounding, the categories used are angular, sub-rounded, and rounded. Finally a brief description of the surface treatment is given.

Nicholson (1989) sought to test the usefulness and relevance of Peacock scheme, via the classification of Iron age pottery from the *Hunsrück-Eifel-Kultur* of Germany. Nicholson (1989:78–82) found that colour does have a value for the creation of fabric group, but the categories of hardness and feel was shown to have little value in the creation of fabric groups (Nicholson 1989:81–82). Surprisingly fracture was an



important attribute (Nicholson 1989:82) and so to was the frequency of inclusions and rounding (Nicholson 1989:82). The inclusion category was of course important but the size of inclusions was of little value; except for the separation of coarse wares from fine wares (Nicholson 1989:82). Sorting of inclusion and surface treatment both had little value in the creation of fabric groups (Nicholson 1989:82). Although, the category of sorting requires a more detailed recording system which is best done with thin sections and not via visual examination (Nicholson 1989:83).

It was decided to take into consideration Nicholson's finding and to use a modified version of Peacock's scheme. The following traits were not used feel, hardness and surface finish. Nicholson recommends that the simpler C.E.C Farbkarte colour scheme should be used (1989:77), but because most other fabric studies of amphorae use the Munsell system, it was though best to stay with this, to allow comparisons with other studies. It was also decided not to take three readings of the sherd colour, from both surfaces and of the fabric as done by Nicholson (1987:77).

### 9.3 Thin-sectioning

Thin-sectioning involves the examination under the petrographic microscope of thin-slices of the ceramic fabric. Thin sections can be as small as 1–2cm<sup>2</sup> in area, although larger sections between 3–4cm<sup>2</sup> are preferable, as they allow rarer grains to be identified (Whitbread 1986:72). Samples from the amphorae sherds to be sectioned were removed and one side was then polished and then mounted onto the polished surface of a glass slide. The bonded ceramic was then ground down to a thickness of 0.03mm. For the thin-section descriptions, a modified version of the descriptive scheme used by Whitbread (1995:379–387) has been used. Details on the matrix, microstructure, proportion of matrix (under 30 microns), inclusions, and voids, grain size range, mode and degree of sorting are provided. For the inclusions their type, relative frequency and average size and general shape are also given. 90 thin-sections were created for the samples from the Auvergne which were compared with published thin-sections and descriptions in the literature (Thierrin-Michael 1992; Arthur 1982, 1989, 1992; Peacock 1977a). For each fabric a suggested place of origin is suggested:

a specific kiln, a region of production (Etruria, Latium, Campania, Calabria, Adriatic) or from Western Italy.

## 9.4 Fabric descriptions

### Fabric 1

In hand specimen: Munsell 5YR 7/4 pink. Moderate fine to coarse inclusions. Moderate coarse round dull black grains (ore), moderate round dull red/brown grains and moderate sub-angular quartz.

In thin-section: groundmass brown in PPL, to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vesicles some with yellow calcite reaction rims, rare mesovugs parallel to vessel body.

### Inclusions

C:F:V 7/73/20

Grain size range 0.1–1mm, mode grain size 0.1mm. Poorly sorted, bimodal, rounded to sub-rounded open-spaced, few inclusions with no preferential orientation.

Frequent fine calcite reaction-rims and calcite grains (0.1–0.5mm).

Frequent sanidine feldspar (0.1–0.2mm).

Very few rounded ore or trachyte grains (0.1–1mm).

Few angular quartz (0.1–0.3mm).

Few clinopyroxene (0.1–0.2mm).

Rare plagioclase feldspar (0.1–0.2mm).

Rare garnet (0.1mm).

Rare round magnetite (0.1mm).

Matrix: frequent round calcite, and sub-rounded quartz and feldspar.



**Origin:** hand specimen resembles sample from Mondragone kiln 40 (Campania) supplied by Prof. P. Arthur.

## **Fabric 2**

In hand specimen: Munsell 2.5YR 6/6 red. Common medium to coarse inclusions. Moderate fine white angular limestone, sparse coarse to medium igneous rock fragments and moderate fine angular quartz.

Not thin-sectioned

**Origin:** Hand specimen resembles samples from Mondragone and Falerne, Campania.

## **Fabric 3**

In hand specimen: Munsell 5YR 6/8 reddish yellow. Common coarse rounded igneous rock fragments, frequent coarse quartz. Few medium white grains (sanidine feldspar?) and frequent black-sand.

In thin-section: groundmass orange-brown in PPL to brown in XP. Groundmass is inactive.

Pores: rare meso-vughs.

## **Inclusions**

**C:F:V** 20/75/5

Grain size range 0.1–1.5mm, mode grain size 0.3mm. Common coarse round and angular grains, single-spaced, poorly sorted with no preferential orientation.

Dominant rounded and angular igneous rock fragments (trachyte, basalt) (0.2–1.5mm).

Frequent sanidine feldspar (0.1–0.8mm).

Few angular quartz (0.2–0.8mm).

Few calcite grains (0.1–0.15mm).

Few biotite mica (0.2–0.3mm).

Few clinopyroxene (0.1–0.4mm).

Few round magnetite (0.1mm).

**Matrix:** frequent inclusions of magnetite, calcite, quartz and igneous rock fragments.

**Origin:** hand specimen resembles sample from Carinola Falerne interior (Campania) supplied by Prof. P. Arthur. Thin-section also similar to descriptions of Falerne fabrics by Arthur (1982) and Thierrin-Michael (1992).

#### **Fabric 4**

**In hand specimen:** Munsell 10R 6/8 light red, abundant inclusions dominated by fine black-sand and moderate grey quartz.

**In thin-section:** groundmass brown red in PPL, to red in XP. Groundmass is inactive.

**Pores:** frequent macro-channels parallel to vessel body.

#### **Inclusions**

**C:F:V** 15/80/5

**Grain range** 0.1–0.4mm, **mode grain size** 0.15mm. Moderate inclusions, angular, double-spaced, unimodal and well sorted.

**Dominant clinopyroxene** (0.1–0.3mm).

**Frequent sub-angular magnetite** (0.05–0.2mm).

**Rare sub-rounded basalt rock fragments** (0.1–0.25mm).

**Very rare biotite mica** (0.1–0.2mm).

**Very rare angular quartz** (0.3–0.4mm).

**Very rare garnet** (0.1–0.2mm).

**Very rare orthopyroxene** (0.1–0.2mm).

**Very rare sanidine feldspar** (0.1–0.2mm).

**Matrix:** clean with few inclusions apart from some rare yellow garnet and magnetite.

**Origin:** Hand specimen and thin-section resemble amphorae from Pompeii/false Pompeii, Campania.



## **Fabric 5**

In hand specimen: Munsell 2.5YR 6/6 red. . Sandy very rough feel. Common fine to medium angular inclusions. Common fine angular quartz, moderate fine angular black-sand, and rare medium round dull yellow grains. Common medium round red dull grains.

In thin-section: groundmass red-brown in both PPL and XP. Groundmass is inactive. Pores: frequent meso-macro vughs, few meso-channels and some calcite reaction rims, no preferential orientation.

### **Inclusions**

C:F:V 20/70/10

Grain size range 0.1–0.6mm, mode grain size 0.1mm. Common angular, single-spaced moderately well sorted inclusions.

Very frequent sanidine feldspar (0.1–0.4mm).

Frequent to few angular quartz (0.1–0.4mm).

Few clinopyroxene (0.1–0.2mm).

Few sub-angular metamorphic rock fragments (0.1–0.3mm).

Few round grog (0.1–0.4mm).

Rare sub-rounded chert (0.1–0.6mm).

Rare calcite shells and grains (0.1–0.6mm).

Very rare garnet (0.1mm).

Very rare sub-angular trachyte rock fragments (0.1–0.2mm). Very rare round magnetite (0.05–0.1mm).

Very rare biotite mica (0.1–0.2mm).

Matrix: very clean few inclusions apart from some angular quartz.

Origin: Hand specimen and thin-section indicates from Cosa, Etruria.

## Fabric 6

In hand specimen: Munsell 7.5YR 7/4 pink. Moderate fine to medium inclusions. Very common fine to medium angular black-sand. Moderate fine angular quartz and moderate medium angular rock fragments?

In thin-section: groundmass light green in PPL to greenish-brown in XP. Groundmass is inactive.

Pores: rare macro-vughs and vesicles parallel to vessel body.

Inclusions

C:F:V 20/75/5

Grain size range 0.1–0.8mm, mode grain size 0.3mm. Common bimodal angular, single-spaced, moderately well sorted inclusions with no preferential orientation.

Frequent sub-rounded magnetite (0.1–0.5mm).

Frequent clinopyroxene (0.2–0.8mm).

Few olivine (0.1–0.5mm).

Few orthopyroxene (0.2–0.8mm).

Rare sanidine feldspar (0.1–0.6mm).

Rare angular quartz (0.2–0.3mm).

Rare plagioclase feldspar (0.3mm).

Matrix: very clean with magnetite, biotite mica and angular quartz.

Origin: Thin-section indicates from Naples, Campania.

## Fabric 7

In hand specimen: Munsell 7.5 YR 7/3 light pink. Poorly sorted moderate inclusions including calcite grains and shells and few fine quartz grains and black-sand.

In thin-section: groundmass brown in PPL and XP. Groundmass is inactive.

Pores: frequent meso-vughs parallel to vessel body.



## **Inclusions**

**C:F:V 15/75/10**

Grain size range 0.1–1.2mm, mode grain size 0.2mm. Common angular, single-spaced, moderately well sorted inclusions orientated parallel to vessel body.

Dominant sub-angular and angular calcite grains (0.1–0.4mm).

Frequent angular quartz (0.1–0.4mm).

Frequent sanidine feldspar (0.1–0.6mm).

Few sub-rounded basalt rock fragments (0.1–1.2mm).

Very few sub-rounded chert (0.1–0.3mm).

Rare garnet (0.1–0.15mm).

Rare hornblende (0.1–0.2mm).

Rare biotite mica (0.1–0.15mm).

Rare clinopyroxene (0.1–0.15mm).

Rare plagioclase feldspar (0.1–0.6mm).

**Matrix:** frequent calcite, angular quartz and biotite.

**Origin:** Thin-section suggests from Campania.

## **Fabric 8**

In hand specimen: Munsell 2.5YR 6/6 red. Moderate inclusions and poorly sorted. Common fine to medium calcite, moderate dull brown-red nodules and moderate white, red and yellow dull grains.

In thin-section: groundmass brown in PPL, brown-orange in XP. Groundmass is inactive.

**Pores:** common meso-vesicles, few macro-channels parallel to vessel body.

## **Inclusions**

**C:F:V 20/70/10**

Grain size range 0.1–1.3mm, mode grain size 0.15mm. Common sub-angular to sub-rounded, single-spaced well sorted inclusions with no preferential orientation.

Frequent to dominant rounded to sub-rounded calcite grains and shells (0.1–0.3mm).

Few sub-angular quartz (0.1–0.3mm).

Few sanidine and plagioclase feldspar (0.1–0.3mm).

Few sub-rounded chert (0.1–0.3mm).

Few round pale green/grey clay nodules or grog (0.6–1.3mm).

Very few clinopyroxene (0.1–0.3mm).

Very rare garnet (0.1mm).

Very rare and olivine (0.1mm).

Matrix: frequent inclusions including calcite, chert, quartz and feldspar.

**Origin:** M. Poux (*pers. comm.*) suggests that these fabrics are from Latium.

## Fabric 9

In hand specimen: Munsell 5YR 7/4 pink. Poorly sorted with common inclusions. Mottled/banded appearance with yellow and red layers. Common fine calcite grains, rare coarse round grey rock fragments, sparse medium round red grains. Moderate fine quartz. Frequent medium round red grog.

In thin-section: groundmass brown-orange in PPL, brown in XP. Lighter yellow-light brown bands. Groundmass is inactive.

Pores: frequent micro and meso-vesicles, many calcite reaction-rims, very rare meso-vughs parallel to vessel body.

## Inclusions

C:F:V 15/75/10

Common angular and sub-rounded inclusions, single-spaced, poorly sorted, with no preferential orientation.

Grain size range 0.1–1mm, mode grain size 0.2mm.

Dominant sub-angular to sub-rounded calcite grains, calcite bands, and shells and shell parts (0.1–0.4mm).

Frequent sanidine feldspar (0.1–1mm).



Frequent to few angular to sub-angular quartz (0.2–0.3mm). Very few rounded to sub-rounded trachyte rock fragments (0.2–0.5mm).

Very few sub-rounded chert (0.1–0.2mm).

Very few round to sub-rounded metamorphic rock fragments (0.1–0.2mm).

Rare plagioclase feldspar (0.1–0.2mm).

Very rare clinopyroxene (0.3–0.4mm).

Very rare biotite mica (0.1–0.2mm).

Very rare hornblende (0.1–0.2mm).

Matrix: frequent inclusions, calcite rich, but also biotite and feldspar.

**Origin:** Hand specimen resembles sample from Astura (Latium) kiln.

## Fabric 10

In hand specimen: Munsell 10R 6/4–5/6 maroon to light red, 10YR 6/6 light red.

Hard to very hard compact fabric. Common fine to medium rounded inclusions.

Common fine voids with yellow/white reaction rims. Moderate round medium black dull grains, moderate round white grains, moderate angular quartz.

In thin-section: groundmass pale brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: very frequent meso-vesicles with calcite reaction rims orientated parallel to vessel body.

## Inclusions

C:F:V 5/80/15

Grain size range 0.05–1.1mm, mode grain size 0.3mm. Very few angular, open-spaced, well sorted inclusions with no preferential orientation.

Frequent angular quartz (0.1–0.3mm).

Few angular chert (0.1–0.3mm).

Few round calcite grains including some shells (0.1–0.2mm). Few sanidine feldspar (0.2–0.3mm).

Few clinopyroxene (0.2–0.4mm).

Few sub-rounded metamorphic rock fragments (0.1–0.4mm).

Rare round magnetite (0.2–1.1mm).

Matrix: very clean with fine common calcite.

**Origin:** Hand specimen and thin-section indicates from Albinia, Etruria.

## Fabric 11

In hand specimen: Munsell 10R 6/4 red. Hard compact fabric with a smooth soapy feel with few poorly sorted inclusions. Common fine angular white grains (quartz and calcite), rare shells, and moderate medium sized round black dull grains. Moderate fine black-sand.

In thin-section: groundmass deep brown in PPL to brown in XP. Groundmass is inactive.

Pores: frequent meso to macro-channels and vesicles parallel to the vessel body.

## Inclusions

C:F:V 25/65/10

Grain size range 0.05–1.4mm, mode grain size 0.2mm. Very common angular, single-spaced and polymodal grain size, poorly sorted inclusions with no preferential orientation.

Frequent sub-rounded metamorphic rock fragments (0.1–0.4mm).

Frequent clinopyroxene (0.1–0.3mm).

Frequent sandine feldspar (0.1–0.4mm).

Few angular quartz (0.1–0.5mm).

Few angular calcite (0.2–1.4mm).

Few chert and magnetite (0.05–0.1mm).

Rare plagioclase feldspar (0.1–0.4mm).

Very rare garnet (0.1mm).

Very rare microcline feldspar (0.05mm).



**Matrix:** clean with a few angular quartz grains.

**Origin:** Hand specimen similar to sample from Mondragone, Campania. Thin-section resembles description of Mondragone fabric by Thierrin-Michael (1992).

## **Fabric 12**

In hand specimen: Munsell core 10R 6/6 light red, margins 7.5YR 6/4 light brown. Moderate poorly sorted inclusions. Moderate light dull light yellow inclusions, moderate coarse ore or rock fragments. Moderate fine angular quartz.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vesicles and few meso-channels all parallel to vessel body.

### **Inclusions**

**C:F:V 10/75/15**

Grain range size 0.1–1.3mm, mode grain size 0.2mm. Moderate sub-angular, double-spaced and poorly sorted inclusions.

Dominant angular quartz (0.1–0.8mm).

Frequent round to angular calcite grains and reaction rims (0.1–0.2mm).

Frequent sub-angular to sub-rounded trachyte rock fragments (0.1–1.3mm).

Very few sanidine feldspar (0.1–1.3mm).

Very few sub-rounded chert (0.1–0.5mm).

Rare clinopyroxene (0.1mm).

Rare round magnetite (0.5–0.1mm).

Rare calcite rock fragments (0.9mm).

Very rare garnet (0.1mm).

Very rare hornblende (0.1mm).

**Matrix:** frequent inclusions of angular quartz, calcite and hornblende.

**Origin:** Hand specimen resembles sherd stamped C.SEX, and is similar to other fabrics from Mondragone, Campania.

## Fabric 13

In hand specimen: Munsell 7.5YR 6/4 light brown. Common poorly sorted inclusions. Moderate fine angular quartz, moderate fine and medium round to angular white grains. Moderate medium round orange grains and fine black-sand.

In thin-section: groundmass orange brown in both PPL and XP. Groundmass is inactive.

Pores: few meso-vughs and vesicles with no preferential orientation.

### Inclusions

C:F:V 10/89/1

Grain size range 0.1–1.6mm, mode grain size 0.1mm. Few angular, open-spaced, and poorly sorted inclusions with no preferential orientation.

Frequent sandine feldspar (0.1–1.1mm).

Few plagioclase feldspar (0.1–0.6mm).

Few sub-rounded trachyte rock fragments (0.1–1.6mm).

Few angular quartz (0.1–0.2mm).

Calcite grains, reaction rims and shells (0.05–0.1mm).

Few sub-rounded chert (0.1–0.2mm).

Few clinopyroxene (0.1–0.3mm).

Very few sub-rounded to angular magnetite (0.05–0.1mm).

Very rare hornblende (0.1mm).

Matrix: very few inclusions including biotite, igneous rock fragments and calcite rich.

**Origin:** Thin-section suggests an origin in Campania.

## Fabric 14

Hand specimen: Munsell 5YR 6/6 reddish yellow common inclusions including fine limestone and shells, few round black grains (ore) and quartz.

In thin-section: groundmass brown in PPL and XP. Groundmass is inactive.



Pores: rare meso and macro-vughs parallel to vessel body.

#### Inclusions

C:F:V 10/83/7

Grain size range 0.1–0.7mm, mode grain size 0.15mm. Moderate inclusions, double-spaced, angular, poorly sorted with no preferential orientation.

Dominant sanidine feldspar (0.1–0.2mm).

Frequent calcite (0.1–0.2mm).

Frequent angular quartz (0.1–0.2mm).

Few sub-angular metamorphic rock fragments (0.1–0.35mm).

Very few sub-rounded basalt and trachyte rock fragments (0.1–0.7mm).

Very few to rare plagioclase feldspar (0.1–0.2mm).

Very few to rare clinopyroxene (0.1–0.15mm).

Rare rounded ore (0.1–0.5mm).

Matrix: moderate inclusions, frequent biotite mica, rare round magnetite and feldspar.

**Origin:** Hand specimen and thin-section suggests an origin in Mondragone Campania.

#### Fabric 15

In hand specimen: Munsell 5YR 6/6–6/4 reddish yellow to light reddish brown, 7.5 YR 6/4 light brown. Fabric has a rough feel with moderate to common fine to coarse poorly sorted inclusions. Common coarse angular white grains, moderate fine angular quartz. Moderate medium to fine black grains and rare gold mica.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vesicles with calcite reaction rims and few macro-vughs with no preferential orientation.

#### Inclusions

C:F:V 14/75/10

Grain size range 0.1–1mm, mode grain size 0.4mm. Moderate angular moderately well sorted inclusions. Dominant to frequent angular quartz (0.3–1mm).

Few to frequent sub-rounded calcite (0.1–0.2mm).

Few sandine feldspar (0.1–1mm).

Few sub-angular to sub-rounded metamorphic rock fragments (0.2–0.3mm).

Rare sub-rounded chert (0.3mm).

Rare biotite (0.1–0.2mm).

Rare sub-rounded orange (in PPL and XP) clay nodules? (0.2–0.3mm).

Very rare basalt rock fragments (0.1–0.3mm).

Matrix: common inclusions of biotite mica, sub-angular calcite.

**Origin:** Thin-section resembles description of fabric from Fondi, Latium by Thierrin-Michael (1992).

## Fabric 16

In hand specimen: Munsell 7.5YR 7/4 pink. Slightly soft fabric with frequent inclusions. Very micaceous with common medium angular white grains and moderate coarse grey rock fragments.

In thin-section: groundmass brown in PPL to brown-orange in XP. Groundmass is inactive.

Pores: very rare meso-vesicles.

## Inclusions

C:F:V 5/94/1

Grain size range 0.1–0.9mm, mode grain size 0.3mm. Very few angular, open-spaced, well sorted inclusions with no preferential orientation.

Dominant by rounded and sub-rounded metamorphic rock fragments (0.2–0.9mm).

Few angular to sub-rounded quartz (0.2–0.7mm).

Frequent biotite mica (0.05–0.1mm).



Few sandine feldspar (0.2–0.5mm).

Rare microcline feldspar (0.2–0.5mm).

Matrix: few inclusions, but very micaceous with biotite and rare muscovite mica and some angular quartz.

**Origin:** Thin-section resembles description of a Calabrian fabric by Arthur and Williams (1992).

## Fabric 17

In hand specimen: Munsell 5YR 7/6 reddish yellow. Common fine to medium inclusions, including frequent black-sand and angular quartz.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vughs parallel to vessel body.

## Inclusions

C:F:V 12/81/7

Grain size range 0.2–1.2mm, mode grain size 0.2mm. Few to moderate inclusions, double-spaced, poorly sorted, with no preferential orientation.

Frequent clinopyroxene (0.2–0.6mm).

Few sanidine feldspar (0.2–0.7mm).

Few angular quartz (0.2–0.3).

Very few angular to sub-angular basalt rock fragments (0.1–0.4mm).

Very few sub-rounded magnetite (0.1–0.2mm).

Rare sub-rounded metamorphic rock fragments (0.1–0.3mm) and chert (0.1–0.15mm).

Very rare round grog (0.3–1.2mm).

Matrix: moderate inclusions, angular quartz and feldspar.

**Origin:** Hand specimen resembles a sample from Sinuessa, Campania.

## Fabric 18

In hand specimen: 7.5YR 7/3–7/4 pink. Common fine to medium inclusions. Moderate angular white calcite and angular quartz. Few round black dull grains and round dull orange grains.

In thin-section: groundmass light brown in PPL to brown in XP. Groundmass is inactive.

Pores: frequent micro-meso, few meso-vughs, rare macro-channels and rare calcite reaction-rims, parallel to vessel body.

### Inclusions

C:F:V 10/70/20

Grain size range 0.1–0.6mm, mode grain size 0.15mm. Moderate angular to sub-angular, double-spaced, well sorted inclusions, orientated parallel to vessel body.

Dominant by calcite grains and reaction rims (0.05–0.2mm).

Frequent sanidine feldspar (0.1–0.4mm).

Few sub-rounded and sub-angular quartz (0.1–0.2mm).

Few magnetite rounded to sub-rounded (0.05–0.2mm).

Rare clinopyroxene (0.1–0.6mm).

Rare sub-angular chert (0.1–0.2mm).

Matrix: frequent inclusions and is calcite rich with some angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 19

In hand specimen: Munsell 5YR 7/4 pink. Common fine to medium inclusions. Rare medium round white grains, moderate medium red grains, moderate fine white grains and frequent fine angular quartz.

Not thin-sectioned



**Origin:** Hand specimen resembles sample from Dugenta, Campania.

## **Fabric 20**

In hand specimen: Munsell 7.5YR 7/4 pink. Soft fabric with moderate angular moderately well sorted inclusions. Common fine-medium white angular grains, few medium round dull black grains and fine angular quartz.

In thin-section: groundmass light brown in both PPL and XP. Groundmass is inactive.

Pores: few meso vesicles parallel to vessel body.

### **Inclusions**

C:F:V 5/90/5

Grain size range 0.1–0.4mm, mode grain size 0.1mm. Very few angular, open-spaced, well sorted inclusions with no preferential orientation.

Dominant angular quartz (0.1–0.15mm).

Frequent biotite mica (0.1mm).

Rare sub-angular to sub-rounded chert (0.1–0.2mm).

Very rare clinopyroxene (0.1–0.4mm).

Very rare sanidine feldspar (0.1mm).

Very rare sub-angular magnetite (0.05–0.3mm).

Very rare round grog (0.1mm).

Matrix: frequent inclusions of biotite mica and angular quartz.

**Origin:** Hand specimen and thin-section suggests non-western Italian Adriatic?

## **Fabric 21**

In hand specimen: Munsell 5YR 6/8 reddish yellow. Fine, smooth fabric with powdery surface. Few visible inclusions apart from some quartz, fine gold mica and some median sized angular red grains.

In thin-section: groundmass pale brown in PPL to brown in XP. Groundmass is inactive.

Pores: few to frequent meso-channels and micro-vesicles parallel to vessel body.

#### Inclusions

C:F:V 5/85/10

Grain size range 0.1–0.8mm, mode grain size 0.1mm. Very rare angular, double-spaced and very well sorted inclusions with no preferential orientation.

Very few plagioclase feldspar (0.1–0.8mm).

Very few angular quartz (0.1–0.2mm).

Very few sub-rounded metamorphic rock fragments (0.1–0.3mm).

Matrix: frequent inclusions of biotite mica and quartz.

**Origin:** Hand specimen and thin-section suggests non-western Italian, Adriatic.

#### Fabric 22

In hand specimen: Munsell 7.5YR 8/4–7/4 pink. Soft powdery fabric with frequent rounded inclusions. Moderate fine angular quartz, moderate round orange dull grains and fine black angular grains.

In thin-section: groundmass light brown in PPL to brown in XP. Groundmass is inactive.

Pores: rare meso-vughs and mega-channels parallel to vessel body.

#### Inclusions

C:F:V 5/94/1

Grain range size 0.1–1mm, mode grain size 0.1mm. Very few angular to sub-angular, open-spaced, moderately well sorted inclusions, orientated parallel to vessel body.

Frequent sub-rounded to sub-angular basalt rock fragments (0.1–1mm).

Few clinopyroxene (0.1–0.3mm).



Very few biotite mica (0.1–0.3mm).

Very few sanidine feldspar (0.1–0.4mm).

Rare sub-angular to sub-rounded magnetite (0.1–0.2mm).

Very rare angular quartz (0.1–0.15mm).

**Matrix:** moderate inclusions of quartz, biotite mica and basalt fragments.

**Origin:** Thin-section suggests from Campania.

## Fabric 23

In hand specimen: Munsell 2.5YR 6/6 red. Common fine to medium inclusions. Common fine white angular and sub-rounded white grains, moderate black-sand, moderate medium round yellow grains and moderate fine angular quartz.

Not thin-sectioned

**Origin:** Hand specimen suggests an origin in Western Italy.

## Fabric 24

In hand specimen: Munsell 5YR 7/4–7/6 pink to reddish yellow. Common fine to medium round grains. Moderate fine angular quartz, frequent sub-rounded white grains (calcite) and frequent medium red/orange grains.

In thin-section: groundmass brown-orange in both PPL and XP. Groundmass is inactive.

Pores: few meso-vughs.

Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.4mm, mode grain size 0.2mm. Few angular, open-spaced, well sorted inclusions with no preferential orientation.

Frequent sanidine feldspar (0.1–0.3mm).

Frequent sub-rounded to sub-angular quartz (0.1–0.4mm).

Very few magnetite (0.05–0.1mm).

Very few round calcite (0.1–0.2mm).

Rare sub-rounded chert (0.1–0.2mm).

Rare clinopyroxene (0.1–0.2mm).

Rare angular to sub-angular metamorphic rock fragments (0.1–0.2mm).

Rare microcline feldspar (0.1–0.3mm).

**Matrix:** generally clean with biotite and muscovite mica and quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 25

In hand specimen: Munsell 2.5YR 6/8 red-orange. Rough sandy fabric with common poorly sorted inclusions. Common fine to coarse feldspars and frequent quartz.

In thin-section: groundmass light orange brown in PPL, deeper brown in XP.

Groundmass is inactive.

Pores: rare meso-vughs parallel to vessel body.

## Inclusions

C:F:V 15/84/1

Grain size range 0.1–1.2mm, grain size mode 0.2mm. Moderate bimodal, double-spaced, well sorted inclusions, angular inclusions with no preferential orientation.

Dominant sanidine feldspar (0.2–0.6mm).

Few sub-angular quartz (0.2–1.2mm).

Very few sub-rounded chert (0.2–0.9mm).

Rare clinopyroxene (0.1–0.3mm).

Rare green/brown garnet (0.1–0.2mm).

Rare microcline feldspar (0.2–0.6mm).

Rare plagioclase feldspar (0.2–0.3mm).

**Matrix:** frequent inclusions of biotite mica and angular quartz.



## Fabric 27

In hand specimen: Munsell 5YR 6/6 reddish yellow. Moderate sub-rounded medium grains. Moderate medium red grog, moderate fine to medium sub-rounded quartz and rare mica.

In thin-section: groundmass red brown in PPL and XP. Groundmass is inactive.

Pores: rare meso-vughs and macro-channels parallel to vessel body.

### Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.5mm, mode grain size 0.1mm. Few angular well sorted inclusions, open-spaced, poorly sorted with no preferential orientation.

Frequent angular to sub-angular quartz (0.1–0.4mm).

Frequent sanidine feldspar (0.1–0.5mm).

Very few clinopyroxene (0.1–0.15mm).

Rare biotite mica (0.05–0.1mm).

Rare sub-angular chert (0.2–0.3mm).

Very rare hornblende (0.3mm).

Very rare plagioclase feldspar (0.2mm).

Matrix: moderate inclusions of biotite mica and angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 28

In hand specimen: Munsell 5YR 6/8 reddish yellow. Moderate fine to medium inclusions poorly sorted. Moderate fine angular quartz, and fine white angular grains (calcite). Moderate round black grains and beige/yellow inclusions.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: moderate meso-vesicles and calcite reaction rims.

**Origin:** Thin-section resembles description of fabric from Fondi, Latium by Thierrin-Michael (1992).

## **Fabric 26**

In hand specimen: Munsell 5YR 7/6 reddish yellow. Moderate rounded moderately well sorted inclusions. Moderate round yellow/beige dull soft grains, and medium round dull orange grains. Rare white angular grains and moderate black angular grains.

In thin-section: groundmass orange brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few meso-vughs.

## **Inclusions**

**C:F:V** 15/80/5

Grain size range 0.1–0.6mm, mode grain size 0.1mm. Frequent angular, single-spaced, moderately well sorted grains with no preferential orientation.

Very frequent round and angular calcite grains and shells (0.1–0.6mm).

Frequent angular quartz (0.1–0.6mm).

Frequent sanidine feldspar (0.1–0.4mm).

Few clinopyroxene (0.1–0.3mm).

Few round magnetite (0.05–0.1mm).

Rare sub-rounded chert (0.1–0.3mm).

Rare biotite mica (0.05–0.2mm).

**Matrix:** few inclusions of biotite mica and calcite.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).



## **Inclusions**

**C:F:V 10/8/10**

Grain size range 0.1–0.8mm, mode grain size 0.2mm. Moderate angular, double-spaced, moderately well sorted inclusions with no preferential orientation.

Frequent round calcite grains, reaction rims and some shells (0.1–0.8mm), also very rare sub-angular limestone fragments (0.1–0.2mm).

Frequent angular quartz (0.1–0.4mm).

Frequent sanidine feldspar (0.1–0.3mm).

Few sub-rounded basalt and trachyte rock fragments (0.1–0.7mm).

Very few clinopyroxene (0.1–0.15mm).

Very few round magnetite (0.05–0.1mm).

Rare garnet (0.05–0.1).

Matrix: moderate inclusions of calcite, angular quartz and sub-rounded igneous rock fragments.

**Origin:** Hand specimen resembles samples from Falerne, Campania. Thin-section similar to descriptions of Falerne fabrics by Thierrin-Michael (1992) and Arthur (1982).

## **Fabric 29**

In hand specimen: Munsell 7.5YR 6/4 light brown. Common angular poorly sorted inclusions. The fabric has a rough feel with many coarse angular rock fragments. Common fine angular calcite grains and quartz.

In thin-section: groundmass pale orange-brown in PPL and XP. Groundmass is inactive.

**Pores:-**

## **Inclusions**

**C:F:V 20/79/1**

Grain size range 0.1–0.5mm, mode grain size 0.2mm. Common, single-spaced, poorly sorted angular inclusions with no preferential orientation.

Dominant sub-angular calcite, and some shells (0.1–0.3mm).

Frequent angular quartz (0.1–0.6mm).

Very few sanidine feldspar (0.2–0.5mm).

Very few sub-rounded chert (0.1–0.3mm).

Very rare microcline feldspar (0.2–0.5mm).

**Matrix:** contains frequent inclusions of calcite, biotite mica and angular quartz.

**Origin:** Hand specimen similar to samples from Falerne?, Campania.

### Fabric 30

In hand specimen: 2.5YR 6/4 weak red. Moderate fine well sorted inclusions. Few very fine voids with white reaction-rims, frequent fine quartz. Very few fine round red grains and medium round dull black grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass inactive.

Pores: few meso-vughs, frequent micro and meso-vesicles parallel to vessel body.

### Inclusions

C:F:V 15/75/10

Grain size range 0.1–0.4mm, mode grain size 0.1mm. Frequent angular bimodal, single-spaced and moderately well sorted inclusions with no preferential orientation.

Dominant angular quartz (0.1–0.4mm).

Few sandine feldspar (0.1–0.2mm).

Rare clinopyroxene (0.1–0.15mm).

Rare sub-rounded trachyte rock fragments (0.1–0.2mm).

Rare sub-rounded magnetite (0.05–0.15mm).

**Matrix:** few inclusions of angular quartz and feldspar.

**Origin:** Thin-section suggests an origin in Western Italy.



## Fabric 31

In hand specimen: Munsell 2.5YR 6/6 red. Common angular poorly sorted inclusions. The fabric has a slight mottled appearance with lighter bands. Rare coarse round red/orange grog, common fine round yellow grains and fine angular quartz. Also, moderate round black grains and some black-sand.

In thin-section: groundmass red-brown in PPL and XP. Groundmass is inactive.

Pores:-

Inclusions

C:F:V 15/89/1

Grain size range 0.05–1mm, mode grain size 0.2mm. Frequent angular, double-spaced, poorly sorted inclusions with no preferential orientation.

Frequent sanidine feldspar (0.1–0.7mm).

Few sub-rounded quartz (0.1–0.2mm).

Very rare sub-angular limestone rock fragments (1mm).

Very rare hornblende (0.1–0.4mm).

Very rare biotite mica (0.05–0.1mm).

Matrix: frequent angular quartz and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 32

In hand specimen: Munsell 2.5YR 6/6 red. Few medium sub-rounded inclusions. Fine fabric with sparse fine white grains, and little fine quartz. Moderate medium round yellow and red grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent micro-meso vesicles with rare calcite reaction rims.

Inclusions

C:F:V 5/90/5

Grain size range 0.05–0.5mm, mode grain size 0.1mm. Very few angular, open-spaced, well sorted inclusions with no preferential orientation.

Dominant sub-rounded and angular quartz (0.1–0.5mm).

Frequent round grog (0.1–1mm).

Frequent sub-angular calcite grains (0.1–0.5mm).

Frequent round red-orange (in PPL and XP) clay nodules (0.05–0.1mm).

Few sanidine feldspar (0.1–0.4mm).

Few round magnetite (0.05mm).

Rare sub-rounded to sub-angular chert (0.1–0.3mm).

Very rare clinopyroxene (0.05–0.1mm).

Matrix: few inclusions of magnetite, calcite, angular quartz, clinopyroxene and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

### Fabric 33

Hand specimen: Munsell 7.5 YR 7/1 pink, common to abundant medium sized inclusions of quartz and angular rock fragments.

In thin-section: groundmass orange-brown matrix in PPL to brown-orange in XP.

Groundmass is inactive.

Pores: few meso-vughs.

#### Inclusions

C:F:V 15/84/1.

Grain size range 0.1–1mm, mode grain size 0.1mm. Few, sub-rounded inclusions, moderately well sorted.

Frequent plagioclase feldspar (0.1–1mm).

Frequent sub-rounded metamorphic rock fragments (0.1–0.6mm).

Few biotite (0.05–0.3) and sub-rounded chert grains (0.1–0.2).

Very few sanidine feldspar (0.1–0.9mm).



Rare sub-rounded red/orange (in PPL and XP) round clay nodules (0.1–0.2mm)?

Very rare Kyanite (0.1mm)?

Matrix contains many inclusions of muscovite and biotite mica and feldspar.

**Origin:** Thin-section suggests from Calabria, southern Italian.

## Fabric 34

In hand specimen: Munsell 5YR 7/4 pink. Frequent poorly sorted inclusions. Moderate coarse round dull red grains and frequent fine white grains. Rare coarse grey and black rock fragments.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vughs some with calcite reaction rims.

## Inclusions

C:F:V 10/75/15

Grain size range 0.1–0.8mm, mode grain size 0.15mm. Frequent angular, double-spaced, moderately well sorted bimodal inclusions with no preferential orientation.

Dominant calcite grains, shells and shell parts (0.05–0.8mm).

Frequent sanidine feldspar (0.1–0.4mm).

Frequent sub-angular quartz (0.1–0.2mm).

Rare clinopyroxene (0.1–0.15mm).

Rare rounded to sub-rounded basalt rock fragments (0.1–0.15mm).

Matrix: calcite rich with biotite mica and angular quartz.

**Origin:** Hand specimen and thin-section resembles sample from Mondragone Peacock's kiln, Campania.

## Fabric 35

In hand specimen: 5YR 7/4 pink. Common poorly sorted inclusions. Common fine angular quartz and black-sand. Rare coarse sub-rounded rock fragments and coarse red/orange grains.

In thin-section: groundmass green-brown in PPL, brown-red in XP. Groundmass is inactive.

Pores: few meso-vughs.

### Inclusions

C:F:V 10/85/5

Grain size range 0.1–2mm, mode grain size 0.1mm. Frequent sub-angular, double-spaced, moderately well sorted inclusions with no preferential orientation.

Dominant sub-angular quartz (0.1–0.7mm).

Very frequent sanidine feldspar (0.1–0.5mm).

Few round grog (0.5–2mm).

Few clinopyroxene (0.1–0.2mm).

Very rare biotite mica (0.1–0.2mm).

Very rare muscovite mica (0.2–0.5mm).

Very rare sub-rounded chert and radiolarian (0.1–0.3mm).

Very rare metamorphic rock fragments (0.6mm).

Matrix: few inclusions of quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 36

In hand specimen: Munsell core 10R 5/6 red, margins 5YR 6/6 reddish yellow. Common fine to coarse poorly sorted inclusions. Variety of coarse inclusions including dull white rounded grains, round yellow grains and dull red/brown grains. Common fine white rounded grains, moderate angular grey rock fragments? Moderate medium round black ore? In addition, moderate medium quartz.



In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: rare mega-vughs, rare macro-channels and rare meso-vesicles with calcite reaction-rims with no preferential orientation.

### Inclusions

C:F:V 15/75/10

Grain size range 0.1–1mm, mode grain size 0.1mm. Moderate polymodal, poorly sorted angular, double-spaced inclusions with no preferential orientation.

Dominant angular to sub-rounded calcite grains (0.1–0.7mm) and sub-angular calcite rock fragments (0.1–0.6mm).

Few sanidine and plagioclase feldspar (0.1–0.4mm).

Few sub-rounded chert (0.3–0.4mm).

Very few sub-rounded to angular quartz (0.1–0.2mm).

Rare sub-angular metamorphic rock fragments (0.1–0.2mm). Very rare clinopyroxene (0.1–0.2mm).

Very rare olivine (0.1–0.2mm).

Very rare orthopyroxene (0.1–0.2mm).

Very rare hornblende (0.1mm).

Very rare basalt and trachyte rock fragments (0.2–1mm).

Matrix: moderate inclusions of calcite and quartz.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

### Fabric 37

In hand specimen: Munsell 5 YR 6/6 reddish yellow. Common coarse sized inclusions with a very rough feel. Moderate fine quartz, coarse round igneous rock fragments.

In thin-section: groundmass pale brown in PPL to brown-orange in XP. Groundmass is inactive.

Pores: few meso-vughs.

#### Inclusions

C:F:V 10/85/5

Grain size range 0.1–1.4mm, mode grain size 0.2mm. Moderate, single-spaced, poorly sorted angular grains with no preferential orientation.

Frequent angular to sub-angular quartz (0.1–0.3mm).

Frequent sub-angular quartz rock fragments (0.1–0.6mm).

Frequent sanidine feldspar (0.1–0.3mm).

Few sub-angular to sub-rounded trachyte rock fragments (0.1–0.2mm).

Rare microcline feldspar (0.1–0.3mm).

Rare clinopyroxene (0.1mm).

Very rare orthopyroxene (0.1mm).

Very rare biotite mica (0.1–0.15mm).

Very rare red (in PPL and XP) clay nodules (0.1–1.4mm).

Matrix: frequent with inclusions of angular quartz, feldspar, calcite and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

#### Fabric 38

In hand specimen: Munsell 2.5YR 6/4 weak red. Moderate fine to medium inclusions. Moderate fine white grains (calcite), fine quartz and medium round red and yellow grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few meso-vughs, few calcite reaction rims parallel to vessel body.

#### Inclusions

C:F:V 5/94/1



Grain size range 0.1–0.4mm, mode grain size 0.1mm. Very few inclusions, angular, open-spaced, no preferential orientation and very well sorted.

Dominant sanidine feldspar (0.1–0.2mm).

Frequent sub-rounded to angular calcite grains, some shells and reaction rims (0.1–0.2mm).

Few angular quartz (0.15–0.25mm).

Very few clinopyroxene (0.1–0.2mm).

Very rare olivine (0.1–0.3mm).

Very rare sub-rounded chert (0.1–0.4mm).

Very rare and orthopyroxene (0.3mm).

Matrix: calcite rich with angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 39

In hand specimen: Munsell 7.5YR 7/4 light beige. Common angular fine well sorted inclusions. Frequent fine black-sand, and fine angular quartz and feldspar.

In thin-section: groundmass brown in PPL, brown-yellow in XP. Groundmass is inactive.

Pores: rare meso-vughs parallel to vessel body.

## Inclusions

C:F:V 20/75/5

Grain size range 0.1–0.9mm, mode grain size 0.2mm. Common angular, single-spaced, moderately to poorly sorted inclusions with no preferential orientation.

Frequent angular quartz (0.1–0.9mm).

Frequent sanidine and plagioclase feldspar (0.1–0.2mm).

Few sub-rounded calcite grains and some shells (0.1–0.3mm).

Frequent to few clinopyroxene grains (0.01–0.15mm).

Rare rounded to sub-rounded grains of magnetite (0.05–0.1mm).

Very rare sub-rounded chert and chalcedony (0.1–0.3mm).

Very rare garnet (0.1mm).

Matrix: clear matrix with calcite and some quartz.

**Origin:** Thin-section suggests from Sicily or Campania (an origin in Campania is more probable).

## Fabric 40

In hand specimen: Munsell 7.5YR 7/3 pink. Common inclusions, majority angular to sub-angular quartz, rare coarser quartz, rare coarse round ore and moderate fine black-sand.

In thin-section: groundmass pale yellow/green in PPL to pale yellow/green in XP. Groundmass is inactive.

Pores: frequent meso-vesicles with reaction-rims.

## Inclusions

C:F:V 15/75/10

Grain size range 0.1–1.3mm, mode grain size 0.15mm. Moderate, angular, double-spaced and poorly sorted inclusions with no preferential orientation.

Dominant round and sub-rounded calcite and calcite reaction rims (0.1–0.6mm).

Frequent angular chert (0.2–0.7mm).

Frequent angular quartz (0.2–1.3mm).

Few sanidine feldspar (0.1–0.5mm).

Rare plagioclase feldspar (0.1–0.5mm).

Very rare sub-rounded and rounded basalt fragments (0.1–0.3mm).

Very rare olivine (0.25mm).

Very rare amphibole (0.25mm).

Very rare orthopyroxene (0.25mm).

Very rare microcline feldspar (0.25mm).



**Matrix:** Moderate inclusions of angular quartz, calcite and magnetite.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 41**

**In hand specimen:** Munsell 5YR 6/4 light reddish yellow. Common moderately well sorted inclusions. Common fine white sub-rounded grains and angular quartz. Moderate round black dull black grains.

**In thin-section:** groundmass light brown in PPL to brown-yellow in XP. Slightly layered fabric, with calcite rich layers. Groundmass is inactive.

**Pores:** few meso to macro-vughs parallel to vessel body.

## **Inclusions**

**C:F:V** 15/80/5

Grain size range 0.1–1.8mm, mode grain size 0.1mm. Very frequent angular, single-spaced, moderately well sorted inclusions orientated parallel to vessel body.

Dominant round to angular calcite grains, shells and reaction rims (0.05–0.6mm).

Frequent sanidine feldspar (0.1–1.8mm).

Frequent angular and sub-rounded quartz (0.1–0.4mm).

Very few sub-rounded to sub-angular chert (0.1–0.3mm).

Few magnetite (0.05–0.15mm).

Rare clinopyroxene (0.1–0.15mm).

Rare microcline feldspar (0.1–0.15mm).

Very rare biotite mica (0.2mm).

**Matrix:** frequent inclusions of calcite and sanidine feldspar.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 42

In hand specimen: Munsell 5YR 6/4 light reddish yellow. Common poorly sorted inclusions. A variety of coarse round rock fragments, moderate fine quartz and moderate fine calcite, including some shells.

In thin-section: groundmass brown in PPL to brown-red in XP. Groundmass is inactive.

Pores: common meso-vughs, frequent mega-channels and few meso-vesicles, parallel to vessel body.

### Inclusions

C:F:V 15/75/10

Grain size range 0.1–0.6mm, mode grain size 0.3mm. Frequent well sorted angular to sub-angular inclusions, single-spaced, orientated parallel to vessel body.

Frequent rounded and sub-rounded calcite and some shells (0.1–0.4mm).

Frequent rounded grog (0.1–0.4mm).

Few sanidine feldspar (0.2–0.4mm).

Few angular quartz (0.2–0.4mm).

Few sub-rounded metamorphic rock fragments (0.1–0.6mm).

Rare microcline feldspar (0.2–0.4mm).

Rare sub-angular chert (0.1–0.2mm).

Rare clinopyroxene (0.1–0.2mm).

Rare amphibole (0.1–0.2mm).

Rare biotite mica (0.1mm).

Matrix: moderate inclusions of biotite mica, calcite and magnetite.

Origin: Thin-section suggests an origin in Western Italy.

## Fabric 43

In hand specimen: Munsell margins 5YR 6/6 reddish yellow, core 2.5YR 5/8 red. Common medium inclusions dominated by quartz and calcite.



In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: very few meso to micro-vughs parallel to body.

Inclusions

C:F:V 15/80/5

Grain size range 0.1–0.3mm, mode grain size 0.1mm. Frequent angular to sub-angular double-spaced inclusions, no preferential orientation, very well sorted.

Dominant sub-angular quartz (0.1–0.3mm).

Frequent sub-rounded and sub-angular calcite (0.1–0.3mm).

Few to frequent plagioclase feldspar (0.1–0.2mm).

Few sub-angular metamorphic rock fragments (0.1–0.3mm).

Very few sub-rounded chert (0.2mm).

Rare orthopyroxene (0.1–0.2mm).

Matrix: set in a clear matrix with biotite mica, magnetite and angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 44

In hand specimen: Munsell 7.5YR 7/3 pink. Moderate fine to medium inclusions. Moderate medium round yellow grains, rare medium round red grains, common fine white round grains and moderate fine angular quartz.

Not thin-sectioned

**Origin:** Hand specimen suggests an origin in Western Italy.

## Fabric 45

In hand specimen: Munsell 10YR 8/2 very pale brown. Common poorly sorted inclusions including common fine quartz, moderate black-sand. Common round grog.

In thin-section: groundmass grey-green in PPL and XP. Groundmass is inactive.

Pores: few meso-vughs.

## Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.4mm, mode grain size 0.2mm. Moderate very well sorted angular, double-spaced inclusions with no preferential orientation.

Frequent sub-rounded quartz (0.1–0.3mm).

Frequent sanidine feldspar (0.1–0.3mm).

Few clinopyroxene (0.1–0.2mm).

Few sub-rounded to sub-angular chert and radiolarian (0.1–0.4mm).

Rare biotite mica (0.1–0.2mm).

Rare microcline feldspar (0.1–0.3mm).

Matrix: clean with some angular quartz and biotite mica (0.1–0.2mm).

**Origin:** Thin-section indicates possibly from Campania?

## Fabric 46

In hand specimen: Munsell 2.5YR 6/8 red. Rough fabric with common medium to coarse inclusions. Moderate coarse round dull red grains, moderate round medium to coarse brown grains and moderate fine angular quartz.

Not thin-sectioned

**Origin:** Hand specimen suggests an origin in Western Italy.

## Fabric 47

In hand specimen: Munsell 5YR 7/4 pink. Common sub-rounded inclusions, common black-sand, moderate fine calcite and quartz.

In thin-section: groundmass pale brown in PPL, brown in XP. Groundmass is inactive.



Pores: very rare meso-vughs with no preferential orientation.

## Inclusions

C:F:V 10/89/1

Grain size range 0.2–0.4mm, mode grain size 0.2mm. Moderate well sorted, angular, double-spaced inclusions with no preferential orientation.

Frequent to common rounded to angular calcite and some shells (0.1–0.3mm).

Frequent sub-angular quartz (0.2–0.3mm).

Frequent plagioclase feldspar (0.1–0.3mm).

Few sub-rounded chert (0.1–0.3mm).

Rare biotite mica (0.1–0.4mm).

Rare angular metamorphic rock fragments (0.2–0.4mm).

Rare sanidine feldspar (0.15–30mm).

Very rare orthopyroxene (0.2–0.3mm).

Very rare angular basalt rock fragments (0.2–0.3mm).

Matrix: frequent inclusions of calcite, quartz, plagioclase, biotite and muscovite mica.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 48

In hand specimen: Munsell 2.5YR 6/6 red, 5YR 7/8 reddish yellow. Rough fabric with slight powdery surface. Common fine to coarse poorly sorted inclusions. A variety of coarse round rock fragments. Moderate fine white angular grains and sub-angular quartz.

In thin-section: groundmass orange-brown in PPL to brown in XP. Groundmass is inactive.

Pores: few meso-vughs.

## Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.9mm, mode grain size 0.2mm. Moderate angular, open-spaced, well sorted inclusions with no preferential orientation.

Dominant sanidine feldspar (0.1–0.9mm).

Few angular to sub-angular quartz (0.1–0.4mm).

Few biotite mica (0.1mm).

Very few sub-rounded to rounded metamorphic rock fragments (0.1–0.3mm).

Rare clinopyroxene (0.1–0.3mm).

Rare round to sub-rounded magnetite (0.05–0.1mm).

Matrix: moderate inclusions of biotite mica and quartz.

**Origin:** Thin-section resembles description of Falerne, Campania fabric by Thierrin-Michael (1992) and Arthur (1982).

## Fabric 49

In hand specimen: Munsell 2.5YR 6/6 red. Moderate fine to medium rounded inclusions. Moderate fine angular white grains, moderate fine round dull soft yellow grains. Rare coarse round red grains (grog?) and fine moderate quartz.

In thin-section: groundmass brown-orange in PPL to red-brown in XP. Groundmass is inactive.

Pores: few micro-vesicles and calcite rims.

## Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.8mm, mode grain size 0.1mm. Very few to moderate angular to sub-rounded, open-spaced, moderately well sorted with no preferential orientation.

Dominant sub-angular calcite grains and reaction rims (0.1–0.5mm).

Frequent sanidine feldspar (0.1–0.3mm).

Frequent angular to sub-angular quartz (0.1–0.3mm).

Few plagioclase feldspar (0.1–0.3mm).

Rare clinopyroxene (0.1mm).



Rare sub-rounded chert (0.1–0.2mm).

Very rare hornblende (0.1mm).

Very rare round grog (0.6–0.8mm).

Matrix: clean with some angular quartz, biotite mica and moderate calcite.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 50

In hand specimen: Munsell 5YR 4/5 pink-reddish brown to 5YR 6/6 reddish yellow.

Common angular well sorted inclusions. The fabric has a rough sandy feel with a powdery surface. Moderate fine round to sub-rounded quartz and angular white grains (calcite). Moderate fine black-sand and fine to medium round red grains.

In thin-section: groundmass orange-brown in both PPL and XP. Groundmass is inactive.

Pores: few meso-vughs and vesicles some with calcite reaction-rims, orientated parallel to vessel body.

## Inclusions

C:F:V 15/75/10

Grain size range 0.1–0.7mm, mode grain size 0.15mm. Very frequent sub-angular, double-spaced, moderately well sorted inclusions orientated parallel to vessel body.

Dominant rounded calcite grains (some sub-rounded) and many shells (0.1–0.5mm) and few sub-angular calcite rock fragments (0.1–0.7mm).

Frequent to few angular quartz (0.1–0.4mm).

Few sanidine feldspar (0.1–0.2mm).

Few clinopyroxene (0.1–0.2mm).

Few round magnetite (0.05–0.1mm).

Very few plagioclase feldspar (0.1–0.2mm).

Very rare sub-rounded chert (0.1–0.2mm).

**Matrix:** moderate inclusions of quartz, biotite mica, calcite and round magnetite.

**Origin:** Hand specimen resembles sample from Sinuessa stamped L.M, Campania.

## **Fabric 51**

In hand specimen: Munsell 10R 6/6 light red. Common rounded mostly fine some median inclusions. Fine sub-rounded quartz, moderate round black rock fragments, and rare median angular white grains. Rare fine moderate yellow grains and voids with yellow reaction rims.

In thin-section: groundmass brown in PPL and red-brown in XP. Groundmass is inactive.

Pores: frequent micro to meso-vesicles with calcite reaction-rims, meso-vughs, parallel to vessel body.

## **Inclusions**

**C:F:V** 10/75/15

Grain size range 0.1–0.7mm, mode grain size 0.2mm. Few angular, open-spaced, moderately well sorted inclusions orientated slightly parallel to vessel body.

Dominant round calcite grains and reaction rims (0.1–0.7mm).

Few angular quartz (0.1–0.2mm).

Few sanidine and plagioclase feldspar (0.1–0.6mm).

Few clinopyroxene (0.1–0.35mm).

Very few sub-rounded chert (0.1–0.3mm).

Very rare trachyte rock fragments (0.1–0.2mm).

**Matrix:** very few inclusions of quartz, calcite and clinopyroxene.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 52**

In hand specimen: Munsell 5YR 6/8 reddish yellow. Common fine to medium poorly sorted inclusions. Moderate fine round white and yellow dull grains, moderate round



black rock fragments. Rare coarse round yellow grains, very rare round coarse white grains.

In thin-section: groundmass brown-orange in PPL and XP. Groundmass is inactive.

Pores: few meso-vughs.

### Inclusions

C:F:V 20/75/5

Grain size range 0.1–1.8mm, mode grain size 0.2mm. Very common angular, single-spaced, moderately well sorted inclusions with no preferential orientation.

Common sanidine feldspar (0.1–0.6mm).

Common angular quartz (0.1–0.4mm).

Frequent round and sub-rounded calcite (0.1–0.3mm).

Few clinopyroxene (0.1mm).

Few round magnetite (0.1mm).

Very few angular to sub-rounded trachyte and basalt fragments (0.1–1.8mm).

Rare biotite mica (0.1–0.5mm).

Rare orthopyroxene (0.1mm).

Matrix: few inclusions of biotite mica, quartz, calcite and red opaque grains.

**Origin:** Hand specimen similar to samples from Falerne, Campania. Thin-section resembles description of Falerne fabrics by Thierrin-Michael (1992) and Arthur (1982).

### Fabric 53

In hand specimen: Munsell 5YR 7/4 pink. Very porous fabric with few fine to coarse poorly sorted inclusions. Moderate fine and medium round yellow soft dull grains, moderate fine angular quartz, and moderate medium round grog. Moderate fine black-sand.

In thin-section: groundmass brown in PPL and XP. Groundmass is inactive.

Pores: very rare-vughs.

#### Inclusions

C:F:V 5/94/1

Grain size range 0.1–0.6mm, mode grain size 0.1mm. Very few sub-angular, open-spaced, moderately well sorted, with no preferential orientation.

Dominant sub-angular and some sub-rounded quartz (0.1–0.6mm).

Frequent sanidine feldspar (0.1–0.5mm).

Few clinopyroxene (0.1–0.2mm).

Rare sub-rounded basalt rock fragments (0.1–0.6mm).

Rare muscovite mica (0.1–0.2mm).

Very rare biotite mica (0.1–0.2mm).

Very rare angular chert (0.15–0.2mm).

Very rare volcanic glass (0.1mm).

Matrix: moderate inclusions of magnetite, quartz, biotite and muscovite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

#### Fabric 54

In hand specimen: Munsell 5YR 6/6 reddish yellow. This fabric has a powdery surface and common fine to medium moderately well sorted inclusions. Common fine round voids with yellow reaction rims, moderate fine round white inclusions. Rare fine rock fragments and medium sized round red grains.

In thin-section: groundmass red-brown in both PPL and XP. Groundmass is inactive.

Pores: few meso to macro-vughs and macro-channels parallel to vessel body.

#### Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.5mm, mode grain size 0.2mm. Moderate well sorted angular, double-spaced inclusions with no preferential orientation.



Dominant angular to sub-angular quartz (0.1–0.5mm).

Frequent sanidine and plagioclase feldspar (0.1–0.4mm).

Few sub-rounded metamorphic rock fragments (0.1–0.3mm).

Very few clinopyroxene (0.1–0.2mm).

Rare sub-rounded trachyte rock fragments (0.1–0.3mm).

Matrix: frequent inclusions of angular quartz, round magnetite and biotite mica.

Origin: Thin-section suggests an origin in Western Italy.

## Fabric 55

In hand specimen: 5YR 7/6 reddish yellow. Common fine to medium angular inclusions. Moderate fine white and yellow dull angular grains, moderate medium angular quartz. Rare round rock medium rock fragments and some medium round grog.

In thin-section: groundmass brown in both PPL and XP. Groundmass is inactive.

Pores: very few macro-channels and few meso-vughs.

Inclusions

C:F:V 20/75/5

Grain size range 0.1–0.8mm, mode grain size 0.1mm. Very common, angular, single-spaced, poorly sorted inclusions with no preferential orientation.

Dominant by sub-rounded calcite grains and some shells (0.05–0.4mm).

Very frequent angular quartz (0.04–0.7mm) with bimodal grain size (0.05–0.1mm and 0.15–0.7mm).

Frequent sanidine feldspar (0.1–0.8mm).

Rare microcline feldspar (0.1–0.4mm).

Rare clinopyroxene (0.1–0.2mm).

Rare sub-rounded trachyte rock fragments (0.1–0.6mm).

Rare angular volcanic glass (0.05–0.1mm).

Rare hornblende (0.1mm).

**Matrix:** few inclusions of angular quartz and calcite.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 56**

**In hand specimen:** Munsell 5YR 6/6 reddish yellow. This fabric has common fine to medium rounded inclusions. There are moderate fine white angular grains, yellow round grains and moderate medium red grains. Also, moderate round black dull grains.

**In thin-section:** groundmass orange in PPL and XP. Groundmass is inactive.

**Pores:** frequent vughs and rare-macro channels with no preferential orientation.

### **Inclusions**

**C:F:V** 10/85/5

Grain size range 0.1–0.4mm, mode grain size 0.1mm. Moderate angular, double-spaced, moderately well sorted inclusions with no preferential orientation.

Dominant sanidine feldspar (0.1–0.4mm).

Frequent angular quartz (0.1–0.2mm).

Few round red (in PPL and XP) clay nodules (0.05–0.1mm).

Rare plagioclase and microcline feldspar (0.1–0.4mm).

Rare clinopyroxene (0.1mm).

Rare rounded trachyte rock fragments (0.1–0.2mm).

Rare sub-rounded metamorphic rock fragments (0.1–0.3mm).

Very rare orthopyroxene (0.15mm).

**Matrix:** moderate inclusions of round magnetite, red (in PPL and XP) round grains and is very biotite rich.

**Origin:** Thin-section suggests an origin in Western Italy.



## Fabric 57

In hand specimen: Munsell 2.5 YR 6/6 red. This fabric has moderate round fine to coarse inclusions and is poorly sorted. There are a variety of rounded rock fragments and moderate sub-rounded quartz. There are moderate round dull grains of grog.

In thin-section: groundmass red-brown in PPL and XP. The groundmass is inactive.

Pores: very few meso-vughs.

### Inclusions

C:F:V 15/84/1

Grain size range 0.1–1.6mm, mode grain size 0.2mm. Moderate angular, double-spaced, poorly sorted inclusions with a slight orientation parallel to vessel body.

Frequent sanidine feldspar (0.1–1.1mm).

Frequent sub-rounded basalt and trachyte rock fragments (0.1–0.8mm).

Few round grog (0.4–1.6mm).

Very few angular quartz (0.1–0.3mm).

Very few to rare clinopyroxene (0.1–0.4mm).

Rare angular metamorphic rock fragments (0.1–0.3mm).

Rare round magnetite (0.05–0.1mm).

Rare hornblende (0.1mm).

Matrix: moderate inclusions including igneous rock fragments and sanidine feldspar.

**Origin:** Hand specimen slight resemblance to samples from Falerne, Campania.

Thin-section also resembles description of Falerne fabrics by Thierrin-Michael (1992) and Arthur (1982).

## Fabric 58

In hand specimen: Munsell 2.5YR 6/6 red. Frequent poorly sorted inclusions. Common fine sub-rounded quartz, moderate fine white grains and some black-sand. Frequent coarse round red grains (grog).

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few meso-vughs.

#### Inclusions

C:F:V 10/89/1

Grain size range 0.1–0.3mm, mode grain size 0.15mm. Few angular to sub-angular, open-spaced, well-sorted inclusions with slight orientation parallel to vessel body.

Frequent sub-angular to sub-rounded quartz (0.1–0.3mm).

Few sanidine feldspar (0.1–0.2mm).

Very few sub-rounded basalt and trachyte rock fragments (0.05–0.2mm).

Very few clinopyroxene (0.1–0.2mm).

Very few angular chert (0.1–0.2mm).

Rare magnetite (0.05–0.1mm).

Very rare glass or garnet (0.05–0.1mm).

Very rare microcline feldspar (0.1–0.2mm).

Matrix: contains moderate amounts of angular quartz and much biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

#### Fabric 59

In hand specimen: Munsell 7.5YR 6/6 reddish yellow. Common poorly sorted inclusions. Common feldspar, quartz and calcite grains. Moderate medium black dull angular rock fragments. Moderate black-sand.

In thin-section: groundmass brown-orange in PPL and XP. Groundmass is inactive.

Pores:-

#### Inclusions

C:F:V 10/89/1



Grain size range 0.1–0.8mm, grain size mode 0.2mm. Moderate angular, double-spaced, well sorted inclusions with no preferential orientation.

Dominant sanidine and plagioclase feldspar (0.1–0.7mm).

Frequent angular to sub-angular quartz (0.1–0.3mm).

Frequent angular to round calcite grains (0.05–0.15mm).

Few round red/orange (in PPL and XP) clay nodules (0.05–0.1mm).

Very few clinopyroxene (0.1–0.2mm).

Very rare sub-rounded trachyte rock fragments (0.1–0.15mm).

Very rare round grog (0.8mm).

Matrix: frequent biotite mica, angular quartz and some calcite.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 60

In hand specimen: Munsell 5YR 7/4 pink. Frequent poorly sorted inclusions. Common fine angular quartz and black-sand. Moderate fine white angular grains. Rare coarse round white-grey grains (rock fragments), coarse round red grog and coarse round black ore?

In thin-section: groundmass light brown in PPL to brown in XP. Groundmass is inactive.

Pores: frequent meso-vesicles and rare mega-channels no preferential orientation.

## Inclusions

C:F:V 15/82/3

Grain size range 0.1–1.4mm, mode grain size 0.1mm. Frequent poorly sorted angular, double-spaced grains with no preferential orientation.

Dominant sub-rounded calcite grains, shells and reaction rims (0.1–1.4mm).

Frequent sanidine feldspar (0.1–0.5mm).

Few sub-angular quartz (0.1–0.5mm).

Few sub-rounded and sub-angular chert (0.1–0.6mm).  
Very few biotite mica (0.1–0.4mm).  
Very few clinopyroxene (0.1–0.4mm).  
Rare muscovite mica (0.05–0.1mm).  
Very rare angular volcanic glass (0.1–0.2mm).  
Very rare sub-angular basalt rock fragments (0.1–0.3mm).

Matrix: frequent inclusions of magnetite and frequent biotite.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 61

In hand specimen: Munsell 5YR 7/6 reddish yellow. Moderate angular fine to coarse inclusions. Moderate medium angular quartz, moderate fine dull white and yellow grains. Rare medium round rock fragments, rare sub-rounded yellow dull grains, and very rare medium sub-rounded orange/red grains.

In thin-section: groundmass pale brown in PPL to brown in XP. Groundmass is inactive.

Pores: very rare meso-vughs, rare meso to micro-channels and rare meso-vesicles parallel to vessel body.

## Inclusions

C:F:V 10/85/5

Grain size range 0.1–1mm, mode grain size 0.1mm. Moderate poorly sorted angular inclusions, double-spaced, orientated parallel to vessel body.

Frequent angular quartz (0.2–0.6mm).

Frequent sub-angular to sub-rounded chert and chalcedony (0.15–0.2mm).

Few sanidine feldspar (0.1–0.2mm).

Few biotite mica (0.1–0.15mm).

Rare clinopyroxene (0.1–0.2mm).

Very rare sub-angular trachyte rock fragments (0.6–1mm).



**Matrix:** frequent inclusions of quartz and biotite.

**Origin:** Thin-section slight resemblance to descriptions of Falerne (Campania) fabrics by Thierrin-Michael (1992) and Arthur (1982).

## Fabric 62

In hand specimen: Munsell 5YR 6/6 reddish yellow. Few angular poorly sorted inclusions. Rare coarse to very coarse round white grains, and common fine angular white grains. Moderate fine black-sand and angular grey quartz. Moderate coarse igneous rock fragments and rare coarse red dull grains.

In thin-section: groundmass brown-orange in both PPL and XP. Groundmass is inactive.

Pores: few meso-channels and vughs parallel to vessel body.

## Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.6mm, mode grain size 0.2mm. Frequent angular, double-spaced, moderately well sorted grains, orientated parallel to vessel body.

Dominant angular quartz (0.1–0.6mm).

Very frequent plagioclase and sanidine feldspar (0.1–0.6mm).

Very rare microcline feldspar (0.1–0.2mm).

Few clinopyroxene (0.1–0.35mm).

Few round magnetite (0.05–0.1mm).

Few sub-angular trachyte rock fragments (0.1–0.4mm).

Few sub-angular to sub-rounded metamorphic rock fragments (0.1–0.3mm).

Very few chert and chalcedony (0.1–0.2mm).

Rare biotite mica (0.1mm).

Rare garnet (0.1mm).

**Matrix:** moderate angular quartz and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 63

In hand specimen: 5YR 7/4 pink. Common angular fine to coarse poorly sorted inclusions. Moderate fine angular yellow and white dull grains. Moderate coarse round red grog and round black grains. Moderate fine quartz and rare yellow streaks.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few meso-vesicles with many calcite rims, rare meso and macro-channels orientated parallel to vessel body.

### Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.6mm, mode grain size 0.1mm. Frequent angular moderately well sorted, double-spaced inclusions with no preferential orientation.

Frequent sub-rounded calcite and reaction-rims (0.1–0.6mm).

Frequent sanidine feldspar (0.1–0.4mm).

Frequent angular quartz (0.1–0.2mm).

Few sub-rounded chert (0.1–0.2mm).

Rare plagioclase feldspar (0.1–0.4mm).

Rare garnet (0.2mm).

Rare clinopyroxene (0.2–0.3mm).

Matrix: moderate inclusions of biotite mica and angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 64

In hand specimen: Munsell 5YR 7/4 pink. Frequent moderately well sorted inclusions. Common fine angular quartz and black-sand. Moderate coarse white grains and red grains (grog). Moderate fine white angular grains and moderate fine red round grains.



In thin-section: groundmass pale brown in PPL to brown in XP. Groundmass is inactive.

Pores: few meso-vughs and vesicles with calcite reaction rims.

Inclusions

C:F:V 15/80/5

Grain size range 0.1–0.4mm, mode grain size 0.15mm. Very frequent angular, double-spaced, moderately well sorted inclusions with a slight preferential orientation to vessel body.

Frequent round and sub-rounded calcite grains and some shells (0.1–0.2mm).

Frequent plagioclase and sanidine feldspar (0.1–0.4mm).

Frequent quartz (0.1–0.2mm).

Rare sub-rounded chert (0.1–0.2mm).

Rare clinopyroxene (0.1–0.15mm).

Very rare muscovite mica (0.05–0.1mm).

Very rare garnet (0.05–0.1mm).

Very rare orthopyroxene (0.1mm).

Very rare hornblende (0.1–0.15mm).

Matrix: moderate inclusions of quartz, magnetite, biotite mica and feldspar.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 65

In hand specimen: Munsell 5YR 7/4 pink. Poorly sorted, common rounded inclusions. Common fine quartz, moderate medium to coarse round grog.

In thin-section: groundmass brown in PPL and XP. Groundmass is inactive.

Pores: common meso-vesicles, rare meso-channels and few meso-vughs.

Inclusions

C:F:V 15/70/15

Grain size range 0.1–0.7mm, mode grain size 0.15mm. Frequent angular, single-spaced, moderately well sorted inclusions with no preferential orientation.

Dominant sanidine feldspar (0.1–0.7mm).

Frequent to few round calcite grains and calcite reaction rims (0.1–0.3mm).

Few plagioclase feldspar (0.1–0.7mm).

Very few rounded red grog (0.3–2.5mm).

Very rare clinopyroxene (0.1–0.15mm).

Very rare muscovite mica (0.1–0.15mm).

Matrix: moderate inclusions of quartz, biotite mica and feldspar.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 66

In hand specimen: Munsell 5YR 7/3 pink. Moderate poorly sorted inclusions including coarse round red dull grains (grog), coarse black ore and coarse white grains. Moderate fine black-sand and common fine angular white grains. Common fine angular quartz.

In thin-section: groundmass brown in PPL and XP. Groundmass is inactive.

Pores: frequent meso-vesicles parallel to the vessel body.

## Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.7mm, mode grain size 0.1mm. Few angular, double-spaced, bimodal and moderately well sorted inclusions with a preferential orientation parallel to vessel body.

Frequent sanidine feldspar (0.1–0.7mm).

Few sub-rounded to sub-angular quartz (0.1–0.5mm).

Very few clinopyroxene (0.1–0.6mm).

Very few biotite mica (0.1–0.2mm).

Rare sub-rounded basalt rock fragments (0.1–0.2mm).

Rare plagioclase feldspar (0.1–0.7mm).



Very rare sub-rounded chert (0.2mm).

Very rare olivine (0.5mm).

Very rare and hornblende (0.1mm).

Matrix: clean with few grains of angular quartz, magnetite, biotite mica and garnet.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 67

In hand specimen: 2.5YR 6/6 red. Common fine to medium rounded grains. Moderate fine to medium round grog, medium fine round red grains and sub-rounded white grains (calcite). Moderate fine angular quartz and black-sand.

In thin-section: groundmass brown in both PPL and XP. Groundmass is inactive.

Pores: rare meso-vughs and macro-channels, some calcite reaction rims, parallel to vessel body.

## Inclusions

C:F:V 10/83/7

Grain size range 0.1–0.6mm, mode grain size 0.15mm.

Moderate sub-angular, double-spaced, moderately well sorted, inclusions orientated parallel to vessel body.

Dominant sandine feldspar (0.1–0.4mm).

Very frequent round calcite grains (0.1–0.6mm).

Frequent red/orange (in PPL and XP) clay nodules? (0.1–0.2mm).

Frequent sub-angular quartz (0.1–0.3mm).

Very few sub-rounded to rounded magnetite (0.1–0.15mm). Very few clinopyroxene (0.1–0.2mm).

Rare sub-rounded metamorphic rock fragments (0.1–0.6mm). Very rare microcline feldspar (0.1–0.6mm).

Matrix: moderate inclusions of calcite, quartz and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 68

In hand specimen: 5YR 6/6 reddish yellow. Common medium sub-rounded inclusions. Frequent round igneous rock fragments and frequent fine white inclusions.

In thin-section: groundmass orange-brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few meso-vughs and vesicles, some with calcite reaction rims.

### Inclusions

C:F:V 10/85/5

Grain size range 0.1–4.5mm, mode grain size 0.2mm. Moderate, open-spaced, angular to sub-angular very poorly sorted inclusions orientated parallel to vessel body.

Frequent rounded to sub-rounded calcite grains, also some shells (0.1–0.3mm).

Frequent medium to coarse sub-rounded trachyte rock fragments (0.1–4.5mm).

Few to frequent sanidine feldspar (0.1–1.2mm).

Few angular metamorphic rock fragments (0.1–0.3mm).

Very few angular to sub-angular quartz (0.1–0.2mm).

Rare clinopyroxene (0.1mm).

Very rare round magnetite (0.05–0.1mm).

Matrix moderate inclusions including calcite, and biotite.

**Origin:** Hand specimen resembles samples from Mondragone, Campania.

## Fabric 69

In hand specimen: 2.5YR 6/6 red. Common rounded fine to medium inclusions including moderate fine angular quartz. Moderate fine round grog and sub-rounded red grains. Moderate sub-rounded white grains.

In thin-section: groundmass red-brown in both PPL and XP. Groundmass is inactive.



Pores: frequent to common meso and micro-vesicles, many calcite reaction rims with no preferential orientation.

#### Inclusions

C:F:V 10/75/15

Grain size range 0.1–0.9mm, mode grain size 0.15mm. Few angular, open-spaced, poorly sorted inclusions with no preferential orientation.

Dominant round to sub-rounded calcite grains and reaction rims (0.1–0.3mm).

Frequent sub-angular to angular quartz (0.1–0.4mm).

Frequent sanidine and plagioclase feldspar (0.1–0.9mm).

Few clinopyroxene (0.1–0.4mm).

Very rare sub-rounded trachyte rock fragments (0.1–0.15mm).

Very rare sub-rounded magnetite (0.05–0.1mm).

Matrix: moderate inclusion of calcite, quartz and sanidine.

**Origin:** Hand specimen resembles samples from Mondragone, Campania. Thin-section similar to descriptions of Mondragone fabrics by Thierrin-Michael (1992) and Peacock (1977a).

#### Fabric 70

In hand specimen: Munsell 2.5YR 6/6 red. Common angular fine to medium inclusions of common fine angular quartz. Moderate fine angular white grains, moderate medium round red dull grains and common round fine-medium orange/red inclusions.

In thin-section: groundmass orange-brown in PPL, to brown in XP. Groundmass is inactive.

Pores: very few meso-vughs and rare macro-channels with no preferential orientation.

#### Inclusions

C:F:V 20/75/5

Grain size range 0.1–0.7mm, mode grain size 0.1mm. Common, single-spaced, angular, moderately well sorted grains with orientation parallel to vessel body.

Dominant sanidine feldspar (0.1–0.7mm).

Frequent round to sub-rounded calcite grains some shells (0.1–0.2mm).

Few angular quartz (0.1–0.2mm).

Very few clinopyroxene (0.05–0.3mm).

Very few sub-rounded chert (0.1–0.2mm).

Rare microcline feldspar (0.1–0.6mm).

Rare plagioclase feldspar (0.1–0.7mm).

Rare biotite mica (0.1–0.15mm).

Very rare garnet (0.1mm).

Very rare hornblende (0.15mm).

Very rare round magnetite (0.05–0.1mm).

Matrix: very few inclusions of calcite and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy (probably Latium/Campania).

## Fabric 71

In hand specimen: Munsell 2.5YR 6/4–6/6 weak red to red. Common fine rounded inclusions. Common fine white round grains, moderate fine round yellow and red grains. Moderate fine yellow reaction rims and few black-sand.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: moderate to few meso-vughs with calcite reaction-rims, with no preferential orientation.

## Inclusions

C:F:V 10/85/5



Grain size range 0.1–0.3mm, grain size mode 0.1mm. Frequent, double-spaced, angular moderately well sorted with no preferential orientation.

Dominant round calcite grains and some shells (0.1mm).

Frequent sanidine feldspar (0.1–0.3mm).

Few angular quartz (0.1–0.2mm).

Very few plagioclase feldspar (0.1–0.2mm).

Rare clinopyroxene (0.1mm).

Very rare biotite mica (0.1–0.2mm).

Very rare round magnetite (0.1–0.2).

Matrix: calcite rich and few inclusions of quartz.

**Origin:** Hand specimen similar to sample from *Minturnae* (Latium).

## Fabric 72

In hand specimen: Munsell 5YR 6/6 reddish yellow. Slightly sandy fabric poorly sorted with many fine to coarse inclusions. Moderate medium sized round red/brown grains, some round red dull grains. Frequent fine medium and fine white grains and common fine shiny quartz.

In thin-section: groundmass orange-pale brown in PPL to orange in XP. Groundmass is inactive.

Pores: frequent meso-vughs and rare meso-channels.

## Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.4mm, mode grain size 0.1mm. Moderate angular, single-spaced, moderately well sorted inclusions with no preferential orientation.

Dominant angular quartz (0.1–0.4mm).

Few round grains of calcite including some shell fragments (0.1–0.15mm).

Few biotite mica (0.1–0.15mm).

Very few sanidine feldspar (0.1–0.15mm).

Very few clinopyroxene (0.1mm).

Very rare round and sub-rounded magnetite grains (0.05–0.1mm).

**Matrix:** frequent inclusions of biotite mica and angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 73

In hand specimen: Munsell 2.5YR 6/3 weak red to 2.5YR 6/6 red. Few fine and well-sorted inclusions. Few fine round white/yellow grains, round red grains and rare sub-rounded black grains.

In thin-section: groundmass orange-brown in PPL to red in XP. Groundmass is inactive.

Pores: few meso-vughs, rare meso-channels, parallel to vessel body.

## Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.4mm, mode grain size 0.1mm. Few angular, open-spaced well sorted inclusions with no preferential orientation.

Dominant angular quartz (0.1–0.3mm).

Frequent sanidine feldspar (0.1–0.4).

Few sub-rounded chert and radiolarian (0.1–0.3mm).

Very rare clinopyroxene (0.1–0.2mm).

**Matrix:** frequent inclusions of angular quartz and some biotite mica.

**Origin:** Hand specimen similar to samples from Garigliano-*Minturnae* (Latium).



## **Fabric 74**

In hand specimen: Munsell 7.5YR 7/3 pink. Common angular fine to coarse poorly sorted inclusions. Common coarse round white dull grains, and fine angular quartz. Moderate angular black-sand and rare coarse round grog.

In thin-section: groundmass brown in PPL to red-brown in XP.

Pores: Rare macro-channels parallel to vessel body

### **Inclusions**

**C:F:V 15/80/5**

Grain size range 0.05–0.7mm, mode grain size 0.1mm. Frequent angular to sub-angular, double-spaced, moderately well sorted inclusions with no preferential orientation.

Frequent sanidine feldspar (0.1–0.7mm).

Few plagioclase feldspar (0.1–0.6mm).

Few angular quartz (0.1–0.2mm).

Very few angular chert (0.1–0.3mm).

Very rare round trachyte rock fragments (0.4mm).

Very rare hornblende (0.1–0.25mm).

Very rare round magnetite (0.05–0.1mm).

Matrix: frequent biotite mica and sub-angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 75**

In hand specimen: Munsell 2.5YR 6/6 red. Common fine to medium (rare coarse) angular inclusions. Moderate fine angular to sub-rounded white and yellow grains, moderate fine angular quartz. Moderate coarse angular white grains and moderate medium round red/brown grains. Moderate fine black-sand and moderate fine sub-rounded red grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: moderate meso-vesicles, meso-vughs, and some calcite reaction rims, orientated parallel to vessel body.

#### Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.8mm, mode grain size 0.15mm. Moderate angular to sub-angular, double-spaced, moderately well sorted inclusions.

Dominant rounded calcite grains (0.1–0.4mm).

Frequent sanidine feldspar (0.1–0.8mm).

Few angular quartz (0.1–0.3mm).

Few sub-rounded trachyte rock fragments (0.1–0.2mm).

Few clinopyroxene (0.1–0.15mm).

Very few plagioclase feldspar (0.1–0.6mm).

Very rare orthopyroxene (0.2mm).

Matrix: moderate inclusions of calcite, round magnetite and quartz.

Origin: Thin-section suggests an origin in Western Italy.

#### Fabric 76

In hand specimen: Munsell 5YR 6/4-6/6 light reddish brown to reddish yellow. Common angular fine and some medium grains, moderately well sorted. Moderate fine angular white and yellow grains. Moderate fine angular quartz, and few fine black-sand.

In thin-section: groundmass brown in PPL and XP. Groundmass is inactive.

Pores: rare meso-vughs and some calcite reaction rims parallel to vessel body.

#### Inclusions

C:F:V 10/83/7



Grain size range 0.1–0.4mm, mode grain size 0.1mm. Few angular, double-spaced, well sorted inclusions with no preferential orientation.

Dominant sub-angular and angular calcite grains, some shells and rare sub-rounded calcite rock fragments (0.1–0.4mm).

Frequent sanidine feldspar (0.1–0.2mm).

Few clinopyroxene (0.1–0.2mm).

Rare angular quartz (0.1–0.15mm).

Rare sub-rounded to sub-angular chert (0.2–0.3mm).

Very rare orange/red (in PPL and XP) clay nodules (0.2mm)?

Very rare sub-angular to sub-rounded basalt and trachyte rock fragments (0.1mm).

Very rare orthopyroxene (0.1–0.2mm).

Matrix: moderate inclusions of biotite mica and calcite.

Origin: Hand specimen similar to sample from Canneto (Latium).

## **Fabric 77**

In hand specimen: Munsell 5YR 6/4. Common fine angular inclusions (rare medium sized grains), well sorted. Moderate fine sub-angular white grains, moderate fine angular quartz. Moderate fine black-sand and rare fine red round grains.

In thin-section: groundmass brown in PPL and red-brown in XP. Groundmass is inactive.

Pores: few meso-vughs and rare meso-vesicles with calcite reaction rims with no preferential orientation.

## **Inclusions**

C:F:V 15/84/1

Grain size range 0.1–0.6mm, grain size mode 0.15mm. Frequent to common angular moderately well sorted inclusions.

Dominant angular and some sub-angular quartz (0.1mm).

Frequent rounded calcite grains and some shells (0.1–0.4mm).

Very few sub-rounded chert (0.1–0.2mm).

Very few clinopyroxene (0.1–0.15mm).

Very few plagioclase and sanidine feldspar (0.1–0.2mm).

Rare microcline feldspar (0.1–0.2mm).

Rare round magnetite (0.05mm).

Rare sub-angular sedimentary rock fragments (0.1–0.6mm).

Matrix: moderate inclusions of angular quartz, biotite mica and calcite.

Origin: Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 78

In hand specimen: Munsell 2.5YR 6/6 red. Common fine to medium angular grains. Moderate fine angular quartz, moderate fine angular white grains. Moderate medium round black dull grains, and moderate medium red/brown grog. Rare fine black-sand.

In thin-section: groundmass brown in PPL to red in XP. Groundmass is inactive.

Pores: few meso-vughs.

## Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.3mm, mode grain size 0.2mm. Moderate, double-spaced, well sorted angular grains with no preferential orientation.

Dominant sub-angular quartz (0.1–0.3mm).

Frequent sandine feldspar (0.1–0.3mm).

Rare plagioclase and microcline feldspar (0.1–0.3mm).

Rare clinopyroxene (0.1–0.2mm).

Rare red/orange (in PPL and XP) clay nodules (0.1–0.15mm)?

Rare sub-rounded chert and chalcedony (0.1–0.4mm).

Rare sub-rounded metamorphic rock fragments (0.1–0.2mm).



**Matrix:** moderate inclusions of angular quartz and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 79**

In hand specimen: Munsell 5YR 7/4 pink. Moderate fine to medium moderately well round inclusions. Moderate fine angular quartz, moderate fine round red/orange grains, and moderate round black dull grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: rare meso-vesicles parallel to vessel body.

## **Inclusions**

**C:F:V** 10/85/5

Grain size range 0.1–0.7mm, mode grain size 0.15mm. Few moderately well sorted angular, open-spaced, inclusions with no preferential orientation.

Dominant sandine feldspar (0.1–0.5mm).

Frequent sub-angular quartz (0.1–0.15mm).

Frequent sub-rounded chert (0.1–0.3mm).

Few plagioclase feldspar (0.1–0.5mm).

Rare muscovite mica (0.1mm).

Very rare clinopyroxene (0.1–0.15mm).

Very rare sub-rounded trachyte rock fragments (0.7mm).

**Matrix:** clean with a few inclusions of quartz and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 80**

In hand specimen: Munsell 5YR 6/6 reddish yellow. Moderate fine to medium inclusions. Moderate fine angular white limestone, moderate fine sub-rounded quartz and rare sub-rounded red grains.

Not thin-sectioned

**Origin:** Hand specimen suggests an origin in Western Italy.

## Fabric 81

In hand specimen: Munsell 7.5YR 7/4 pink. Frequent inclusions, moderately well sorted. Moderate fine angular quartz, and black-sand. Common fine white grains (calcite?) and rare coarse red/brown grog.

In thin-section: groundmass brown in both PPL and XP. Groundmass inactive.

Pores: few meso to macro-channels and few meso-vughs and vesicles, parallel to vessel body.

## Inclusions

C:F:V 10/80/10

Grain size range 0.1–0.6mm, mode grain size 0.3mm. Few angular to sub-angular moderately well sorted inclusions with no preferential orientation.

Frequent sanidine feldspar (0.1–0.6mm).

Frequent to few rounded calcite (0.1–0.5mm).

Few sub-angular quartz (0.3–0.5mm).

Few sub-rounded chert (0.1–0.2mm).

Very few clinopyroxene (0.4–0.6mm).

Very few plagioclase feldspar (0.1–0.6mm).

Rare metamorphic rock fragments (0.1–0.2mm).

Rare microcline feldspar (0.1–0.6mm).

Very rare round magnetite (0.05–0.1mm).

Matrix: frequent inclusions of biotite mica and feldspar.

**Origin:** Thin-section suggests an origin in Western Italy.



## Fabric 82

In hand specimen: Munsell 5YR 6/4 light reddish brown. Common fine and medium sized inclusions, well sorted. Common fine white angular calcite and angular quartz, frequent black-sand and rare medium rounded rock fragments.

In thin-section: groundmass orange-brown in PPL to brown in XP. Groundmass is inactive.

Pores: rare meso-channels parallel to vessel body.

### Inclusions

C:F:V 10/89/1

Grain size range 0.1–0.5mm, mode grain size 0.15mm. Moderate angular, double-spaced, well sorted inclusions orientated parallel to vessel body.

Dominant sanidine feldspar (0.15–0.25mm).

Frequent sub-rounded and angular calcite (0.1–0.3mm).

Very few sub-rounded quartz (0.2–0.5mm).

Rare plagioclase feldspar (0.15–0.25mm).

Rare clinopyroxene (0.1–0.2mm).

Very rare igneous (basalt?) sub-rounded rock fragments (0.1–0.3mm).

Matrix: few inclusions of angular quartz, calcite and much biotite mica (biotite rich matrix).

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 83

In hand specimen: Munsell 2.5YR 6/6 red. Very common well sorted inclusions. Common fine angular white grains (calcite) and fine angular quartz. Rare yellow reaction rims. Few black-sand grains and rare medium round yellow grains.

In thin-section: groundmass red-brown in both PPL and XP. Groundmass is inactive.

Pores: frequent meso-vughs some with calcite reaction rims parallel to vessel body.

## **Inclusions**

**C:F:V 25/65/15**

Grain size range 0.1–0.35mm, mode grain size 0.1mm. Very common very well sorted angular grains, single-spaced, orientated parallel to vessel body.

Dominant angular quartz (0.1–0.35mm).

Frequent sub-rounded calcite and reaction-rims (0.1–0.2mm).

Few sanidine feldspar (0.1–0.2mm).

Very few clinopyroxene (0.1–0.15mm).

Very few round chert and chalcedony (0.1–0.15mm).

Very rare orthopyroxene (0.1mm).

Very rare microcline feldspar (0.15mm).

**Matrix:** Clean with sub-rounded magnetite, angular quartz and calcite.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 84**

In hand specimen: Munsell 5YR 6/8 reddish yellow. Common poorly sorted inclusions. Common fine quartz, moderate fine white grains. Rare medium rock fragments.

In thin-section: groundmass brown-orange in PPL and XP. Groundmass is inactive.

Pores: very few meso-vughs, few meso-vesicles, parallel to vessel body.

## **Inclusions**

**C:F:V 15/80/5**

Grain size range 0.1–0.7mm, mode grain size 0.15mm.

Frequent, double-spaced, well sorted angular inclusions, no preferential orientation.

Dominant sub-angular to angular quartz (0.1–0.2mm).

Frequent sanidine feldspar (0.1–0.2mm).



Very few to rare metamorphic rock fragments (0.1–0.2mm). Rare sub-rounded chert (0.1–0.2mm).

Rare orthopyroxene (0.1–0.2mm).

Rare clinopyroxene (0.15mm).

Rare microcline feldspar (0.1–0.2mm).

Rare plagioclase (0.1–0.2mm).

Very rare sub-rounded basalt rock fragments (0.1–0.7mm).

Very rare garnet (0.1mm).

Matrix: frequent biotite mica, also angular quartz and round magnetite.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 85

In hand specimen: Munsell 2.5YR 6/6 red. Common angular fine to medium inclusions. Moderate fine to medium angular quartz, and moderate fine angular white grains. Moderate fine and medium round red grains and rare medium sub-rounded rock fragments. Moderate fine angular black-sand.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vesicles and rarer meso-vughs and rare macro-channels all parallel to vessel body.

## Inclusions

C:F:V 10/75/15

Grain size range 0.1–1.3mm, mode grain size 0.15mm. Few to moderate angular, open-spaced, moderately sorted inclusions orientated parallel to vessel body.

Dominant round calcite grains and reaction-rims (0.1–0.2mm).

Frequent sandine feldspar (0.1–0.4mm).

Rare plagioclase feldspar (0.1–0.4mm).

Rare angular quartz (0.2–0.3mm).

Rare sub-rounded metamorphic rock fragments (0.1–0.2mm).

Rare clinopyroxene (0.1–0.2mm).

Very rare sub-rounded igneous rock fragments (1.3mm).

Very rare microcline (0.15mm).

Very rare round magnetite (0.1mm).

Very rare garnet or glass (0.1mm).

Matrix: moderate inclusions of calcite, biotite mica, round magnetite and plagioclase feldspar.

**Origin:** Thin-section suggests an origin in Western Italy (possibly Latium/Campania).

## Fabric 86

In hand specimen: Munsell 2.5YR 6/6 red. Common angular fine well sorted inclusions. Moderate fine angular black-sand, moderate fine white angular quartz, rare fine angular yellow grains and moderate fine round grog.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few meso-vughs.

## Inclusions

C:F:V 15/8/5

Grain size range 0.1–0.2, mode grain size 0.1mm.

Frequent angular, single-spaced, very well sorted inclusions with no preferential orientation.

Dominant angular and sub-angular quartz (0.1–0.2mm).

Very few plagioclase feldspar (0.1–0.15mm).

Few clinopyroxene (0.1–0.15mm).

Few biotite mica (0.1mm).

Few sub-angular chert and chalcedony (0.1–0.15mm).

Rare sanidine feldspar (0.1–0.15mm).



**Matrix:** very few inclusions of angular quartz and biotite mica.

**Origin:** Thin-section suggests an origin in Western Italy.

## **Fabric 87**

In hand specimen: Munsell 2.5YR 6/6 red. Moderate fine to medium inclusions. Moderate fine calcite and rarer medium calcite grains and common sub-rounded to angular quartz.

In thin-section: groundmass orange-brown in PPL to brown-orange in XP. Groundmass is inactive.

Pores: very few meso vesicles.

## **Inclusions**

**C:F:V** 10/85/5

Grain size range 0.1–0.9mm, mode grain size 0.1mm. Moderate angular, single-spaced, poorly sorted with no preferential orientation.

Dominant angular quartz (0.1–0.4mm).

Few round to angular calcite grains and rare sub-angular calcite rock fragments (0.1–0.9mm).

Few sanidine feldspar (0.1–0.2mm).

Few sub-rounded chert grains (0.1–0.2mm).

Rare microcline feldspar (0.1–0.2mm).

Very rare hornblende (0.1mm).

Very rare clinopyroxene (0.1–0.2mm).

Very rare round magnetite (0.1mm).

**Matrix:** Clean, biotite rich, with few grains of calcite, magnetite and angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 88

In hand specimen: Munsell 5YR 7/6 reddish yellow. Moderate medium sized inclusions, common medium angular calcite, moderate black-sand, some quartz and rare gold mica.

In thin-section: groundmass brown orange to red in PPL to brown/red in XP. Groundmass is inactive.

Pores: few meso-vughs, mega and macro-channels parallel to vessel body.

### Inclusions

C:F:V 10/85/5

Grain size range 0.1–0.6mm, mode grain size 0.2mm. Few inclusions, double-spaced, angular, moderately well sorted with no preferential orientation.

Dominant sanidine feldspar (0.1–0.6mm).

Frequent angular to sub-rounded calcite grains and rare shells (0.1–0.4mm).

Few rounded and sub-rounded quartz (0.3–0.5mm).

Very few chert (0.1–0.3mm).

Rare clinopyroxene (0.1–0.3mm).

Very rare microcline feldspar (0.3mm).

Very rare orthopyroxene (0.4mm).

Matrix: contains frequent calcite, feldspar and is biotite rich.

**Origin:** Hand specimen and thin-section indicates possibly from Campania.

## Fabric 89

In hand specimen: Munsell 2.5YR 6/6 red. Frequent poorly sorted inclusions, sandy fabric dominated by quartz. Frequent medium white angular grains (feldspar). Moderate fine black-sand and rare round medium yellow grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent meso-vughs parallel to vessel body.



## Inclusions

C:F:V 20/60/20

Grain size range 0.1–0.5mm, mode grain size 0.2mm. Inclusions very common angular, single-spaced and moderately well sorted, with no preferential orientation.

Dominant angular quartz (0.15–0.5mm).

Frequent sanidine feldspar (0.1–0.5mm).

Few sub-rounded chert and chalcedony (0.1–0.2mm).

Very few sub-rounded metamorphic rock fragments (0.1–0.3mm).

Few to rare clinopyroxene (0.1–0.2mm).

Rare yellow garnet (0.05–0.1mm).

Rare microcline feldspar (0.1–0.5mm).

Matrix: clean with some angular quartz and metamorphic rock fragments.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 90

In hand specimen: Munsell 2.5YR 6/6 red. Common poorly sorted inclusions. Common coarse-medium and fine quartz, frequent fine white grains (feldspar) and coarse red grains.

In hand specimen: groundmass pale brown in PPL to brown in XP. Groundmass is inactive.

Pores: frequent mega-channels and meso-vughs, parallel to vessel body.

## Inclusions

C:F:V 15/60/25

Grain size range 0.05–0.8mm, mode grain size 0.15mm. Frequent, double-spaced, poorly sorted and polymodal angular grains, orientated parallel to vessel body.

Dominant sub-angular to angular quartz (0.05–0.8mm).

Frequent biotite mica (0.05–0.2mm).

Very few plagioclase feldspar (0.1–0.15mm).

Rare sanidine feldspar (0.1–0.15mm).

Rare muscovite mica (0.4mm).

Very rare orthopyroxene (0.1–0.2mm).

Very rare sub-rounded magnetite (0.05–0.1mm).

Matrix: frequent inclusions of biotite and muscovite mica and angular quartz.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 91

In hand specimen: Munsell 2.5YR 6/6 red. Common angular fine and rare medium inclusions. Moderate angular quartz, moderate fine angular white grains and moderate fine to medium red/grown dull grains. Moderate fine angular black-sand, rare fine sub-rounded yellow grains and rare sub-rounded rock fragments.

In thin-section: groundmass orange-brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: few micro-vesicles and few meso-vughs with no preferential orientation.

## Inclusions

C:F:V 15/75/10

Grain size range 0.1–0.4mm, mode grain size 0.15mm. Frequent sub-angular, single-spaced, well sorted inclusions with no preferential orientation.

Dominant sub-angular quartz (0.1–0.25mm).

Frequent sandine (0.1–0.2mm).

Frequent to few clinopyroxene (0.1–0.4mm).

Very few to rare round magnetite (0.05–0.1).

Rare round and sub-angular calcite (0.1–0.15mm).

Rare microcline feldspar (0.1–0.2mm).

Very rare hornblende (0.1mm).

Matrix: very few inclusions of quartz, clinopyroxene and sanidine feldspar.



**Origin:** Hand specimen and thin-section possibly indicate from Falerne (Campania).

## **Fabric 92**

In hand specimen: Munsell 5YR 6/8 reddish yellow. Common fine to coarse poorly sorted inclusions. Moderate medium to coarse round black dull grains (grog) and moderate medium-coarse round rock fragments. Moderate fine angular white grains and fine angular quartz. Moderate fine angular yellow grains and moderate medium round orange grains (clay nodules?).

In thin-section: groundmass orange to red brown in PPL and XP. Groundmass is inactive.

Pores: few meso-vughs.

## **Inclusions**

**C:F:V 15/80/5**

Grain size range 0.1–0.6mm, mode grain size 0.15mm. Moderate angular, double-spaced, well sorted inclusions with no preferential orientation.

Dominant sandine feldspar (0.1–0.2mm).

Very frequent angular quartz (0.1–0.6mm).

Rare clinopyroxene (0.1–0.2mm).

Rare sub-angular chert and chalcedony (0.1–0.2mm).

Very rare hornblende (0.05–0.1mm).

Very rare biotite mica (0.1mm).

Very rare sub-rounded trachyte rock fragments (0.1–0.2mm).

Matrix: frequent inclusions of biotite mica, quartz and round magnetite.

**Origin:** Thin-section similar to description of fabric from Fondi, Latium by Thierrin-Michael (1992).

## Fabric 93

In hand specimen: Munsell 5YR 6/4 light reddish brown. This has a soapy feel with a powdery surface. Common medium sized inclusions, with frequent black-sand and moderate quartz and calcite. Moderate round fine dull red grains and sparse round medium yellow grains.

In thin-section: groundmass pale orange in PPL to orange-brown in XP. Groundmass is inactive.

Pores: rare micro-vughs

### Inclusions

C:F:V 25/72/3

Grain size range 0.1–0.4mm, mode grain size is 0.1mm.

Very Common angular inclusions, close-spaced, bimodal grain size but moderately well sorted with no preferential orientation.

Frequent sub-angular basalt rock fragments (0.1–0.4mm).

Frequent sub-angular calcite grains (including shells and shell parts) (0.1–0.4mm).

Frequent to few sanidine feldspar (0.1–0.4mm).

Few sub-angular and angular quartz (0.1mm).

Few clinopyroxene (0.3–0.4mm).

Few angular chert (0.1–0.15mm).

Very few plagioclase feldspar (0.1–0.4mm).

Rare round magnetite (0.1mm).

Matrix: frequent inclusions including biotite mica, some angular quartz and plagioclase.

Origin: Thin-section suggests an origin in Western Italy (probably Latium/Campania).



## Fabric 94

In hand specimen: Munsell 5YR 6/6 reddish yellow. Fabric has a rough feel and is very sandy. Common fine to medium poorly sorted inclusions. Common fine angular quartz, moderate fine white dull grains. Rare medium round black dull grains and rare coarse round white gains.

In thin-section: groundmass pale brown in PPL to red in XP. Groundmass is inactive.

Pores: few macro-channels, rare meso-vughs parallel to vessel body.

Inclusions

C:F:V 20/70/10

Grain size range 0.1–1mm, mode grain size 0.15mm. Very frequent angular to sub-angular, single-spaced, polymodal, poorly sorted inclusions with no preferential orientation.

Dominant sub-rounded calcite (0.1–1mm), also sub-angular calcite rock fragments (0.3–0.4mm).

Frequent angular quartz (0.4–0.5mm).

Few basalt rock fragments (0.2–0.3mm).

Very few sub-rounded metamorphic rock fragments (0.2–0.3mm).

Very few sub-rounded chert (0.1–0.2mm).

Rare clinopyroxene (0.1–0.15mm).

Very rare hornblende (0.4mm).

Very rare yellow garnet (0.1mm).

Matrix: frequent angular quartz, calcite, some angular volcanic glass and rare sub-rounded magnetite.

**Origin:** Thin-section suggests an origin in Western Italy.

## Fabric 95

In hand specimen: Munsell 5YR 6/6 reddish yellow. Common poorly sorted fabric with a rough sandy feel. Common sub-rounded quartz and moderate medium white grains (calcite). Moderate round red medium to coarse grains.

In thin-section: orange-brown in both PPL and XP. Groundmass is inactive.

Pores: very few meso-channels and meso-vughs parallel to body.

### Inclusions

C:F:V 15/75/10

Grain size range 0.1–0.6mm, mode grain size 0.15mm. Frequent angular, single-spaced, well sorted inclusions orientated parallel to vessel body.

Dominant by angular to sub-angular quartz (0.1–0.2mm).

Very frequent round calcite grains (0.1–0.6mm).

Few plagioclase feldspar (0.1–0.3mm).

Few sanidine feldspar (0.1–0.3mm).

Very few chert (0.1–0.15mm).

Rare microcline (0.1–0.3mm).

Rare biotite mica (0.1–0.15mm).

Very rare muscovite mica (0.1–0.15).

Very rare sub-rounded basalt fragments (0.4mm).

Matrix: clean with very few inclusions of calcite, angular quartz, and biotite mica rich.

Origin: Thin-section suggests an origin in Western Italy.

### Fabric 96

In hand specimen: Munsell 5YR 6/6 reddish yellow. Common inclusions of fine sub-rounded white grains (calcite, feldspars) and sub-rounded quartz. Sparse coarse white calcite grains. Moderate round black grains.

In thin-section: groundmass brown in PPL to red-brown in XP. Groundmass is inactive.

Pores: frequent micro and meso-vesicles and few meso-vughs parallel to vessel body.



## Inclusions

C:F:V 10/75/15

Grain size range 0.1–0.3mm, mode grain size 0.15mm. Well sorted, double-spaced angular inclusions with no preferential orientation.

Dominant sub-angular quartz (0.1–0.3mm).

Frequent sanidine and plagioclase feldspar (0.1–0.2mm).

Few microcline feldspar (0.1–0.2mm).

Few clinopyroxene (0.1–0.2mm).

Few round magnetite (0.05mm).

Few sub-angular chert (0.1–0.2mm).

Very few round calcite grains and reaction rims (0.05–0.1mm).

Rare sub-rounded metamorphic rock fragments (0.1–0.2mm).

Very rare garnet (0.1mm).

Very rare biotite mica (0.1mm).

Matrix: frequent inclusions of angular quartz and clinopyroxene.

**Origin:** Hand specimen resembles samples from Mondragone (Campania). Thin-section resembles description of Mondragone fabric by Thierrin-Michael (1992).

## 9.5 Analysis

### 9.5.1 Fabric groups for the chronological samples

For the Auvergne 96 fabric groups have been created for the 408 rim sherds studied. Only 31 fabrics can be assigned to specific regions of production and/or individual kilns, however these account for 75% of the amphorae (Fig. 174). There are examples of amphorae from the following kilns: Albinia, Astura, Carinola, Canneto, Cosa, Dugenta, Falerne, Fondi, Garigliano-*Minturnae*, *Minturnae*, Mondragone, Pompeii/false Pompeii and Sinuessa. None of the Republican amphorae were found to be from northern Etruria, which tend to contain serpentinite, such as amphorae from the Rosignano kiln (Thierrin-Michael 1992). Amphorae from the Cales (*ager Falernus*), which contains volcanic glass fragments, and the La Parrina (southern Etruria) kilns are also absent, so to were sherds in Peacock's granitic fabric from Reggio/Calabria (Peacock 1971:165).

The majority of the identified fabrics (no.27) are from Etruria, Latium or Campania and there are only four non-Western Italian fabrics: two from Calabria and two from the Adriatic coast. The remaining 65 fabrics that can not be assigned to either kilns or specific regions of production are all from Western Italy (Etruria/Latium/Campania). Most of the fabric groups are represented by one or two vessels, suggesting that the amphorae were supplied from a wide range of sources from western Italy (Tables 93–95). All the samples have been split into three chronological groups: LTC-D1 (Aigueperse, A710–2628, La Grande Borne Aulnat/Chantier 4 and Le Pâtural), LTD1/2 (Corent, Le Bay and Pont de Longues) and LTD2-Augustan samples (Gondole, A710–2828, 5516 and 5903) (Tables 94–95).

For the LTC2-D1 period (Fig. 175) fabric group 8 from the Latium region is most frequent with 21 examples (13.6%) (Tables 94–95). Fabric 71 also from Latium (*Minturnae*?) is also frequent with 15 examples (9.7%) and there six rims (3.9%) in the Astura fabric (Latium). The Etrurian kilns of Albinia and Cosa are common with 12 (7.8%) and seven (4.5%) examples respectively. Amphorae from the Mondragone



area of Campania are also frequent: Sinuessa with five examples (3.2%), Sinuessa stamped L.M with six (3.9%) and two rims (1.3%) in fabric 34 (Mondragone Peacock's kiln). The different Mondragone fabrics account for 27 or 17.5% of the amphorae in the LTC2-D1 sample. Amphorae in the Pompeii/false Pompeii fabric are represented by seven examples (4.5%) and there are eight rims (5.2%) in a possible southern Italian or Sicilian fabric. To summarise for the LTC2-D1 period amphorae from the three main regions (Etruria, Latium and Campania) dominate with a slight preference towards sources from Latium and Campania.

For the LTD1/2 samples (Fig. 175), the two most frequent fabric groups are Albinia and Cosa, which account for 15.2% and 14.6% of the amphorae respectively (Table 95). Latium sources are still frequent with fabric 71 (*Minturnae?*) being represented by 20 examples (10.1%) and Canneto with seven examples (3.5%). There are several fabrics from the *ager Falernus* including eight rims (4%) in the Carinola fabric. This is significant as it suggests that some of the inland *ager Falernus* kilns were manufacturing Dressel 1A and 1B amphorae *contra* Arthur (1991b, 1995). The Pompeii/false Pompeii fabric is represented by nine examples (4.5%). Again, there are vessels in several of the different Mondragone fabrics including four rims in the Sinuessa fabric (2.5%) and six rims (3%) in fabric 14. There are several rims in Adriatic fabrics (fabrics nos. 20–21) at both Corent and Le Bay and there is one rim (0.5%) in a Calabrian fabric. The LTD1/2 sample shows a slightly greater dominance to Etrurian sources. Mondragone sources are still frequent and there is the first appearance of amphorae from the *ager Falernus* but Latium sources are slightly less frequent.

For LTD2-Augustan sample (Fig. 175) amphorae from the Etrurian kilns of Albinia and Cosa are most frequent with 11 (20%) and six (10.9%) examples respectively (Tables 94–95). Fabric 71 (*Minturnae?*) from the Latium region is again frequent with five (9.1) examples and fabric 15 (Fondi) has six examples (10.9%). Amphorae from the Mondragone region of Campania are also frequent: fabric 11 (5.5%), 14 (7.3%) and 17 (3.6%). One Dressel 1B rim from the A710–2828 cremation was from

Calabrian (fabric 16). There are no rims in the Pompeii/false Pompeii (fabric 4) and Astura fabrics (fabric 9).

For all the sites, amphorae from southern Etrurian (Albinia and Cosa) dominate with 12.5% and 10.5% of the amphorae (Table 93), however northern Etrurian fabrics such as Rosignano are absent and there are no amphorae in the La Parrina (southern Etruria). The Astura fabric and fabric 8 (from the Latium region) is confined to the earlier LTC2-D1 and LTD1/2 samples (Tables 94–95). Republican amphorae from the Canneto kiln (fabric 76) are only found in the LTD1/D2 sample (Tables 94–95). The Pompeii/false Pompeii amphorae are represented by a few examples in the LTC2-D1 and LTD1/2 samples (4.5% of the vessels for both samples), but is absent from the LTD2-Augustan samples. There is no evidence that the Pompeii region was a more important supplier of amphorae during the earlier periods (Tables 94–95). The different Mondragone fabrics are found in moderate numbers (between 2–4%) in the three chronological samples.

Fig. 176 shows the importance of amphorae from the main regions of Etruria, Latium, Campania, Calabria and the Adriatic. The proportion of amphorae from Etruria increases with time from 12.3% in LTC2-D1, to 31% by LTD2-Augustan. Amphorae from Latium sources are most frequent in the LTC2-D1 sample, they are less important in the LTD1/2 (16.7%) and LTD2-Augustan samples (21.8%). Campanian amphorae show broadly similar percentages in the three samples (27–30%). Apart from the increase in importance of Etrurian amphorae, there are few other trends and the three main regions of Etruria, Latium and Campania were all important contributors of amphorae to the Auvergne throughout the second to first centuries BC. Amphorae in Adriatic fabrics are absent from the second century BC samples and at Gondole, and are only found in small numbers at Corent and Le Bay. The more frequent examples of Lamboglia 2 amphorae at Gergovie suggests that these vessels were generally imported during the second half of the first century BC.



### 9.5.2 Number of fabric groups per assemblage

The average number of vessels per fabric group range from 2.8 for LTC2-D1, 3.6 for LTD1/2 and 3.2 for LTD2-Augustan. This may indicate that a greater number of sources supplied amphorae in the second century BC than in the first century BC, but the evidence is hardly conclusive. Looking at the same figures for the individual sites, the evidence is contradictory. The LTC2-D1 samples of Aigueperse and La Grande Borne Aulnat/Chantier 4 have low values (both 1.3), but Le Pâtural has a higher value of 2.6 (Table 96). Although Corent and Gondole have higher figures (3.5 and 2.9 respectively), Le Bay has a lower figure of 2.4 (Table 96). It is difficult to provide similar figures for other sites in Western Europe as they have used chemical analysis or conducted only limited fabric analysis. Hénon's (1995) study of the Aisne valley found a decreasing number of amphorae fabrics with time, but as she created very few overall fabric groups, her data are not compatible with the Auvergne.

There is little clear evidence to suggest that second century BC sites received their amphorae from greatly different sources, than the first century BC sites. For Aigueperse, La Grande Borne Aulnat/Chantier 4, Le Pâtural, Corent, Le Bay and Gondole these sites all contained a high percentage of the same fabrics (Tables 97a-b). For Gondole 57% of the fabric groups at the site are also found at Le Pâtural and 36% at La Grande Borne Aulnat/Chantier 4. At La Grande Borne Aulnat/Chantier 4 55% of the fabric groups at this site are found at the later site of Corent and 45% at Gondole. Although a lower percentage of the fabric groups found at Corent are found in the LTC2-D1 assemblages at (12–15%), only 22% of the fabric groups are found at the nearby contemporary site of Le Bay and 20% at the later site of Gondole.

Taking into account the frequency of amphorae for the different fabrics this shows the same pattern as the previous analysis (Table 97c). For Gondole a high percentage of vessels are found in the same fabrics as the second century BC sites. Over 50% of the vessels at Gondole are in fabrics found at La Grande Borne Aulnat/Chantier 4, the figure for Le Pâtural is 71% and Corent 78%. At La Pâtural 35% of the vessels are in

fabrics found at Corent and 30% at Gondole. 81% of the vessels from Corent are in fabrics also found at both La Grande Borne Aulnat/Chantier 4 and Le Pâtural.

There are no consistent trends with time for the percentage of the fabric groups found in the other chronological groups. For the LTC2-D1 sample there is a slight decrease in the number of fabrics found in the later LTD1/2 (16%) and LTD2 (9%) assemblages. However, 16% of the LTD1/2 fabrics are found in the earlier LTC2-D1 and the later LTD2-Augustan samples. For the LTD2 sample a high percentage of the fabrics are also found in the LTC2-D1 sample (36%).

The Republican amphorae fabrics at the different sites studied from the Auvergne although not identical are relatively homogeneous. Aigueperse although 30km away from the other second century BC sites on the Grande Limagne contains many of the same fabrics found at the Clermont-Ferrand sites. Similarly second century BC sites contain many of the fabrics found at early first century and late first century BC sites. Amphorae in the Albinia and Cosan fabrics are found at most of the late La Tène sites in the region. This mix of amphorae fabrics suggests two features about the amphorae trade. The amphorae reaching the Auvergne may have already been mixed (presumably the majority of amphorae cargoes were from mixed sources) and/or amphorae were extensively redistributed and exchanged. The presence of small numbers of amphorae from a wide range of fabrics suggests that sites obtained small numbers of amphorae when they needed them. There is no evidence that the *oppida* received their amphorae from different sources, or by different mechanisms than the second century BC rural settlements.

It is noteworthy that Etruria, one of the main suppliers of amphorae and wine to the Auvergne, was an area that is not mentioned by classical writers as producing great/famous Republican wines. The majority of wine exported to Gaul was poor quality *vin ordinaire* and this is confirmed by the thick resin deposits in Republican amphorae from waterlogged deposits in the Auvergne. The presence of amphorae from the Fondi, and Falerne, regions suggests that higher quality wines were also exported to Gaul.



## 9.6 Amphorae fabrics represented in the different Republican amphorae types

### 9.6.1 Greco-Italic

Greco-Italic amphorae (defined as those rims in rim class 1) are found in 27 fabrics; most of which only contain one or two vessels (Table 98). Fabric 8 from Latium with 10 examples representing 21% of the Greco-Italic rims is the most frequent fabric and there are three vessels in fabric 71 also from the Latium (*Minturnae?*) area and two in the Astura fabric (4%). There are two Greco-Italic rims in the Cosan fabric (4%) but none in the Albinia fabric. Although there are no examples of Greco-Italic amphorae in the Pompeii/false Pompeii fabric, there are several examples from other Campanian sources: Dugenta, (2%) Mondragone kiln 40 (2%), fabric 17 Sinuessa (6%) and fabric 50 Sinuessa stamped L.M (2%). Three rims (6%) are found in fabric 39, which is possibly a Campanian, or a Sicilian fabric. Greco-Italic amphorae are found in all of the three main regions, but there is a bias towards Latium and Campanian (especially Mondragone sources).

### 9.6.2 Classic Dressel 1B rims

Table 99a shows the fabrics of classic Dressel 1B rims (those with a rim height greater than 55mm) in the Auvergne and Dressel 1B rims are found in 17 different fabrics considerably less than for the Greco-Italic. There is a clear preponderance towards the Albinia fabric representing 24% of the rims (10 examples) and there are three (7%) rims in the Cosan fabric; Etrurian sources account for 30% of the classic Dressel 1B rims. Fabrics 2, 11, and 14 from Mondragone account for 27% of the classic Dressel 1B rims, a further two fabrics from Sinuessa represent a further 12% of the classic Dressel 1B rims. Classic Dressel 1B rims are also found in fabric 71 (Latium *Minturnae?*), fabric 15 from Fondi, there is a Dressel 1B rim in fabric 33 (Calabria) and one in the Pompeii/false Pompeii fabric.

### 9.6.3 Dressel 1C

For the Dressel 1C rims, examples are found in Etrurian, Latium and Campanian fabrics (Table 99b). However, there is a bias towards Albinia and Cosa (three examples each or 14%) and several Dressel 1C amphorae are found in the Astura (5%) and Carinola Falerne (10%) fabrics. Interestingly none of the Dressel 1Cs are found in the Pompeii/false Pompeii fabric, although there was a Dressel 1C handle from Corent in this fabric. Two rims were found in fabric 71 from the Latium (*Minturnae?*) region and a rim was also found in the Campanian fabric 13. The Auvergne shows a bias towards Etrurian and Campanian Dressel 1C amphorae, and clearly differs from sites in Lyon (Maza *pers. comm.*; Goudineau and Mandy 1989) and Bibracte (Olmer 1997:165) that show a predominance of Dressel 1Cs in the Pompeii/false Pompeii fabric.

### 9.6.4 Rim morphology for individual fabric groups

For fabrics: 3 (Carinola Falerne), 4 (Pompeii/false Pompeii), 5 (Astura), 17 (Sinuesssa), 50 (Sinuesssa stamped L.M) and 76 (Canneto), the rim morphology of amphorae in these groups has been compared (Tables 100a-f). Do these individual fabric groups contain amphorae with similar rim shapes or do they instead contain a range of different rim forms?

Republican amphorae rims in the Pompeii/false Pompeii fabric show a great range of different rim shapes. Rim height ranges from a minimum of 31mm to a maximum of 67mm, while the angle of inclination ranges from 76–92°. Rims are found in Guichard's rim classes 1 or 2, 2, 2 or 3 and 3 (Table 100b), although there is a bias towards rims in class 2 (and therefore Dressel 1As). This fabric group includes examples of Dressel 1A, transitional Dressel 1A/B, early Dressel 1B and classic Dressel 1B rims; only Greco-Italic rims are lacking. Fabric 17 (Sinuesssa) shows a similar range of rim forms (Table 100d) with rim height ranging from 22–65mm and inclination 37–99°. The rim class data (Table 100d) shows examples of Greco-Italic, Dressel 1A, transitional Dressel 1A/B and classic Dressel 1B rims. Similarly fabric



50 (Sinuessa stamped L.M) also contains examples of Greco-Italic, Dressel 1A, transitional Dressel 1A/B and Dressel 1B rims (Table 100e).

Rims found in fabric 3 (Carinola Falerne) show less morphological variation and contain Dressel 1A and transitional Dressel 1A/B rims (Table 100a). Rims in the Astura fabric (fabric 9) show a bias towards Greco-Italic (29%) and Dressel 1A rims (57%) (Table 100c). Rims in the Canneto fabric tend to be of the Dressel 1A (Table 100f).

Although some fabric groups are associated with distinct rim types, many of the fabrics show a great range of different rim types covering the entire range from the Greco-Italic to the Dressel 1B.

## 9.7 Fabrics of stamped amphorae sherds in the Auvergne

The fabrics of all the available Republican stamped sherds (n=45) from the Auvergne were analysed (Table 101); it was not possible to examine the stamped Republican amphorae sherds from Gergovie nor Le Brézet 51 rue Jules Verne. Further details on the Republican amphorae stamps from the Auvergne can be found in Appendix 3. The vast majority of the stamps are in the Albinia fabric, with a smaller number in the Cosan fabric; these two fabrics account for 67% of all the stamps. Amphorae stamps in other known fabrics are rare with the stamp LEXA in the Canneto fabric and several stamps from the Latium region including the stamps AN, CIG and PROT at Corent. The stamps LEXA in the Canneto fabric is similar to the stamp ALEXSAND found on amphorae in the Madrague de Giens shipwreck which contained a cargo of Dressel 1B amphorae from the kilns of Canneto and Torre San Anastasia (Tchernia *et al.* 1978; Hesnard and Lemoine 1981). The base stamp D from Corent is in a possible Etrurian fabric.

The majority of the double-letter stamps on the shoulder/base of the handle are in the Albinia fabric, which has been suggested by several researchers (see chapter 12). The three double-letter stamps on the shoulder/base of the handle not in the Albinia fabric

differ from the typical Etrurian double-letter stamps, in that the lettering is cruder and coarser. An example from Le Brézet Iveco (in a possible Latium fabric) is on a very rounded shoulder that belongs to a Greco-Italic vessel. It is possible that there was an early phase of double-letter stamps placed on the shoulder/base of the handle of amphorae from Latium and Campania.

The SES PALM BRANCH and SES five-pointed STAR from Gondole and Corent respectively are both in the Cosan fabric (Table 101). However, the SES ANCHOR stamp from Corent is in the Albinia fabric. Several of the double letter stamps placed on the shoulder/base of the handle are also in the Cosan fabric (EH, MB both found at Corent). It has also been suggested that many symbol stamps also indicate amphorae from the *ager Cosanus* region (chapter 12) and the TRIDENT stamp from Corent is in the Cosan fabric. However, the Couronne stamp from the A710 is in the Albinia fabric, but the two other symbol stamps (MINERVA from La Grande Borne Aulnat/Chantiers 1–3 and half-MOON at Corent) are not in Etrurian fabrics. The stamps ARME and RALF (found at Corent) are both in the Albinia fabric; the former has been found at the Albinia kiln and the latter has been reported from several sites in France (chapter 12). A third name stamp MNDEV, from Gergovie, is also in the Albinia fabric. The double-letter rim stamp KO (A710 5903) is also in the Albinia fabric. Clearly the majority of Republican amphorae stamps found in the Auvergne came from the Albinia kiln and this includes double letter stamps, names and symbols.

## 9.8 Fabrics of stamped amphorae from Roanne and Tournus

A sample of stamped amphorae sherds from Nyons, Roanne, Toulon, Tournus Sept-Fontaines and Verdun-sur-le-Doubs was also examined by the author, but not thin-sectioned (Table 102). A SES ANCHOR stamp from Toulon and a SES CADUCE stamp from Roanne were both in the Albinia fabric (Table 102), while a Sestius stamp from Nyons was in the Cosan fabric. Several symbol stamps from Roanne (CADUCE, CANDLE, COURONNE and TRIDENT) are all in the Cosan fabric. One double letter stamp on the shoulder/base of the handle is in the Albinia fabric (EH



Tournus Sept-Fontaines), in contrast a second such stamp was in a possible Falerne fabric (SE Roanne). Two triple letter-stamps on the rim (F.E.D, KGP) were both in the Albinia fabric. There were several stamps in Mondragone fabrics including C.SEX, LVCA.LIB and Q.BET.H (Table 102). Several of the stamps at Roanne were in Latium fabrics (from *Minturnae*?) including ARTEMO, NVN and SABINA. The rim stamp P at Tournus Sept-Fontaines was in a Pompeii/false Pompeii fabric.

The fabrics of the stamped Republican amphorae sherds from the Auvergne and from the rest of France show a bias towards the Etrurian kilns of Albinia and Cosa. And this includes examples of symbol, double letter and name stamps. A smaller group of stamps, mainly of abbreviated names, are found in Mondragone fabrics.

## Chapter 10 Mediterranean goods in France during the Hallstatt and early La Tène periods, and the Republican amphorae trade to Western Europe

To understand the Republican amphorae found in the Auvergne, a short review is required about the importation of amphorae and other Mediterranean goods to Gaul during the earlier Iron age. The second half of this chapter then reviews the later Republican amphorae trade to Western Europe.

### 10.1 Earliest Mediterranean imports

Before the late La Tène period, there were two phases of importation of Mediterranean goods into France; the late Hallstatt and early La Tène periods. From c.600 BC, Etruscan wine amphorae, pottery (mostly for the serving and drinking of wine), and bronze drinking vessels were imported into Languedoc and Provence. There are also smaller numbers of Phoenico-Punic amphorae from north Africa, Sardinia, Sicily and Spain (Dietler 1997:277–279, 289–291). By 550 BC Massalia was producing its own amphorae and finewares and exporting them to its immediate hinterland (Bats 1990a, 1993; Dietler 1997:283–284).

During the sixth to the fifth centuries BC the distribution of Massaliote amphorae was concentrated in Aude-Garonne, Languedoc and Provence (Bats 1986:392, map 1), but unlike Punic and Etruscan amphorae they are found further inland (Passelac *et al.* 1990). Massalia had limited arable land so it is likely that Massaliote amphorae were exchanged for grain (Dietler 1997:287).

The relative importance of Massaliote amphorae at the sites of Le Marduel, Lattes, Espeyran and Vaunage (from the Nîmes area), peaked between 425–375 BC. This is followed by decline, so by 150–125 BC Massaliote amphorae at these sites were of minor importance (Py 1990a:75–77 fig. 1). Comparing the frequency of Massaliote amphorae, with Republican amphorae both have similar peaks (20–24% of the total number of amphorae sherds) at Vaunage and Le Marduel. At Lattes and Espeyran, Republican amphorae never reached the same levels as earlier Massaliote amphorae



(Py 1990a:77 fig. 1). At Lattes, Italian amphorae formed just under 35% compared with a peak of c.50% for Massaliote amphorae and at Espeyran the figures are 60% as against 30% (Py 1990a:77 fig. 1). The areas adjacent to Mediterranean France received Massaliote amphorae at the same level, or in greater numbers than Republican Italian amphorae.

A secondary distribution of Massaliote amphorae is found along the Rhône-Saône, and into the interior of France. Massaliote amphorae have been reported from 15 sites, situated along the lower and middle Rhône dating to the sixth to the fifth centuries BC (Bellon and Perrin 1990). Massaliote amphorae are also found in small numbers at sites in Switzerland, Germany and north-east France, although these sites only contain a few vessels (Dietler 1995:67). For north-east France, unlike southern France, imports of Greek and Etruscan drinking vessels are more frequent than wine amphorae (Dietler 1990).

This trade has been linked with the development of the Hallstatt chiefdoms in eastern France and southern Germany during Hallstatt D1–3 (Collis 1984b:82; Cunliffe 1988:24–35). This period saw the development of large hilltop settlements termed *Fürstensitze* or ‘princely settlements’ (Dietler 1995; Pare 1991) such as the Heuneburg and Mont Lassois. The Heuneburg has produced evidence for the production of bronze beakers and fine pottery (Collis 1984b:90–91). Associated with these settlements are clusters of rich burials mounds termed the *Fürstengräber* or ‘princely graves’ (Dietler 1995; Pare 1991), often with central burials within wooden chambers. These burials contain a rich range of exotic gravegoods, including metal vessels, wagons, silk, and gold torcs. The most famous and impressive item is the large Greek/Etruscan bronze krater from the Vix burial near Mont Lassois (Collis 1984b:95–98). Massaliote amphorae are also found in some of these rich burials including Vix, and on the *Fürstensitze*.

The control of imported Mediterranean goods by local chiefs has been seen as promoting the development of more hierarchical societies (Collis 1984b:73–102; Frankenstein and Rowlands 1978). Dietler (1990:386, 1995:68) has suggested that for

the Hallstatt chiefdoms (small numbers of amphorae, but more wine serving and drinking vessels) that the symbolism of wine drinking was an important discriminating social strategy used by the elite. In contrast the evidence from southern France (more amphorae, but fewer items connected with the serving of wine), indicates that the elite used wine to create webs of obligations and to mobilize labour via work-feasts (Dietler 1990:386, 1995:67).

In the early fifth century, this trade system collapsed bringing down the dependant Hallstatt chiefdoms (Frankenstein and Rowlands 1978). The cessation of contacts between Greece/Massalia and the Hallstatt chiefdoms has been linked with the defeat of the Etruscan and Greek fleet by the Phoenicians in the western Mediterranean (Collis 1984b:113), or with a shift in Greek trade to the Black Sea region (Collis 1984b:113).

The second spell of imports occurred during the LTA period when there was contact between northern Italy and central Europe, and there is a concentration of imports in the *Hunsrück-Eifel* region of Germany (Collis 1984b:114). Pare (1991:191) has instead argued that the *Fürstensitze* and the *Fürstengräber* developed before trade with Massalia began. Pare (1991:196) also argues that the concentration upon trade from Massalia has masked the importance of trade between northern Italy and the Hallstatt chiefdoms.

### 10.1.2 Mediterranean imports in central France

There is a concentration of imports at Bourges (Berry) to the north of the Auvergne (Figs. 177–178). Here are found Etruscan flagons, Greek red figure ware, Massaliote and Greek amphorae and southern French *pâte claires* (Collis 1984b:120; Gran-Aymerich 1995; Milcent 1999:394–398, 403–406). Around 80% of imported late Hallstatt and early La Tène ceramics from central France have been found at Bourges and its immediate hinterland (Milcent 1999:394). Many of these finds have come from groups of *tumuli* burials surrounding the settlement (Gran-Aymerich 1995). The ceramic imports at Bourges indicate three phases of importation; from c.530–500 BC



(HD3), a second phase 475–450 BC (LTA ancient) and a final phase from c.425–400 BC (LTA recent) (Milcent 1999:396–398, 401). For the imported metalwork at Bourges (Fig. 178), this mostly dates from the late sixth to fifth centuries BC (Milcent 1999:405). The imports to Bourges appear to have been irregular, and many may have been diplomatic gifts instead of a direct trade with the Mediterranean world (Milcent 1999:398–399).

### 10.1.3 Early imports in the Auvergne

There are few pre-late La Tène imports in the Auvergne, apart from a scatter of early Mediterranean goods. Two Etruscan bronze *Schnabelkanna* have been found at Bercias/Beauregard-Vendon (Bouloumié 1983:217; Gran-Aymerich 1995:47; Milcent 1999:403 fig. 122 table 32; Provost and Mennessier-Jouannet 1994 II:27) and an unspecified Etruscan metal vessel was found at Menet in the Cantal (Bouloumié 1983:217) (Fig. 178). Three sherds of Greek red figure ware were found at the hillfort of Bêgues, in the Allier region (Milcent 1999:394 table 31; Nash 1978a:199) and a sherd from an Etruscan amphora (Milcent 1999:394) (Fig. 177). Attic figure ware also been reported from Vichy (Bouloumié 1983:217), Saint-Georges in the Cantal (Milcent 1999:fig. 121, table 31) and recently at Le Puy in Haute-Loire (Milcent 1999:397 fig. 121, table 31). Early imports in the area around Clermont-Ferrand are limited, but include sherds from three *pâte claires* vessels at Busséol/Saint-André in a HD3/LTA context (Milcent 1999:396 fig. 122, table 31). At La Grande Borne Aulnat/Chantiers 1–3 there is a possible sherd from an Attic red figure krater (*pers. obs.* 1999). The site of Le Pâtural has a sherd from a Massaliote amphora in a LTC2 context. Both La Grande Borne Aulnat/Chantiers 1–4 and Le Pâtural have a range of southern French *pâte claires* in LTC1–2 contexts (Collis 1983; Guichard and Orengo 1999). Early La Tène Gulf du Lion brooches from Spain and Languedoc have been found at Corent and at nearby Solignat (Milcent 1999:408 fig. 122, table 32).

Mediterranean imports in central France date from the late sixth century to the end of the fifth century BC and mirror the chronology of importation to eastern France (Milcent 1999:397–398). The Auvergne differs from Berry in that imports of *pâte*

*claires* are found in LTC contexts and it is possible that these were continuously exported to the region from the HD/LTA to the LTD period. Unlike eastern France and the Rhône-Saône corridor, the Auvergne and Berry there is possibly a bias towards imported finewares, while Massaliote and Etruscan amphorae are rare (Milcent 1999:400). It is likely that many of the early Mediterranean goods came via the Rhône route but other routes may have been utilised. The lack of correlation between Attic wares and Massaliote amphorae may suggest that the Attic ware came via a separate trade route, such as over the Alps (Milcent 1999:399–400). Many of the imported Etruscan metal vessels were of north Italian manufacture and presumably were traded over the Alps (Milcent 1999:401–402). The presence of Spanish and southern French Gulf du Lion brooches in late Hallstatt contexts in the Auvergne indicate that some trade may have been via the valley of the Hérault over the Cévennes mountains, to Aveyron and then into Haute-Loire (Milcent 1999:395, 446). The use of this trade route would explain the Mediterranean imports at Le Puy (Haute-Loire), in the Cantal and Limousin (Milcent 1999:396, note 396 fig. 122, table 31).

#### 10.1.4 Conclusions

Central France shows many differences with eastern France for the importation of early Mediterranean goods. Central France shows that both the Rhône and north Alpine trades routes were utilised throughout this period with the later possibly being more important. There appears to have been a low level trade in Mediterranean goods throughout the late Hallstatt to early La Tène period and unlike the Hallstatt chiefdoms zone there is no evidence for a collapse or shift in this trade during the Hallstatt/early La Tène transition.



## 10.2 The Republican amphorae trade to France: scale and distribution

Republican amphorae were widely distributed throughout Western Europe and extensively distributed in France (Fitzpatrick 1985; Nash 1978a:321–322; Tchernia 1983:89). They are found in smaller numbers in Italy, the eastern Mediterranean (Rathbone 1983:163) and in Central Europe at Stradonice and Staré Hradisko in the Czech Republic (Cumberpatch 1995a:80). Dressel 1 amphorae have been reported from India (Will 1992:265).

An idea of the scale of the Republican wine trade to Western Europe can be gained from the estimates for Italian wine production during this period. The *ager Cosanus* in Etruria was capable of producing c.19–50 million litres of wine per year (Rathbone 1981:21) or enough wine to fill 10–25 million Dressel 1A amphorae.

Tchernia (1986:86–87) has estimated that c.55–65 million amphorae were imported into Gaul during the first century BC and that the wine trade involved an export of 120–150 million litres of wine per year. This would have only accounted for a fraction of the total Italian wine output (Tchernia 1983:92). Olmer has suggested that Gaul, Italy and Spain accounted for 100 million Dressel 1 amphorae during the first century BC (Olmer 1997:136). At its height the fourteenth century, wine trade from Gascony to England averaged 750 million litres of wine per year (Tchernia 1983:92), which was equivalent to 37.5 million Dressel 1As. It is also worth noting that the number of shipwrecks during the period 200 BC–AD 200 was not surpassed even during the Medieval period (Hopkins 1983:97; Parker 1990:336 fig. 1).

### 10.2.1 Current models for the exportation of Republican amphorae to Western Europe

The first distribution map of Dressel 1 amphorae was originally created by Callender in the 1950s, but was not published until 1965 (Callender 1965). Peacock created a second distribution map (1971:172 fig. 36) which forms the basis of later maps (Galliou 1984:25 fig. 10; Laubenheimer 1993: fig. 1; Panella 1981:56–57 fig. 12, 70–

74; Tchernia 1983:89). Nash compiled a gazetteer of Republican amphorae (163 findspots) in France (Nash 1978a). Fitzpatrick (1985) who plotted the distribution of c.470 findspots of Republican amphorae in north-western Europe, produced the most detailed distribution map (Fig. 179). Fitzpatrick only recorded in detail the findspots in his core zone of northern France and England, although his map does make use of surveys by Galliou in Armorica, by Ralston in Limousin, by Romans in south-west France and Vaussanvin in the Saône and Loire regions (Fitzpatrick 1987:99).

These maps all suffer from several weaknesses and biases (Fitzpatrick 1987; Woolf 1993b). Firstly, data collection bias as most of the areas have not been systematically studied and blank spots on the maps may be areas poorly studied, rather than areas not receiving amphorae. Secondly, there is no attempt to illustrate contemporary sites without amphorae. Thirdly, no qualified notation is given and one spot on these maps may represent one amphora or hundreds. Fourthly, there is no attempt at differentiating the main types of Republican amphorae. Tchernia (1983:88) has contended that these maps underestimate the total number of findspots known to local researchers by a factor of 5–8. The study of Dressel 1 amphorae in Armorica by Galliou found a 25-fold increase over the number of findspots shown in Peacock's 1971 map (Fitzpatrick 1987:88).

Greco-Italic amphorae are believed to have first appeared in Mediterranean contexts from the third century BC onward (Bats 1986; Rancoule 1985), but were rare outside of Mediterranean Gaul, apart from the exception of Châteaumeillant in Berry (Hugoniot and Gourvest 1961a, 1961b; Hugoniot 1963). To many researchers the exportation of amphorae to Gaul followed the Roman conquest of southern Gaul (c.120 BC), and the foundation of the port of *Narbo Martius* (Narbonne) in 118 BC (Arthur 1995:242; Cunliffe 1982:52–53, 1984:4, 1988:81; Fitzpatrick 1993:235; Galliou 1984:26; Metzler *et al.* 1991:162; Nash 1984:102; Tchernia 1983:101). Fitzpatrick first raised the possibility that this trade might pre-date the late second century BC, at least for central France (1989:33). Both Fulford (1985:95) and Fitzpatrick (1989:33) have argued that central France did not receive a disproportionate number of Republican amphorae.



For the first century BC several writers have argued for a preponderance of the Dressel 1B in northern Gaul and south eastern Britain, suggesting a boom in exportation to Western Europe after the Gallic war (Cunliffe 1988:140; Haselgrove 1990:250; Roymans 1990:147–152 fig. 7.2). Fitzpatrick has argued that the Dressel 1B form was more common in central France, than the Dressel 1A (1985:318). To Fitzpatrick (1985:318), this reflected a change in the trade routes, which he thinks moved away from the Atlantic coast to the Rhône valley. Some researchers have seen the Gallic War as causing a major disruption to this trade (Cunliffe 1988:124) and others have seen a partial collapse of the Italian wine industry during this time (Arthur 1995:244). Using evidence from amphorae assemblages from Lyon and the department of the Rhône, Desbat (1998; Desbat and Martin-Kilcher 1989) has suggested that the Dressel 1 trade actually ceased during the period 50–30 BC.

For the distribution of Republican amphorae in Gaul, Tchernia suggested that Dressel 1 amphorae were most common in areas south of a line drawn from the mouths of the Garonne to the Rhône rivers. Accordingly, the greatest numbers of Republican amphorae are found in the southern Aude, Aveyron, Hérault, Haute-Garonne and Tarn departments (Tchernia 1983:90–91). In this core zone amphorae tend to be found at a high proportion of La Tène sites, including rural sites, and some sites are prolific in amphorae (Woolf 1993b:216). It has been estimated that the site of Châlon-sur-Saône contained 200,000–500,000 Dressel 1 amphorae (Tchernia 1983:88). Six other late La Tène sites in France are rich in Dressel 1 amphorae: Bibracte (Olmer 1997), Corent and Gergovie in the Auvergne, Essalois (Preynat 1992) and Joeuvres (Périchon 1961a) both on the lower Loire, and the Toulouse area (Tchernia 1983:90). Recent excavations at Bibracte have recovered c.80,000 Dressel 1 sherds, from 3,000 vessels (Olmer 1997:65).

### 10.2.2 Distribution of Republican amphorae in France

Findspots of Republican amphorae in France have been collected for each department with details, where possible on the types of Republican amphorae, the number, the context and site type. This information has been compiled from *Gallia informations*,

the series of Carte Archéologique volumes for Gaul and local archaeology journals. Data has also been collected from recent regional studies: Aquitania (Boudet 1987:206–207 fig. 72; Gruat 1994), Burgundy (Olmer 1997), Ile de France (Poux 1999b; Poux and Sellès 1998; Segulier 1999), Limousin (Mur 1996–1997; Ralston 1992), Loire (Lavendhomme 1997) and Lyon (Maza 1997–1998, 1998a, 1998b). Normandy and western France have been covered by older studies (Deniaux 1980; Galliou 1982). Although this gazetteer represents the first systematic collation of Republican amphorae findspots for France since Fitzpatrick's study (1985), it does not claim to record all Republican amphorae findspots. For the following departments the number of Republican amphorae is probably underrepresented: Ardèche, Aveyron, Cher, Drôme, Gard, Lozère, Tarn-et-Garonne and Var. Nonetheless, it is hoped that the distribution maps created give a broad indication of the true distribution of Republican amphorae. Firstly, a detailed case study is made for the Auvergne as this has one of the best data sets available with relatively fewer data collection biases; there have been several programmes of fieldwalking and details on the amphorae types and on the quantity of amphorae are available.

### 10.2.3 Distribution of Republican amphorae in the department of the Puy-de-Dôme (Auvergne)

There are 117 findspots of Republican amphorae for the Puy-de-Dôme department (Table 103, Fig. 180), which represent a 40-fold increase in number over the Fitzpatrick map (1985), which only has three findspots (Gergovie, La Grande Borne Aulnat and Le Brézet). Republican amphorae have been found at almost half of the departments late La Tène sites and many Gallo-Roman sites as well; the sites range from farmsteads to *oppida*. A high proportion of the findspots are found on rural La Tène settlements, a pattern that resembles southern (Rancoule 1985) and western France (Galliou 1984:29), but differs from northern Gaul where only 20% of findspots are from rural sites and the majority come from cemeteries (Roymans 1990:147).

The majority of findspots are concentrated on the southern Grande Limagne around Clermont-Ferrand, in contrast the northern Grande Limagne has a more dispersed



distribution and fewer findspots. Republican amphorae findspots are found dispersed around Lezoux, Issoire in the south, Ambert in the east and there are a couple of findspots in the west. Do these patterns reflect the distribution of amphorae, or instead reflect the level of archaeological fieldwork? Excavation biases the picture, since the areas of concentrated amphorae are also the areas of concentrated excavation. On the other hand, the northern Limagne and Issoire basin have undergone extensive field surveys and show only a few amphorae findspots.

It is interesting to note the presence of Republican amphorae in outlying areas like Aigueperse (roughly 20km north of Clermont-Ferrand), as well as Lezoux (c.20km east) and Issoire (c.26km south), although they are not as common in these places as in the Clermont-Ferrand vicinity. This suggests that some place or places near Clermont-Ferrand served either as a central place for the distribution of amphorae or as the first stop for the individuals exchanging them: Aigueperse, Lezoux, and Issoire, could represent secondary distribution centres. There is a general break in the distribution starting from the eastern edge of the plateau des Dômes, only 1km west of Clermont-Ferrand. However, few La Tène settlements are presently known from this region.

Chapter 8 has demonstrated that for the Puy-de-Dôme, there are 14 findspots of Greco-Italic amphorae mostly in the southern Grande Limagne (examples at La Grande Borne Aulnat/Chantiers 1–4, Le Pâtural, and Pontcharaud III *etc.*) and one northern findspot at Aigueperse. Greco-Italic amphorae are absent from fourth to third century BC contexts in the Auvergne. Importantly no Greco-Italic amphorae were recovered from the LTC1 features (ditch 12–13) at La Grande Borne Aulnat/Chantier 4 (Guichard and Orenco 1999). However, some importation of Republican amphorae may have occurred as early as the third century BC given the archaic nature of some of the rims from La Grande Borne Aulnat/Chantiers 1–4 and Le Pâtural (see chapter 8). Stratified Greco-Italic amphorae have been found in LTC2 contexts (c.190–150 BC) from the A710 excavation and Aigueperse (pit St. 68), and at La Grande Borne Aulnat/Chantier 4 in a LTC2/D1 context (pit B38AQ). For the

department of the Puy-de-Dôme Greco-Italic amphorae were widely distributed in the southern Grande Limagne and were not confined to a few sites.

Findspots of Dressel 1A are more common and widespread than the Dressel 1B. The Dressel 1A accounts for 36% of findspots, as opposed to 21% for the Dressel 1B. Many of the findspots labelled as Dressel 1 from the Grande Limagne are probably of the Dressel 1A form. This may suggest that the peak exportation of the Dressel 1 belonged with the Dressel 1A and not with the Dressel 1B, or that the Dressel 1A was more widely redistributed and exchanged than the Dressel 1B. Further evidence for this comes from western France where the Dressel 1A accounts for 44% of findspots, as against 19% for the Dressel 1B (Galliou 1984). This seems to counter the view of Fitzpatrick (1985:318), that the Dressel 1B was the more common of the two in central France. The Auvergne actually sees a reduction in amphorae importation during the Dressel 1B period of use that starts before the Gallic War. For the post-conquest period there is only one large Republican amphorae assemblage in the Auvergne, that of Gergovie. The Auvergne has relatively few examples of the Dressel 2–4, which replaced the Dressel 1B c.50 BC. The A710 Lussat cremation scatter (5903) may hint that the Dressel 1B was still exported to the Auvergne during the late Augustan period, although it is hard to generalise from just this one example. The lack of other stratified Augustan amphorae assemblages precludes a more detailed analysis of the end of the importation of Republican amphorae to the Auvergne.

#### 10.2.4 Distribution of Republican amphorae in the departments of Allier, Cantal and Haute-Loire (Auvergne)

For the department of the Allier there are 11 findspots (Table 104), 47 in the Cantal (Table 105) and 28 in Haute-Loire (Table 106). The data on the Republican findspots from these departments is less satisfactory than the data for the Puy-de-Dôme. Many of the findspots are poorly dated, with little data on the number of vessels and few are from stratified assemblages. Unlike the Clermont-Ferrand region, these areas have not been subjected to programmes of archaeological survey and excavation. Even taking into account these drawbacks, several patterns can still be seen in the data.



There are a small number of findspots distributed throughout the department of the Allier, with a slight concentration towards the border with the Puy-de-Dôme (Fig. 181). The majority of the findspots are from La Tène sites encompassing rural settlements and larger sites, including the *oppidum* of Herisson/Châteloy, which has examples of Dressel 1A and 1B amphorae. An important small assemblage of Greco-Italic, transitional vessels and Dressel 1A amphorae has been reported from the small rural enclosure at La Génèrie (V. Guichard *pers. comm.*). A small LTD1 ritual enclosure at Les Chazoux/Gannat has sherds from two Dressel 1A amphorae (Rousset 1996). For the majority of the findspots, details on the types of Dressel 1 amphorae are not provided. Large assemblages of Republican amphorae are missing and the majority of the findspots are represented by less than 10 vessels. As few sites have been subject to large-scale excavation, including the *oppidum* of Herisson/Châteloy, little can be made of the lack of large assemblages.

Findspots of Republican amphorae in Haute-Loire are concentrated in two areas (Fig. 181). To the east there is spread of findspots along the Loire valley down as far as Le Puy and Arlempdes, with a findspot near to the headwaters of the Loire. Within this distribution, there is a slight concentration of findspots around the Lignon valley. The second concentration of findspots is in the western-most part of the department around Brioude and adjacent to the river Allier.

For Haute-Loire further details on the types of Republican amphorae, their frequency and their archaeological contexts are generally not provided. It is interesting to note the presence of a Greco-Italic rim at the site of Les Souils near to Arlempdes. There also appears to be bias towards the Dressel 1A with examples at Bas-en-Basset, Brioude (Saint-Julien) and Roche Ambert/Marcilhac (Saint-Paulien) (Simonnet 1983; Simonnet *et al.* 1983) while the Dressel 1B is scarce. Although the majority of findspots only contain one or two vessels, there are several concentration of findspots, which suggests the existence of larger Republican amphorae assemblages. The *oppidum* of Roche Ambert/Marcilhac contains many Dressel 1 sherds and four further sites around the *oppidum* have produced Dressel 1 sherds. There is a further concentration of Republican amphorae at Bas-en-Basset and around Le Puy. Like the

department of the Puy-de-Dôme, it appears that Republican amphorae were redistributed from several centres.

The isolated region of the Cantal has a surprising number of Republican amphorae findspots (47) concentrated in three areas (Fig. 181). The majority of findspots are in the east around Massiac and Saint Flour and along the Alagnon valley; this is a continuation of the western Haute-Loire concentration. Secondly, several findspots are found on the other side of the Cantal mountains and around Aurillac in the south-west. Thirdly, there is a sparse number of findspots in the north-west, along the Santoire river valley. Findspots are missing from the mountainous central Cantal. Although it is hard to date these findspots as most of the findspots are from fieldwalking and not excavations, a high proportion of the Republican amphorae findspots come from Gallo-Roman sites (although many also have small quantities of La Tène ceramics). There might also be a slight preference towards the Dressel 1B as against the Dressel 1A, but again the data is not conclusive.

### 10.2.5 Summary

The Auvergne shows two main distributions of Republican amphorae, firstly around Clermont-Ferrand and secondly, Brioude/Massiac in Haute-Loire and the Cantal. The break in distribution between these two concentrations suggests that they received their amphorae via different trade routes, or sources. It might also suggest a degree of political independence between these two areas. For the main concentrations of amphorae findspots, secondary redistribution centres (Lezoux, Issoire, Bas-en-Basset, Brioude, Saint Paulien, Le Puy) served the adjacent areas.

Outside of this core area, dispersed findspots of Republican amphorae are found along the Loire valley in Haute-Loire, in western Cantal and the northern part of the Puy-de-Dôme and the department of the Allier. A preponderance of the Republican amphorae findspots in the four departments are found close to major rivers.



### 10.3 Trade routes

The relative costs of transporting goods overland in the Roman period for sea, river and overland given in Diocletian's price edict, are 1:6:55 (Hopkins 1983:104). The ratio of sea to river costs was 1:4.7 downstream and 1:7.7 upstream and for river to land the ratio was 1:5 (Laurence 1998, 1999:99). Recent research has suggested that land transport in the Roman period was more cost efficient than suggested by Diocletian's price edict (Hopkins 1983; Laurence 1999:95–105; Morley 1996:65–68). The cost of sea transport in Diocletian's price edict is surprisingly low, and probably fails to take into account insurance, the limited sailing season, unloading and loading costs (Laurence 1999:101; Morley 1996:66). Morley suggests that the ratio of sea to land transport was actually in the region of 1:25 (1996:68).

The distribution of amphorae that reached Gaul relied heavily upon the main inland river systems (Fig. 182). For France the importation of amphorae could have made use of the three main river routes (*cf.* Cunliffe 1984:6–7 fig. 2). The Rhône corridor, bringing wine into the heart of Gaul and providing access to the Saône, Loire and the Seine waterways. The port of *Narbo* and the Carcassonne gap to Toulouse, then to the headwaters of the Aude and the Garonne, and to Bordeaux and the Atlantic. Another route from Toulouse involved crossing the Massif Central, or via the Hérault valley across the Cévennes mountains, to Aveyron and then onto Haute-Loire (Milcent 1999:395, 446). Cicero's *Pro Fonteio* refers to the movement of amphorae from Toulouse to Montferrand and into the territory of the Ruteni (Middleton 1983:77).

Strabo mentions the Rhône route:

...the voyage which the *Rhodanus* [Rhône] affords inland is a considerable one, even for vessels of great burden, and reaches numerous parts of the country, on account of the fact that the rivers which fall into it are navigable, and in their turn receive most of the traffic (*Geographia* 4.1.14).

Most writers assume that the Rhône route was of paramount importance, but Dietler (1989:131) has suggested that the Rhône was not ideally suited for upland navigation and the swampy nature of the valley floor prevented haulage. Strabo mentions the difficulties of the Rhône route: "but since the *Rhodanus* [Rhône] is swift and difficult to sail up, some of the traffic from here [Lyon] preferably goes by land on the wagons, that is, all the traffic that is conveyed to the Arvernians and the *Liger* [Loire] river" (*Geographia* 4.1.14). Apparently, there was no access to the Loire river below Lyon (Strabo, *Geographia* 4.1.14). This would suggest that amphorae reaching the Auvergne made the journey via going overland from Lyon to Clermont-Ferrand.

The exact route by which Republican amphorae reached the Auvergne is not clear, but the most direct route would have involved a land journey from the Rhône across to the Loire and then to the Auvergne. The Arverni controlled the upper Loire, via their client tribe the Vellavii and had strong connection with the Allobroges on the lower Rhône. One argument against this is the level of the Loire and Allier waterways, as the Allier is not currently navigable, and the Loire was not navigable until well beyond Essalois. However, the Allier has been used as a shipping route in post-Medieval times (C. Watson *pers. comm.*), and Caesar refers to the Allier (*Elaver*) being much higher and difficult to ford before the autumn (*De Bello Gallico* 7.35). Modern drainage of the Grande Limagne may have lowered the level of the Allier. Arvernian coins are found in numerous locations in the lower Rhône (Malacher *in prep.*; Malacher and Collis 1992), which strongly suggests an Arverni trade route and/or political ties with the tribes of southern Gaul. The concentration of Republican amphorae around Clermont-Ferrand and Lezoux, are level with one of the main passes through the Forez mountains and the Loire valley, which strongly suggests that most of the Republican amphorae reached the Auvergne via this route.

The few examples of Greco-Italic amphorae from the department of the Loire (see below) might suggest that Greco-Italic vessels in the Auvergne came via the western trade routes (over the Massif Central) and not via the Rhône-Loire route. The presence of Greco-Italic amphorae at Lyon in some number (Maza 1996–1997, 1998a, 1998b), indicates that these vessels were distributed along the Rhône corridor. The



use of the second, western trade route may be suggested by the finding of Greco-Italic amphorae at Levroux Les Arènes, Châteaumeillant, and several findspots in Limousin. Greco-Italic amphorae are also common along the Carcassonne gap trade route (Rancoule 1985). Yet, this is a circuitous trade route for amphorae to reach the Auvergne, unless a hostile community like the Aedui could disrupt Loire transport (Strabo, *Geographia* 4.1.8 and 4.3.2).

The concentration of Republican amphorae findspots in the Cantal and Haute-Loire departments may have not come via the Rhône route, but over the Massif Central via the Ruteni and the Hérault valley and over the Cévennes mountains. These trade routes supplied Mediterranean goods to this area during the late Hallstatt/early La Tène periods (Milcent 1999:395, 446).

The two areas of Clermont-Ferrand, and Cantal and Haute-Loire appear to have received their amphorae via different trade routes. This might be expected as the Vellavii tribe, were detached from Arvernian control in the early first century BC (Dyson 1985:156). The separate trade system for the Cantal also suggests that the local tribe the Gabali had connections with the Vellavii instead of the Arverni. This action not only removed control of the headwaters of the Loire from the Arverni, but also access to trade routes over the Cévennes, and the Massif Central. Perhaps this resulted in less access to Republican amphorae by the Arverni during the first century BC?

It is important to note that it was not possible to transport amphorae to the Auvergne that did not involve a sizeable land journey. The best solution is to recognise that as an important tribe, the Arverni had numerous connections with adjacent tribes (*e.g.* Allobroges, Gabali, Lemovices, Ruteni and Vellavii); were in the position to obtain their amphorae from several sources, and were not tied to a single trade route. This may explain the presence of Greco-Italic amphorae and the generally stable importation of Dressel 1 amphorae over a period of nearly a hundred years. The Rhône route may have been less utilised by the Arverni, because at times hostile tribes like the Aedui and Ségusiavi controlled it. Strabo refers to warfare between the

Sequani (who had connections with the Arverni) and the Aedui, over the control of the Rhône route (*Geographia* 4.3.2), which naturally would have disrupted trade.

## 10.4 Distribution of Republican amphorae in France

Just under 1400 findspots of Republican amphorae have been recorded for the French departments and regions (Tables 107–188, Figs. 183–184) which represents a 200% increase over Fitzpatrick (1985). It was hoped to compare the distribution of Greco-Italic, Dressel 1A, 1B, and 1C amphorae in France, but because of limitations in the available data, it was only practical for the Greco-Italic and the Dressel 1C forms. Generally the presence of Greco-Italic and Dressel 1C amphorae are more likely to be mentioned, unlike Dressel 1A or 1B amphorae which are not differentiated in many reports.

### 10.4.1 Greco-Italic

Although it is possible that many Greco-Italic findspots are reported as Dressel 1As or simply as Dressel 1, clear patterns in the data still stand out. There are 139 findspots of Greco-Italic amphorae in France, accounting for 10% of the Republican amphorae findspots (Table 189 and see chapter 8). Individual departments with the most Greco-Italic findspots are Bouches-du-Rhône (30) Aude (15), Puy-de-Dôme (14), Hérault (eight), Rhône (eight), Tarn (five), Gard (five), Haute-Garonne (five) and Haute-Vienne (five) (Fig. 185). This gives an interesting double distribution with a concentration of findspots around the mouth of the Rhône and Narbonne, and secondly a band of departments in central France. The regions with the highest numbers of Greco-Italic amphorae tend to be southern departments (Table 190, Fig. 185): Provence with 23% of the number of Greco-Italic findspots, Languedoc-Roussillon 20% and Midi-Pyrenees 14%. However, the Auvergne has a high number of findspots (11.5%), Rhône-Alpes (7%) and Limousin with 5% (Fig. 187). The regions of Aquitania and Burgundy have low numbers (2% and 3.6% respectively). Findspots of Greco-Italic amphorae are rare in northern France, but examples are known from Alsace, Brittany and Nord-pas-de-Calais (Fig. 187). Findspots of Greco-



Italic amphorae are lacking from the eastern, north-eastern and north-western departments (Fig. 186). Most departments with examples of Greco-Italic amphorae are in a band running up from Rhône/Languedoc, to the Auvergne, then Centre and Burgundy, and then less strongly towards Nord-pas-de-Calais (Figs. 185, 187).

The earliest Greco-Italic amphorae (350–200 BC) have been found at several sites in southern France including Lattes (Py 1990b, 1994), Nages (Py 1978:247) and Pech-Maho (Solier 1979:90–97). The finding of Greco-Italic amphorae in the Aude-Garonne valley (Rancoule 1985) suggests the trade route from Italy to Mediterranean France and over the Caracassonne gap to Bordeaux and western France was already in existence by this early date. Greco-Italic amphorae are found along the Mediterranean coast of Spain with examples further inland (Beltràn-Lloris 1970:338–348; Nolla and Nieto 1989).

In contrast, later Greco-Italic amphorae (200–150/140 BC) had a wider distribution. They appear in larger numbers in Mediterranean France, where they are found at the *oppida* of Baou-Roux, Entremont and Saint Blaise (Gateau 1990). They are common in the Toulouse area (*cf.* Rancoule 1985) and are found in many of the *puits funéraire* (Bats 1986:398).

Important assemblages of Greco-Italic amphorae have been found at Levroux Les Arènes (Büchsenschütz *et al.* 1994) and the *oppidum* of Châteaumeillant (Hugoniot 1963; Hugoniot and Gourvest 1961a, 1961b) but Greco-Italic amphorae are absent from rural settlements in Berry. This contrasts with the distribution of Greco-Italic amphorae in the Auvergne, where they are more widely distributed but found in lower numbers. This may reflect the lack of excavated rural sites in Berry instead of a difference in the distribution of Greco-Italic amphorae. Many Greco-Italic vessels have been found at Lyon Souvenir à Vaise and smaller numbers from Lyon Marietton and Charavay (Maza 1996–1997, 1998a, 1998b) and Lyon Verbe Incarné (Goudineau and Manby 1989).

Limousin (western Massif Central) has a scatter of Greco-Italic findspots. Many are from *oppida* including Saint-Gence with c.18 examples (Mur 1997–1998; Ralston 1992:98–100), Monceaux-sur-Dordogne (Puy-de-Tour) (Ralston 1992:49–53) and Saint-Denis-des-Murs (Ralston 1992:95–98). They have also been reported from the rural sites of Croix du Buis/Arnac-la-Poste (Mur 1997–1998), Ahun (Dussot 1989:45–46) and possible examples at Saint-Christophe (Dussot 1987:149). The scatter of Greco-Italic vessels in Limousin probably came via the Carcassonne trade route. Further to the west, several findspots of Greco-Italic vessels have been reported from Aquitania at Aiguillon, Eynesse and Mouliets-et-Villemartin (Piot 1994) and from Montantambre à Cabariot in Charente (Mur and Petitot 1998:110–113). Limousin resembles the Auvergne in that there is a scatter of Greco-Italic findspots including many rural examples, but differs in that larger Greco-Italic assemblages are found at several of the *oppida*.

Findspots of Greco-Italic amphorae are much rarer in the department of the Loire (examples at Essalois and Roanne) than the adjacent Auvergne (Table 189), which points to a slightly later date for the start of the amphora trade to the Segusiavi than to the Arverni. This is puzzling, as the Segusiavi were on the Rhône trade route, but the Arverni were not. Yet, the Arverni seem to have established trade links before their neighbours and perhaps this is due to the fabled wealth of their second century BC king Luernios (Strabo, *Geographia* IV.2.3).

There are six Greco-Italic findspots in Burgundy: Azé, Bibracte, Cannes-Écluse, Mâlain, Verdun-sur-le-Doubs and Villeneuve-au-Châtelot (Olmer 1997:130). In total 25 Greco-Italic amphorae have been reported, with eight examples at Bibracte (Olmer 1997:65), but larger assemblages are missing.

For the Ile de France region Greco-Italic vessels have been reported from Chartres (Poux and Sellès 1998) and Nanterre (Olmer 1997:132; Poux 1999b). In northern Gaul four Greco-Italic amphorae have been reported from the Aisne valley at the rural site of Berry-au-Bac and the *oppidum* of Condé-sur-Suippe (Haselgrove 1996:168; Hénon 1995:156). There is also a Greco-Italic vessel at the *oppidum* of Fossé des



Pandours in Alsace (Fichtl 1999:31–33, 38 fig. 4 nos. 13, 18). A late La Tène settlement at Vaires-sur-Marne has sherds from eight Greco-Italic vessels (Roymans 1990:148). Recently an important assemblage of Greco-Italic amphorae dated to the early second century BC has been uncovered at the aristocratic rural settlement of Paule-Saint Symphorien in Brittany (Menez and Arramond 1997:137–139 fig. 28 nos. 12–14; Poux 1999a:34). Possible examples of Greco-Italic amphorae have been reported at sites in Belgic Gaul (Marlière 1999:103, 108 figs. 12–13). There are several findspots of Greco-Italic amphorae from Brittany including Notre-Dame-D'Allecon, Quimper and Vannes (Galliou 1982).

Outside of France Greco-Italic amphorae have been reported at Basel Gasfabrik in Switzerland (Poux 1999a) and Will has argued for several Greco-Italic vessels at Manching in southern Germany (Will 1987b). However, analysis of the morphology of the Manching rims suggest that they all belong to Dressel 1As (see chapter 8). A burial at Armsheim in Germany contained a complete Greco-Italic amphora (Roymans 1990:149).

#### 10.4.2 Distribution of all Republican amphorae

The departments with the greatest number of Republican amphorae findspots in descending order are Tarn (153), Puy-de-Dôme (117), Aude (95), Bouches-du-Rhône (94), Hérault (63), Cantal (47), Loire (45), Finistère (43) and Saône-et-Loire (33) (Figs. 188–190, Table 189). These departments form a band running from Rhône/Languedoc, to the Auvergne and Burgundy. Although this does not take into account the frequency of Republican amphorae for these departments, most also have sites rich in Republican amphorae. Exceptions are the department of Cantal and Finistère, which lack sites with large assemblages of amphorae (Galliou 1983).

It is also possible to group departments into regions (Table 190, Fig. 192) and the highest number of Republican amphorae findspots are found in Midi-Pyrénées (20% of the findspots), then the Auvergne (15%), followed by Languedoc-Roussillon (13%), Provence (8%) and Burgundy (5.6%). These five regions account for over

60% of Republican amphorae findspots in France (Fig. 192). This distribution again gives a band of findspots along the Mediterranean coast and running up into central France. The regions with the fewest number of findspots (c.1%) are all northern and eastern regions: Alsace, Basse and Haute Normandy, Franche-Comté and Lorraine (Fig. 191). Departments with no Republican amphorae findspots are mostly found concentrated in eastern France (Fig. 189).

There is no clear difference for the frequency of Republican between the regions of southern France, the Auvergne and other parts of central France. Many individual departments (Cantal, Corrèze, Haute-Loire, Loire, Puy-de-Dôme, and Saône-et-Loire) also have similar numbers of Republican amphorae findspots with southern departments. There would appear to be little difference between the Roman province of southern France and the adjacent regions of central France.

The low number of Republican amphorae findspots from Centre (Berry) (2.9%), can be explained by the lack excavations of La Tène sites and studies/surveys of the La Tène archaeological record for this region (Table 190). That Burgundy has a lower number of Republican amphorae findspots compared with the Auvergne and southern France can only be partly explained by sample bias. Although few rural La Tène sites are known, (most excavations have been of *oppida* and other large sites *e.g.* Bibracte, Mâcon and Tournus), the findspots of Republican amphorae have been collated and studied by Olmer (1997).

Although it is not possible to give exact figures regarding the relative importance of the Dressel 1A and Dressel 1B forms for the different regions and departments, it can be suggested that the Dressel 1A was the more common of the two. Assemblages dominated by the Dressel 1A are frequent in western (Aquitania, Poitou-Charentes) central and eastern France (Auvergne, Burgundy, Centre, Loire, Ile de France, Limousin, Rhône-Alpes), and southern France (Languedoc-Roussillon, Mid-Pyrénées, Provence). The Dressel 1B would appear to be more frequent in northern and eastern regions (Basse-Normandie, Champagne-Ardenne, Haute-Normandy, Lorraine and



Picardy). Most of these regions however, also tend to have the lowest number of Republican amphorae findspots.

#### 10.4.3 Distribution of Dressel 1C amphorae in France

For France there are 46 findspots of Dressel 1C amphorae which represents c.3% of the number of Republican amphorae findspots (Tables 189–190, Fig. 193). Two southern French regions have a high proportion of the findspots: Provence (15 examples) and Languedoc-Roussillon (nine examples). Rhône-Alpes (seven examples) and Burgundy (four examples) also have a high proportion of Dressel 1C findspots. Many of the Dressel 1C findspots are from *oppida*, or villages, and the only examples from rural settlements are those from southern France in the departments of the Aude and Bouches-du-Rhône.

This is especially true for the Auvergne where the Dressel 1C is almost entirely restricted to the *oppidum* of Corent and the Dressel 1C is absent from the second century BC sites on the Grande Limagne. Could the Dressel 1C have had high-status connections? Or perhaps they were only produced after, the sites on the Grande Limagne, were abandoned. In Burgundy and the Aisne valley, Dressel 1C amphorae are only reported from *oppida* and large rural sites (Olmer 1997; Hénon 1995), but few La Tène rural sites from these areas are known and have been excavated.

From the distribution of the Dressel 1C for the regions of France (Fig. 193) it appears that most Dressel 1C were distributed along the Rhône river and less via Narbonne and Toulouse. However more close examination suggests that this is less clear cut and only Provence, which has 33% (15) of the Dressel 1C findspots and Languedoc-Roussillon with 19.6% (nine) stand out (Table 190). For many of the southern departments, the number of Dressel 1C amphorae findspots is low and the region of Midi-Pyrénées only has 6.5% of the total number of Dressel 1C findspots, a figure equalled or surpassed by the Auvergne, Burgundy and Rhône-Alpes. The Auvergne has 6.5% of the number of Dressel 1C findspots, however the Dressel 1C is absent from Limousin and Aquitania (Table 190). Perhaps the distribution of this form was

more geared to the Rhône corridor than the west, hence the slightly greater numbers of Dressel 1Cs findspots in Burgundy (four examples), Centre (two examples) and Rhône-Alpes (seven examples); but if this was the case, more examples might be expected from the Puy-de-Dôme and Loire departments. The small number of Dressel 1C findspots for France makes interpreting their distribution difficult, as it would only take a small number of new findspots to radically alter their distribution.

#### 10.4.4 Summary and overall distribution of Dressel 1 amphorae in France

A line drawn from the Garonne across to Lyon better defines the concentration of Republican amphorae findspots than Tchernia Garonne-Rhône division (1983:90–91). Within this core zone it is further possible to pick out areas that received an exceptional amount of Republican amphorae. This would include the departments of the Aude and Hérault already mentioned by Tchernia (1983:90–91), but also the Puy-de-Dôme, Loire and Cantal. Parts of central France received an exceptional quantity of Republican amphorae (*contra* Fulford 1985:95; Fitzpatrick 1989:33), possibly on an equal level to the mining areas of southern France, and clearly at a higher level than some parts of the Mediterranean littoral (Figs. 192, 194). The overall distribution of Dressel 1 amphorae in France does not show a simple linear fall-off although northern areas do contain fewer findspots. In these areas, Republican wine amphorae were widely distributed throughout the settlement system.

Outside of the Auvergne, Forez and southern France the distribution of Republican amphorae is more complex. Limousin has a moderate number of Republican amphorae findspots, but unlike the Auvergne, they are not clustered together and are distributed throughout the region. For the regions of Burgundy, Centre and Ile de France, Republican amphorae were less widely distributed and large assemblages are confined to the major settlements. However as rural sites in Ile de France tend to be early (La Tène C2/D1) and the lack of large Republican amphorae assemblages might be chronological. Similarly for northern France (the Aisne valley in Picardy) and eastern France (Alsace) only the largest settlements mainly *oppida* have produced Dressel 1 amphorae in moderate numbers. The *oppidum* of Villeneuve-Saint-Germain



has 169 Dressel 1 vessels, and the *oppidum* of Condé-sur-Suippe 58 (Hénon 1995:152, table 2). Most of the rural settlements contain less than 10 Dressel 1 amphorae (Hénon 1995:152, table 2; Haselgrove 1996:171, table 1). Access to imported wine at these rural sites was infrequent and rare and the consumption of wine may have been restricted to the *oppida*.

An exception however is Armorica in western France. Here Galliou (1984:29) has uncovered c.80 Republican amphorae findspots, including *oppida*, villages, hamlets and rural farmsteads. The assemblage sizes are small and Quimper with c.20 vessels is the largest assemblage (Galliou 1982:18). Imported wine appears to have been available throughout the settlement system, and available to most of society. According to Galliou this hints at the existence of an organised market system (Galliou 1984:29). The findspots of amphorae appear to be concentrated around the coast, with many finds from Quiberon, Quimper and Alet, suggesting ports of trade (Galliou 1984:28). Findspots further inland are found next to rivers (Galliou 1982:18–19, 126 plate 22). This distribution implies that the sea route around the western coast of Gaul from Aquitania was favoured rather than the Rhône-Loire route (Galliou 1984:28). Throughout France, the distribution of findspots is dispersed along the main river routes, especially along the Loire, Rhône and Saône rivers. Many of the Republican amphorae in Limousin are found next to rivers (Fig. 194).

For Burgundy many of the Republican amphorae findspots have come from the river Saône and it is tempting to link this with the deliberate deposition of amphorae with some form of water cult/votive deposition. A variety of imported Republican Italian metalwork has also been recovered from the river (Bolla *et al.* 1991; Castoldi and Feugère 1991; Feugère 1991) although human remains have not been reported. Perhaps the quantity of Republican amphorae from the river below Châlon-sur-Saône owes more to ritual deposition than to the use of the site as a transshipment centre?

## 10.5 Conclusions

This new gazetteer of Republican amphorae has shown that many of the previous studies and papers (Fitzpatrick 1985; Laubenheimer 1993; Nash 1978a; Tchernia 1983) dealing with the distribution of Republican amphorae in France require modification. The number of findspots of Republican amphorae has been significantly increased. This is especially true for the number of Greco-Italic findspots in non-Mediterranean France, which shows a great increase. There was a clear phase of importation of Republican amphorae to central and western and to a lesser extent northern Gaul before the conquest of southern Gaul and the foundation of *Narbo*. The departments with the greatest numbers of Republican amphorae findspots are not confined to southern and Mediterranean France, but also central France. Concentrations of amphorae findspots (around Clermont-Ferrand, Cantal, Forez and Picardy) tend to be separated by areas with considerably fewer findspots. The Dressel 1A amphora was more frequent in central and southern France than the Dressel 1B (*contra* 1985:318). The Dressel 1C is rare and restricted to larger sites and perhaps contained *garum* or a higher quality wine?



## Chapter 11 The Republican amphorae trade and socio-economic change

Several researchers have explained socio-economic change during the late La Tène period in Gaul as driven by the Republican amphorae trade. This model has been most forcefully articulated by Nash (1976a, 1978b, 1984; summarised in Fitzpatrick 1989:32–33) and similar arguments have been expressed by Crumley (1974), Cunliffe (1988), Haselgrove (1976) and Wells (1984:160–163).

Nash (1976a:128) saw a:

...sudden, and effectively unlimited availability of Mediterranean feasting wares...increased warfare, either to obtain captives or coerce tribute, which has left traces in the coinages and in the construction or renovation of fortified settlements, was necessary in order to support a great volume of foreign imports into Gaul. Luxury goods acquired in large amounts by successful warrior nobles rendered them more able to maintain mercenaries and armed retinues and therefore more able to control more territory; it was this form that the political centralization in central and eastern Gaul probably took

### 11.1 Feasting

According to Nash, amphorae were used by the elite to create larger groups of followers, by conspicuous consumption via feasting and by competitive gift giving (Cunliffe 1988; Nash 1976a; 1978b; Roymans 1990). The number of retainers and dependants that a noble/warrior possessed determined his power and influence (Caesar, *De Bello Gallico* 6.15). Tacitus, refers to the frequency and extent of feasting in Germany “no nation indulges more freely in feasting and entertaining than the German...drinking-bouts lasting all day and all night are not considered in any way disgraceful” (*Germania*, 21–22). Although the role of feasting in the late La Tène period is given a prominent role in archaeological theories (Nash 1976a, 1978b) until recent work by Dietler (1990, 1995, 1996) little detailed thought was given on the nature of this feasting behaviour.

Feasts serve several functions including the exchange of valuables and bridewealth, links to the ancestors and the Gods, establishing and maintaining social relations and establishing a sense of community (Dietler 1996:91; Earle 1977:226). According to Tacitus the Germans “often make a feast an occasion for discussing such affairs as the ending of feuds, the arrangement of marriage alliances, the adoption of chiefs, and even questions of peace or war” (*Germania*, 21).

The term ‘feast’ covers a group of related events from ‘entrepreneurial feasts’, ‘patron-client feasts’ and ‘diacritical-feasts’ (Dietler 1996:92–99). According to Dietler entrepreneurial feasts are “the competitive manipulation of commensal hospitality towards the acquisition of...symbolic capital, which translates into informal political power” (Dietler 1996:92). These events are frequent in societies lacking formalized power structures and are the only way to exert leadership (Dietler 1996:92).

Work-feasts, which are a type of entrepreneurial feast, function by the offerings of wine and food in exchange for temporary labour often for a specific project (Dietler 1989, 1990, 1995, 1996:93). Ethnographic examples from modern Africa, show that work-feasts are the main way of mobilising labour in pre-state societies (Dietler 1989:136; 1990:365). There are two types of work-feast: exchange and festive feasts. In the former small amounts of food and drink are used but there is an obligation that the recipients provide labour at the work-party’s of others (Dietler 1996:93). These events are not effective in mobilizing a large body of labour (Dietler 1996:93). Festive feasts are larger involving greater amounts of food and drink and are often indicative of kingship or more highly structured societies (Dietler 1996:93–94). In Hawaii feasting was generally unpredictable and erratic (Earle 1977:226).

Patron-client feasts are the “formalized use of commensal hospitality to symbolically reiterate and legitimize institutionalized relations of unequal social power” and are a redistribution mechanism (Dietler 1996:96–97). Diacritical feasts involve the “use of differentiated cuisine and styles of consumption as a diacritical symbolic device to naturalize and reify concepts of ranked difference in social status” (Dietler 1996:98).



In these cases rare foods or serving vessels are used but there is the problem that they can become devalued by the gradual emulation of these items by increasing elements of society (Dietler 1996:98).

Using these ideas Dietler has suggested that for the Hallstatt chiefdoms in eastern France and Germany, feasting behaviours were reserved for the highest elements of society and was used as a diacritical symbolic tool (Dietler 1990, 1996:111–112). In contrast, in the lower Rhône valley during the same period Mediterranean imports were used to fuel an escalating cycle of competitive work-feasts (Dietler 1990, 1996:110–112). In southern France during the Hallstatt period Mediterranean goods are found throughout the settlement system (Dietler 1996:110).

## 11.2 Economic production and the *oppida*, and state formation

The importation of Republican amphorae also stimulated economic production of the goods exchanged for amphorae. By the late second century BC, these processes culminated in the development of archaic states in central Gaul (Nash 1976a:129, 1978b:469). Nash has suggested the existence of states for the Aedui, Arverni, Bituriges Cubi, Helvetii, Sequani, and probable states for the Lemovices, Lingones and Pictones (Nash 1976a:95 fig. 6). Increased foreign trade may have allowed the development of a middle class of artisans and merchants (Crumley 1974:76–77, 80).

Many archaeologists have seen *oppida* as similar to urban settlements and central places (Collis 1984a; Nash 1976a). This view interprets *oppida* as political and administrative centres, the seats of power for local elites, who issued their coinage from them (Nash 1976a, 1978b). *Oppida* also served as local markets providing access to goods to their surrounding areas; they were divided into different functional zones such as housing, industry or agriculture (Nash 1976a, 1978b; Collis 1984a; Cunliffe 1988:96–97). This model is still influential on the continent (Colin 1998:114–116; Metzler *et al.* 1991:171–174).

Others have argued that the *oppida* encompassed a variety of sites that were never truly urban, while the existence of a market economy and the level of state development and urbanization during the late La Tène period has also been questioned (Haselgrove 1988; Ralston 1988, 1992; Woolf 1993a). Although ethnographic evidence from Africa suggests no link between foreign trade and political centralization (Dietler 1989:135), it is possible that some form of centralization may be a pre-requisite for large-scale foreign trade; although this need not have been at the state level.

Woolf (1993b) has argued that the role that amphorae played in late La Tène social change was less significant and there was no correlation between the level of socio-economic change and the frequency of amphorae. It has been argued that the quantity of wine imported into Gaul during the late La Tène period was not as great as postulated by Nash (Fitzpatrick 1989:33; Fulford 1985:95), and that the sudden increase in imports can not be seen (Fitzpatrick 1989:33). However, chapter 10 has demonstrated that the Auvergne, especially the department of the Puy-de-Dôme, did receive a greater number of Republican amphorae than surrounding regions of France.

### 11.3 Redistribution

Cunliffe has suggested two ways that Dressel 1 amphorae were distributed. Firstly, by the creation of an *emporium*, where Gauls came to buy wine under Roman control, such as at *Tolosa* (Toulouse) within the Province (also suggested by Tchernia 1983:94). At *Tolosa* "Italian wine was decanted into barrels brought to the town by independent Gauls, who preferred this traditional means of transport to carry wine to their home" (Cunliffe 1988:83). Secondly, the transportation of amphorae to native sites outside the Province for redistribution by local economic systems (Cunliffe 1988:83). The second method has been echoed by Roymans (1990:42) and by Metzler *et al.* (1991:167, 172, fig. 118), who argue that in northern Gaul Roman traders delivered amphorae to central *oppida* where elite redistribution systems took over.



To Cunliffe the great sites dominated by amphorae outside the Province were *emporia* such as Châlon-sur-Saône (Cunliffe 1988:87) and the *oppidum* of Essalois (on the upper Loire) (Nash 1976a:19). The latter was placed to control the land route where the Rhône valley reaches the Loire valley (Cunliffe 1988:87). The former site known as *Cabillonum* was, according to Caesar, an important trading site (*De Bello Gallico* 7.42). Other sites rich in amphorae such as Corent and Gergovie would also have served as *emporia*.

Woolf has questioned the interpretation of the *oppida* as *emporia* since many were not positioned to function as such and amphorae are found at sites surrounding them (Woolf 1993b). The *oppidum* of Essalois is actually positioned on the wrong side of the Loire river to act as a transshipment point between it and the river Rhône, and there are also doubts as to whether the Loire was navigable at this point. Further, the location of the *oppida* of Crêt-Châtelard, Essalois and Joeuvre all on the upper Loire makes it unlikely that they served as *emporia*. Woolf notes that only the site of Châlon-sur-Saône could have functioned as a transshipment centre (Woolf 1993b:216). Alternatively, it has been suggested that these sites were places where wine was consumed in large quantities (Woolf 1993b).

### 11.3.1 Consumers of the wine

According to Athenaeus, Italian or Marseilles wine was the drink of the Celtic elite, while the lower classes drank a wheat beer (*Deipnosophistae* 4, 151). The Germans also drank liquor made from barley or other grain that resembled wine (Tacitus, *Germania*, 23). Athenaeus also refers to the “vats with expensive liquor” (wine amphorae?) set up by the Arvernian King Louernius to supply his followers (clients or soldiers?) (*Deipnosophistae* 4, 152). Diodorus Siculus also refers to the barley beer (*zythos*) of the Gauls and their fondness for unmixed wine (V, 26.2–3). Dionysius of Hallicarnassus (XIII, 10) described Celtic beer as “a foul smelling liquor made from barley rotted in water”. Imported wine was the beverage of the warrior class and was consumed at special events often in sanctuaries or enclosures according to Poux (*in press*. 1 and 2). The evidence he has marshalled for this is threefold. Firstly, the

presence of amphorae in rich late La Tène tombs, often with high-class metal gravegoods and weapons (Metzler *et al.* 1991; Metzler 1993; Poux 1999b, *in press.* 1; Villard 1993) and see chapter 7. Secondly, the presence of amphorae in pits and wells, often with cremated human remains and imported metal vessels and weapons (Poux *in press.* 1 and 2) (see later). Thirdly, deposits of amphorae in cult centres associated with military equipment (Poux *in press.* 1 and 2). Middleton (1983) and Crawford (1985:170) have suggested that Republican amphorae in Gaul reflected consumption by the Roman military, rather than native consumption. Roman citizens may have consumed most of the wine imported into southern France according to Fitzpatrick (1989:40).

#### 11.4 The evidence from the Auvergne

In the Auvergne during the second century BC Republican amphorae were widely distributed in the Grande Limagne (see chapter 10) and are found throughout the settlement system; the situation is similar to the distribution of Mediterranean imports in southern France during the Hallstatt period (Dietler 1996:110). Deposits of amphorae are not associated with military equipment in the Grande Limagne sites, in fact at La Grande Borne Aulnat/Chantier 4 they are absent from the contexts with weapon deposits (Guichard and Orengo 1999). The situation in the Auvergne suggests frequent, open and small-scale feasting events of the exchange work-party type (Dietler 1996:93), during the second century BC. Imported wine was consumed by a wide element of society, including the inhabitants of the small farms. Some of the rural settlements in the department of the Puy-de-Dôme have sizeable Republican amphorae assemblages: Le Pâtural has over 100 Republican amphorae, suggesting that the consumption of wine at this small farmstead was not limited. At the very least, this implies that the practice of feasting was open and flexible, and although the amphorae might have been contributed to the feasts by a limited number of privileged sources, it still implies a degree of universal access. It also suggests escalating feasting and competition over the use of labour. Feasts may have been essential in providing labour for ditch digging and the drainage of the Grande Limagne. It could be argued that many of the small rural settlements on the Grande Limagne were high



status sites; Orengo argues that the Le Pâtural was the habitat of a small Chief (*in prep.*). If this argument is accepted then it becomes difficult to identify any lower status sites on the Grande Limagne, which would be difficult to accept. Instead it is more likely that the majority of the settlements on the Grande Limagne had access to Republican amphorae regardless of their status.

This interpretation of widespread consumption of wine in the department of the Puy-de-Dôme during the late La Tène period is at odds with the classical references, but they need to be understood in the light of several points. Classical references concerning the drinking of imported wine by the Gauls are limited. Athenaeus (and probably also Diodorus Siculus), derived most of his information from Posidonius, who wrote an ethnographic work on the Gauls and their 125–121 BC war with Rome (Tierney 1960). It is possible that the information used by Posidonius generally concerns the practices of the Gauls who inhabited the region around Marseilles, during the late second century BC and he is believed to have travelled in this area (Nash 1976b:120). There is no evidence that he travelled outside of this region let alone in central France, although he may have gained his accounts of the Arverni from Arvernian captives (Nash 1976b:120).

By the time that the *oppidum* of Corent was settled, the sites on the Grande Limagne were abandoned and apart from sites around Lezoux, there were few contemporary sites with Republican amphorae. There was less redistribution and exchange of amphorae and greater social control during the period of the *oppida* from the late second to the first century BC. There may have been a change towards larger and more tightly organised feasting events during the late second to the early first century BC. These events resemble the large festive type work-feasts in the terminology of Dietler (1996:93–94). It may also suggest an ideological change away from the individual/family groups to a communal ideology. Cumberpatch (1995a, 1995c) has suggested a similar model for parts of Central Europe during the middle to late La Tène period. For the Auvergne at least, the *oppida* did not serve as *emporia* or redistribution centres. Only the open site of Le Bay next to the river Allier could have served as an *emporium*. Le Bay however, did not supply wine to Corent and there

were few other contemporary settlements. The quantity of amphorae at Corent suggests that this site was the focus for massive feasting and ritual events; this is reinforced by the rich collection of coins, brooches and military equipment from the site, suggesting votive deposition (Guichard *et al.* 1993; Malacher and Collis 1992; Orengo *in prep.*).

Access to imported feasting goods might have been restricted to fewer elite individuals and the practice of escalating feasting ended. The feasts may have taken a different nature, less geared towards providing agricultural labour, but instead connected with ancestor worship and military display and prestige. The drainage ditches on the Grande Limagne appear to have been maintained during the occupation of the *oppida*, but rural feasts did not provide the labour for construction and maintenance.

Woolf has spoken of this period as being characterised by increased 'social power' (1993a, 1993b). Evidence for this comes from the organised layout of the *oppida*, which suggests the creation of deliberately planned new settlements (Haselgrove 1996:147). Elite competition may have been channelled away from competitive feasting to other spheres and two areas can be suggested. Firstly, the use of inscribed coinage for display and for the payment of labour. The earliest inscribed coinage in the Auvergne appeared around the late second century BC and is frequently found on Corent (Guichard *et al.* 1993; Malacher and Collis 1992). Amphorae motifs appeared on Arverni coin types including the Vercingetorix series that appeared during the Gallic War (Guichard *et al.* 1993; Malacher *in prep.*; Malacher and Collis 1992). Secondly, the association of Republican amphorae in rich graves with drinking equipment and weapons also appeared from the LTD2 period onward in northern and central Gaul (Ferdrière and Villard 1993; Metzler *et al.* 1991; Metzler 1993; Villard 1993). The elite to signify their difference and separation from the mass of society used wine drinking and special serving vessels (*cf.* Dietler 1990, 1995:80). Most of these graves contain individual drinking and serving vessels and lack larger communal vessels; the Clemency tomb is an exception (Metzler *et al.* 1991).



Outside the Auvergne in the Aisne valley, Berry, Burgundy, and Ile de France, amphorae were restricted to *oppida* or large settlements (Haselgrove 1996; Hénon 1995; Olmer 1997; Poux 1999b) and see chapter 10. However for Berry and Burgundy examples of smaller rural settlements are lacking and for Ile de France Republican amphorae assemblages have been found at many of the small rural enclosures (Seguier 1999a, 1999b). Late La Tène rural settlements in the Aisne valley contain few Republican amphorae (Haselgrove 1996:172–173 table 1). Interestingly the rural settlement of Montmartin (Oise), which has been interpreted as a rich aristocratic residence and meeting place, only contained a few Dressel 1A amphorae (Brunaux and Méniel 1997:83, 141 fig. 124).

### 11.5 Late La Tène trade

Fitzpatrick (1989:39) suggests that iron was exchanged for Republican amphorae as Italian iron production was limited (Wells 1984:157). Metzler (*et al.* 1991:172–173) has linked the rich graves (including the Clemency tomb), in the territory of the Treveri, with an elite who gained wealth and power via control of the production and exchange of iron goods. Caesar mentions the frequency of iron workings in Gaul (*De Bello Gallico* 7.22) and Strabo refers to the fine iron works of the Petrocorii and the Bituriges Cubi (*Geography* 4.2.2) though it is not clear if Strabo is referring to the situation in the early imperial period. On the other hand, Berry is rich in surface iron ore deposits, and old mine workings are common (Nash 1978a:175, 178), yet Berry does not have an exceptional quantity of Republican amphorae (chapter 10). Similarly, Burgundy and Franche-Comté also contain rich iron deposits (Cunliffe 1988:28) but not an exceptional number of Republican amphorae findspots.

The late La Tène period throughout Western Europe is characterised as a period of increased production of iron and iron goods (Wells 1984:143–149, 164). Henderson (1991) has spoken of a minor industrial revolution during the second to first centuries BC with increased production and a centralization of production in the *oppida* under elite control. In the Auvergne iron production during the second century BC was dispersed throughout the Grande Limagne and the pre-conquest *oppida* (Corent and

Gondole) have so far produced little evidence for intensive iron production (Orengo *in prep.*). Nor is there evidence for an upturn in industrial production during the late La Tène period in the Auvergne.

In the Czech Republic, the formation of the *oppida* was not followed by the concentration of industrial activities in these sites (Cumberpatch 1995a:70); the level of industrial production at the *oppida* was not greater than seen in the preceding rural settlements (Cumberpatch 1995a:74–75; Salač 1993). Smelting furnaces have so far not been found on the Bohemian *oppida* (Salač 1993:78) and craft and industrial activities were still found in the rural settlements contemporary with the *oppida* (Salač 1993:86–87). The main source of high quality iron goods for Rome was Noricum (Fulford 1985:94, 96; Wells 1984:154–155), and Rome had established a trading treaty with its capital the Magdalensberg by c.120 BC (Wells 1984:154–156).

Tchernia (1983:95–96) and Cunliffe (1988:83) have proposed that precious metals from southern Gaul were exchanged for amphorae. There are rich deposits of copper, lead and silver in the Pyrenees, the Montagne Noire mountains, and Corbières and the Rouergue (Cunliffe 1988:28, 52, 83) and Strabo refers to the silver mines of the Ruteni (*Geography* 4.2.2). Gold deposits are found in the valleys of the Ariege, Arize below Toulouse and near to Carcassonne (Cunliffe 1988:83). Dietler has suggested that Republican amphorae were used to mobilize the labour for use in the mines (1990:394 note 26). Gold deposits are found in Limousin and the mines here were active from the second century BC, but were abandoned by c.50 BC (Cauuet and Didierjean 1992). Again, there is no obvious correlation between the precious metal mining areas of Limousin and the density of Republican amphorae, although Republican amphorae have been found at some of the mining sites (Mur 1997–1998:136). The concentration of amphorae findspots in the mining areas of southern France could be a by-product of the widespread distribution of amphorae in France. Moreover, the fact that amphorae are found deep within the mines of southern Gaul suggests a link with social or ritual use as much as with mining. Rome had other important sources of precious metals including Spain which was rich in silver and



gold (which came under Roman control by the late third century BC) and Macedonia, annexed by Rome in 167 BC (Richardson 1976).

For the Arverni, metals are not abundant in their core territory, apart from some minor bog iron deposits, tin deposits on their borders (Ralston and Büchsenschütz 1975:9) and minor deposits of gold in the river Allier. In fact metals must also have been imports to which the Arverni had plentiful access too from the early second to the first centuries BC (Guichard *pers. comm.*). Arvernian gold and silver coinage remained at a high value during the first century BC unlike the coinage of adjacent tribes, which became progressively debased (Haselgrove 1988:83). The Arverni may have obtained (by tribute or trade) precious metals from the Ruteni and other adjacent tribes (Lemovices?). The rich concentration of industrial activities in the LTC1 contexts at La Grande Borne lack Republican amphorae and the later contexts, which contain much less evidence for industrial activities, are rich in amphorae. The only resource exported from the Auvergne during the La Tène period was quern stones (Lavendhomme and Guichard 1997:205).

### 11.5.1 The slave trade

In northern Gaul slaves may have been the main commodity exchanged for amphorae according to Roymans (1990:157) and Nash (1984:101). Nash has suggested that the Hallstatt chiefdoms traded slaves for luxury Mediterranean imports (Nash 1984). There are several classical references to the trade in slaves between Gaul and Rome, during the later Republican period (Tchernia 1983:97–99; Cunliffe 1988:76–88). Caesar even refers to the lower classes in Gaul as being little more than slaves (*De Bello Gallico* 6.13). There is the account by Diodorus Siculus concerning the exchange of an amphora for a Gaulish slave:

Being inordinately fond of wine, they gulp down what the merchants bring them quite undiluted. They have a furious passion for drinking and get altogether beyond themselves, becoming so drunk that they fall asleep or lose their wits. Many Italian merchants, prompted by their usual cupidity, consequently regard the Gauls' taste for

wine as a godsend. They take the wine to them by ship up the navigable rivers or by chariot travelling overland and it fetches incredible prices: for one amphora of wine they receive one slave, thus exchanging the drink for the cup bearer (V, 26.3).

Cicero's *Pro Publio Quinctio* refers to the trade in Gaulish slaves to Italy (Tchernia 1983:97) and classical writers mention contingents of Gaulish slaves in Italy (Tchernia 1983:98). There are scattered finds of iron shackles and chains in Western Europe from La Tène contexts including examples from Châlon-sur-Saône, although a detailed gazetteer of findspots is lacking (Arnold 1988:180).

The main source of slaves however, probably came from warfare, while actual slave trading was limited (Fitzpatrick 1989:39; Crawford 1992:103; Harris 1980:121). Piracy, which was endemic during the second and early first century BC, was also an important source of slaves (Crawford 1977; Harris 1980:124). Crawford has linked the widespread hoards of Roman *denarii* in Dacia, with Roman slave trading during 65–30 BC (1977). Estimating that the annual Roman demand for slaves was c.50,000 a year Crawford has suggested that Dacia alone was capable of supplying c.30,000 slaves per year (Crawford 1977:122–123). It is noteworthy that Roman silver, instead of agricultural products, was exchanged for slaves.

For the late Republican period slaves may have formed between 25–30% of the Roman population (Fitzpatrick 1989:29). A total population of between 1–3 million slaves has been proposed for first century BC Italy (Brunt 1971:124; Rathbone 1981:22; Crawford 1977:122–123) and 10 million by the early Empire (Harris 1980:118). Tchernia has calculated that each year 15,000 new Gaulish slaves would have been required in the second and first centuries BC, but this would have only accounted for one tenth to one third of the goods exchanged for amphorae in Gaul (1983:98–99). Scheidel (1997:167) has argued that natural reproduction of slaves and not warfare or slave trading provided the bulk of new slaves and the slave trade only accounted for 10,000–15,000 slaves a year.



The price of a whole wine amphora during the late Republican period was c.8–15 *sesterces* (Duncan-Jones 1982:46) and the price of a slave started from 600 *sesterces* (Duncan-Jones 1982:349–350); although the average price was 2,000 *sesterces* (Rathbone 1981:13 note 17). Even excepting that the exchange rate of amphorae to slaves was in the Romans' favour, without necessarily accepting the account by Diodorus Siculus, it reduces the number of slaves exchanged for amphorae by a large factor. Thus in areas with a smaller number of amphorae, like northern Gaul, the slave trade may possibly account for most of the amphorae, but in areas with massive numbers of amphorae, like central France, the slave trade would have accounted for only a small proportion. Slave trading might explain the low-level trade in Greco-Italic amphorae to central France during the second century BC, but not the Dressel 1 trade. For the Auvergne, it is hard to explain why amphora quantities would show great increases just when the Arverni's military superiority was at an end, following their 121 BC defeat by the Romans, if warfare and slavery was the mechanism by which amphorae were procured.

The Roman demand for slaves came from the creation of great slave run *latifundia* during the late second century BC (Cunliffe 1988:60–65; Hopkins 1978). The formation of these large estates, staffed mainly by slave labour, at the expense of smaller rural farms, lead to widespread rural depopulation. The senatorial elite bought up great tracts of land, which was turned over to the production of cash crops such as wine, grain and the olive for export (Hopkins 1978; Rathbone 1983).

It has been suggested that the land reforms' of Tiberius Gracchus of 133 BC, were aimed to curb the accumulation of land by the rich (Crawford 1992:94–111) and that the *latifundia* were well established by the middle of the second century BC (Crawford 1992:99–103). Archaeological evidence suggests that the earliest *latifundia* did not form until the late second century BC in Campania, and did not develop until the first to late first century BC in Etruria and Latium (Curti *et al.* 1996:176; Dyson 1978:260; Rathbone 1983:162). Only for the *ager Falernus* has it been suggested that the development of the villa economy can be dated to c.200–150

BC (Curti *et al.* 1996:177). However, even around Pompeii, small to medium sized villas were engaged in viticulture (Jongman 1991:123, 142).

According to Carandini there is evidence for 12 large slave run estates (each with 500 *iugera* of land) in the *ager Cosanus* by the second century BC (in Rathbone 1981:20–21): this has been questioned by Rathbone (1981:20–21). Surveys of the area however, have suggested that large villa estates were not the norm, and only five possible examples have been identified, only one of which controlled a large tract of land (Dyson 1978:260–261). These surveys also found no evidence for a reduction in the number of smaller and medium sized farms during the late Republican period (Dyson 1978:263; Rathbone 1983:162).

The villa of Settefinestre near Cosa in Etruria, was not built until c.70–60 BC (Rathbone 1983:164) by which time the large-scale exportation of amphorae from Cosa was falling. The villas in the *ager Cosanus* peaked in prosperity during the early Imperial period (Dyson 1978:260), which coincides with the end of the large-scale exportation of Dressel 1 amphorae (Rathbone 1983:164).

A further problem is the size of the slave run workforce required for these estates. For the villa of Settefinestre the slave workforce has been calculated as c.20–80 (Rathbone 1981:12–13; Purcell 1988:197). The number of workers per *iugera* for viticulture given by classical writers are low: 1:7 (Columella, 3.3.8), 1:8 (Varro, 1.18.2), and 1:10 (Pliny, *Naturalis Historia* 17.215).

Evidence for slave quarters on rural farms is limited, with examples of *cellae* at the villas of Gragnano and Tiberius Claudius Eutychus from Naples (Rossiter 1978:40–46). These villas only have nine and five cells respectively and clearly did not contain large resident slave populations. Given that the labour demands for viticulture were erratic and concentrated at harvest time, slave run estates were only economical if there was a body of free labour, supplied by smaller landholders, available (Rathbone 1981:14–15; Purcell 1985:3).



Spurr has demonstrated that cereal agriculture was well suited to the use of slave labour (Spurr 1986:137–140). Even the villa of Settefinestre had a large granary suggesting that cereal production formed an important part its economy (Purcell 1988:196–197) and none of the classical writers recommended the use of monoculture (Duncan-Jones 1982:37). For the Pompeii region, cereals may have been of more importance than viticulture, with vine growing confined to the volcanic slopes (Jongman 1991:99–105). Cereal agricultural may have provided an additional market for foreign slaves during the late Republican period.

Purcell has proposed an alternative model for the development of viticulture during the late Republican and early Empire. Purcell has argued that the period after 50 BC was a golden period of viticulture in Italy (1985:19). Purcell suggests that wine production in the Republican period was geared to the production of low quantity, but high quality wines on small to medium sized estates with at most 100 *iugera* of vines (Purcell 1985:7). Most of these vineyards were owned by the prosperous urban dwellers (Purcell 1985:8), and were not owned by members of the senatorial aristocracy (Purcell 1985:5). In the early imperial period, there was a shift to the production in bulk of poorer quality wines for the growing Italian urban markets (Purcell 1985:14). It is only in the early Imperial period that there is evidence for senatorial involvement in viticulture (Purcell 1985:10–11).

Parts of this model (arguing that much of the exported wine came from small vineyards and not massive slave run estates) can be accepted. However, the two other main propositions, that late Republican wine production was one of high quality but low volume wines and that there was no senatorial involvement, are problematical. Given the scale of the wine trade to Gaul it is unlikely that this could be met by the export of just high quality wines. The frequency of amphorae in the Albinian and Cosan fabric (chapter 9) demonstrates the bulk export of high volume wines during the Republican period. Furthermore, the presence of internal resin linings in Dressel 1 amphorae suggests the carrying of poor quality wine. The Greeks added resin to poor quality wines (Unwin 1996:98) and the resin found in Dressel 1 amphorae would have

slightly flavoured the wine. The vexed question of senatorial involvement in viticulture during the Republican period is discussed in chapter 12.

### 11.5.2 Agricultural Goods

Another possible commodity exchanged for Republican amphorae was agricultural staples (Tchernia 1983:97; Crawford 1985:170). Middleton (1983:81) has suggested the need for grain for the Roman military market, as one explanation for the amphora trade to Gaul. The longer chronology for the importation of amphorae into Gaul would then be linked with the Roman demand for grain and other agricultural goods during the Punic wars in Spain. Cicero refers to the need for grain to feed Roman armies in Spain during 80–72 BC (*Pro Fonteius* 13). The wintering of Pompey the Great's Spanish army in southern Gaul during the same period would also have created an additional demand for agricultural goods (*Pro Fonteius* 16). As the height of the campaigning in Spain and southern Gaul occurred during the second century BC, it would not explain the large number of amphorae after c.120 BC.

By the end of the Republican period, Garnsey has estimated that Rome required 200,000–150,000 tonnes of grain each year (1983:119). Although Rome sought the majority of its grain from the traditional markets of the Black Sea region, Egypt (monopolised by Rome only after 31 BC) north Africa and Sicily (Garnsey 1983:119–120; Rathbone 1983; Richman 1980) grain may also have been sought from Gaul (Garnsey 1983:119–120; Richman 1980:113). The demand for grain increased after 123 BC, with the creation of the free corn distribution for Rome (Richman 1980:2, 48–49), and this coincided with the upsurge in amphorae importation to Gaul.

Strabo refers to the export of meat and wool from Gaul to Rome and parts of Italy (*Geography* 4.4.3) but again this may refer to the early Imperial period. The best quality hams came from Gaul (Morley 1996:153) and Gallic sheep were superior to other breeds (Morley 1996:154). The Cavalière wreck (off the coast of Mediterranean France) contained a cargo of Dressel 1 amphorae, but also the remains of a cargo of salted pork (Parker 1992:133).



The relatively high cost of moving agricultural staples overland has traditionally been seen as deterring the large-scale exchange of agricultural goods (Duncan-Jones 1982:1; Richman 1980:13, 16). It has been suggested that overland transport costs have been overestimated and land transport was more frequent in the ancient world (Hopkins 1983; Laurence 1998) and see chapter 10. For many of the Gaulish tribes, including the Arverni of central France, agricultural produce was their main available resource (Richardson 1997:237, 255). It is puzzling however, that the Grande Limagne plain contains little evidence for intensive settlement and cultivation during the late second to first century BC when amphorae were being imported in large quantities. If agricultural goods from southern France, which was a rich grain producing area (Richman 1980:112–113), were traded to Italy and Spain, then agricultural goods from central France may have been traded to the Province.

If the amphorae were primarily exchanged with agricultural goods, it would then suggest that this trade was one between Gaulish communities, rather than a simple and direct trade between Romans and specific polities. Most models tend to interpret this trade as one carried out by Roman and Provincial traders and merchants (Nash 1984:102). Caesar does refer to Roman citizens engaged in trade at *Cenabum* (Orleans) (*De Bello Gallico* 7.3) and possible Roman traders are mentioned at *Vesontio* (Besançon) (*De Bello Gallico* 1.39), *Cabillonum* (Châlon-sur-Saône) (*De Bello Gallico* 7.42) and *Noviodunum* (Nevers) (*De Bello Gallico* 7.55). It is hard to believe, given the scale of the amphorae trade to Gaul that it was not in the hands of Gaulish traders.

### 11.5.3 Market economy?

The existence of a market economy during the late La Tène period was in vogue 20–30 years ago (Colbert de Beaulieu 1973; Nash 1976a, 1978b); this is now seriously questioned (Woolf 1993a). In terms of the intra-regional dispersal of amphorae, it is apparent that the exchange or redistribution of amphorae during the late La Tène period was extensive and frequent in the Auvergne. Although it is difficult to decipher the nature of the economy from this, since a market system may produce a

pattern indistinguishable from a redistribution system, whether or not under social control, several pieces of evidence hint that some form of primitive market exchange may have existed.

Nash linked the development of coinage with long-distance trade (1976a) and Hopkins linked the level of trade between Rome and its provinces with the level of coinage in circulation and taxation (1980). Low-value bronze coinage is now known to have developed during the mid-late second century BC in central France (Guichard *et al.* 1993). The level of coin deposition in central France was greater than during the early Roman period (Malacher and Collis 1992; Guichard *et al.* 1993) and the first century BC Gaulish economies may have been more advanced than Rome (Haselgrove 1988:74).

Low-value potin and struck bronze coinage were widely distributed in the Auvergne and found at all levels of the settlement system, including the small farms during the second half of the second century BC (Guichard *et al.* 1993). The frequent finding of Arvernian coin types (Epad, Epos, Motvidiaca and *potin au long cou*) in the lower Rhône valley (Guichard *et al.* 1993:44; Malacher *in prep.*; Malacher and Collis 1992) appears to support claims for market exchange and/or evidence for the paying of tolls for amphorae. Alternatively, political links between the Arverni and the tribes of the lower Rhône valley might explain these findspots.

Taxation of this trade by the elites would have been profitable and easier than the physical control of this trade; Caesar gives the example of the Aeduan chief Dumnorix who bought taxation and collection rights for river tolls for the Saône (*De Bello Gallico* 1.18). Cicero (*Pro Fonteio* 3.99) also refers to the taxing of amphorae that passed overland through Narbonensis, although this taxation was by the Romans. It is significant that low-value coinage became prevalent at least by 130–120 BC, during one of the surges of amphora importation.



## 11.6 The deposition of Republican amphorae

Poux (1997) has made an important start with his study of the deposition of Republican amphorae at Basel Gasfabrik and he is presently engaged in a similar study for non-Mediterranean France (Poux 1998). Recent excavations at Basel Gasfabrik have uncovered many pits containing pottery, animal deposits, human remains, jewellery, slag, mould fragment, *plaques de foyer*, daub and iron nails (Jud *et al.* 1996:40). Many of the pits contain amphorae while in some whole amphorae had been deposited; in one pit, there was a relationship between amphorae and human bones (Jud *et al.* 1996:43).

These deposits resemble the assemblages from Gallic temples and the authors conclude that the pits and finds from Basel Gasfabrik should be interpreted as ritual (Jud *et al.* 1996:43). Poux (1997, 1998) has argued that many of the amphorae from the site show evidence for deliberate breakage across the neck of the vessel by a sword indicating that they were ritually killed, while other intact or fragmentary amphorae were cremated before deposition.

### 11.6.1 Deposition of amphorae in pits and wells at Toulouse

Two contexts for the deposition of Republican amphorae stand out: in deep pits and shafts; and secondly in the ditches of rectangular enclosures. The great *puits funéraire* are concentrated around Toulouse and Vieille-Toulouse (Fouet 1958; Vidal 1973) where there are several hundred examples (Vidal 1973:85, 1986). Many of these features date to the first half of the second century BC (Bats 1990b:284; Vidal 1986:56) although some may post-date the Roman conquest. These shafts ranging from 2–17m deep, contain large deposits of Republican amphorae, with some examples containing from 50 to over 100 vessels (Gomez de Soto *et al.* 1994:172; Vidal 1986:57). The amphorae are mostly Greco-Italic and Dressel 1As, with smaller numbers of Dressel 1Bs, Pascaul 1s and Brindisian oil amphorae (Bats 1986). Other items in these features include imported Italian metalwork (weapons and serving vessels), Campanian wares, a variety of fine and coarse-wares, quern stones (Bats

1986; Fouet 1958; Vidal 1973, 1986:62–63), wood and charcoal (Fouet 1969; Vidal 1986).

Although interpreted as funerary structures (Fouet 1958) only c.30% contain human remains (Vidal 1986:58) and fewer contain complete skeletons. The other favoured interpretation is that these features contain the remains from funerary rituals. However, the complexity of these features indicates a variety of functions. Many show a sequence of deposits suggesting that these features were the locations for repeated events and deposits. Most have a basal offering of ceramics, imported metalwork and sometimes human remains, then several layers of either complete amphorae with ceramic sherds and faunal remains, or separate layers of amphorae sherds and ceramic sherds and animal bones. Human remains are confined to the basal offerings and tend not to be found in the layers of amphorae and ceramics (Vidal 1986:61). Given the frequent occurrence of human remains on Iron age settlements, the presence of human remains in these features need not indicate that the deposits represent funerary remains. The simple deposition of settlement waste, the remains from feasts, and or midden material could explain these deposits. Such an interpretation might explain the presence of quern stones and iron slag within these features. The deposition of midden material may explain the presence of ceramic refits between different layers within these features (Vidal 1986:63).

The wood and charcoal fragments in these features (also found in the smaller ritual pits at Rodez and Agen [Gruat *et al.* 1991]) might be explained as pyre material. It might be linked with the burning and/or offering of wooden items including ploughs, wooden frameworks from the actual pits/wells, wheeled vehicles or wooden funerary chambers or wooden figurines. Several of the pits from Rodez contained wooden anthropomorphic statues (Gruat *et al.* 1991:102).

The presence of iron slag in the Toulouse shafts is noteworthy. Iron slag has also been reported in the other form of special context, namely ditched enclosures, notably the Clemency tomb (Metzler *et al.* 1991:172) and at Rodez (Gruat *et al.* 1991:81–86 fig. 24). Metzler used this and the placing of an iron working hearth in the tomb to



suggest a link between the individual and iron production (*et al.* 1991:172). The presence of midden material, iron slag and quern stones in these features may imply a connection with agriculture, fertility and the transformation of materials.

It is clear that these features contain different types of depositional events, perhaps including funerary deposits, symbolic amphorae burials, offerings to the gods, remains from feasting events, and settlement rubbish and midden material.

### 11.6.2 Deposition of amphorae in pits and wells in southern France and the Auvergne

Similar features have been found away from the Toulouse area, although not on the same scale. The best-documented examples are from Agen (Boudet 1994; Boudet 1997) Rodez (Gruat *et al.* 1991) and Lagaste (Poux 1997:169). In the Auvergne, at La Grande Borne Aulnat/Chantiers 1–3, Le Brézet and Pontcharaud III, the deposition of complete or nearly complete amphorae is also found in small wells and pits, often in conjunction with painted pottery. These deposits also contain *jatte d'Aulnat* a ceramic bowl, that copies the form of a metallic cauldron (Vichy and Périchon 1966), but coins, brooches and weapons are absent. These features, unlike the examples from Toulouse, tend to contain only small quantities of animal bones, suggesting that these deposits were not feasting remains. One example from Le Brézet 51 rue Jules Verne, consisted of a large rectangular structure with 36 mostly complete Dressel 1A amphorae laid side by side. This feature resembles the '*fosse à amphores*' at Châteaumeillant (Hugoniot 1963:174–177). Also from the Le Brézet area are several wells, pits and enclosure ditches with deposits of amphorae (Deberge *in prep.*). At La Grande Borne Aulnat/Chantier 1 pit D contained many amphorae sherds and a child's skull; the base of this feature was rectangular and grave shaped (Giraud 1993:52–54).

In several of these examples, including Le Brézet and Agen (Gruat *et al.* 1991) and the Toulouse funerary pits (Fouet 1958; Vidal 1973, 1986), the amphorae were placed intact within these features. Several of the amphorae at Rodez still contained their cork stoppers within their necks and possibly retained their contents when deposited,

and can be best interpreted as offerings to the Gods (*cf.* Arnold 1999). Complete human skeletons are lacking from the pit and well deposits in the Auvergne, although perhaps human remains may have been stored in these features before cremation/burial and a token offering left behind (*cf.* Niblett 1999:398–399).

The deposition of midden material may explain the rich dump of material at Le Pâtural in a small stream. This deposit contained thousands of amphorae sherds, but also *jatte d'Aulnat* and other coarseware sherds including many large storage vessels. Also, found were many sherds of *plaque de foyer*, animal bones and iron slag.

It is possible that Republican amphorae were seen as symbolically equivalent to human bodies. Human sacrifice during the Iron age took a variety of forms: rites of fire, rites of blood, drowning, strangulation and burial alive (Green 1998). All of these practices can be attested for the deposition of Republican amphorae. At many sites amphorae were buried whole, as at Le Brézet and buried still with their contents ('alive?'), or they could be broken and cremated. Amphorae could be decapitated and have their necks removed as at Pontcharaud III, or their bodies could be speared and impaled (*e.g.* examples of amphorae at Aix-en-Provence 'Terrain Coq' and Entremont with large circular holes in their bodies). They could be 'drowned' in pits/wells, and weighed down by having quern stones or stones placed on top of them as in several of the pits/wells at Rodez (Gruat *et al.* 1991), or perhaps pinned down by wooden frames and supports. These items may have been interpreted within the concept of the life and fertility cycle (*cf.* Cunliffe 1992; Green 1998:178; Hingley 1997). The blood from human sacrifices was collected in cauldrons and used to drench sacrificial altars (Green 1998:176–177) and it is possible that wine was used in a similar manner. Amphorae may have been offering to appease the Gods and to guarantee a successful harvest.

### 11.6.3 Deposition of amphorae in ditches and enclosures

The classical writer Athenaeus recounts the story of the Arvernian king Louernius who built an enclosure within which he liberally dispensed food and drink to all who



came to him (*Deipnosophistae* 4, 37). This resembles an earlier account by Phylarchus (quoted by Athenaeus) concerning Ariamnes a Galatian, who built many small rural stations throughout the lands of the Celts, which were stocked with casks of wine and cauldrons full of meat (*Deipnosophistae* 4, 150). Such small rectangular enclosures are found throughout Western Europe, often with an earth bank and labelled as '*Viereckschanze*' (Büchsenschütz 1991; Cumberpatch 1995c; Murray 1995; Venclová 1997). Murray (1995) has argued that the central European enclosures were the locations for feasting ceremonies, however, Venclová (1997) has argued that the ceramic assemblages from these features do not differ from ordinary settlement waste. For France, however, the late La Tène examples provide more evidence for ceremonial feasting, as the ditches contain rich deposits of amphorae (generally of the Dressel 1A form), animal bones, domestic pottery and rare Campanian finewares (Poux *in press* 2).

Classic examples include Champsemard near Tournus (Perrin and Périchon 1974), Rodez (Gruat *et al.* 1991) and Lyon Verbe-Incarné (Goudineau and Mandy 1989). Several small rectangular enclosures have been recently excavated in the department of Seine-et-Marne which contain Republican amphorae (Seguier 1999a, 1999b). The ditch deposits at Lyon Verbe Incarné were dominated by sherds of amphorae and animal bones, forming 58% and 38% of the total assemblage respectively (Goudineau and Mandy 1989:44–45). The many sherd refits between the different deposits would suggest that they were created around the same time (Goudineau and Mandy 1989:63–67). The size of these enclosure ditches and the quantity of amphorae recovered indicate these sites were the locations for massive feasts. The examples at Champsemard and Rodez also contained wood, charcoal and iron slag (Perrin and Périchon 1974; Gruat *et al.* 1991). A recent excavation in the department of the Allier, at La Génèrie, has uncovered a small ditched enclosure with many Greco-Italic/transitional Dressel 1A amphorae, however other finds are lacking (V. Guichard *pers. comm.*).

Several of the sites in the Auvergne contain 'pavements' or layers of amphorae sherds (Aigueperse, Corent and Le Brézet Iveco). The Clemency tomb contained a pavement

of amphorae sherds laid over several postholes interpreted as structure used to expose the body before cremation (Metzler *et al.* 1991; Niblett 1999:397). It has been suggested that the pavement was used for ceremonial feasting and/or processing or dancing after the cremation (Metzler *et al.* 1991; Niblett 1999:397). Similar behaviours may be connected with the structures from the Auvergne; indeed the pavement at Corent may have been used for feasting given the quantity of animal bones associated with it. The adjacent stone pavement and the stone-lined postholes at Corent may have been used for the display of trophies, or the exposure of bodies.

Recently two sites have been excavated that are all associated with unusual buildings. The site of Souvenir à Vaise at Lyon contained a deep wide ditch with many Greco-Italic and Dressel 1A amphorae. Adjacent to which was a square wooden structure interpreted as a tower, and two buildings of stone construction, with tiled roofs and painted wall-plaster in the early Pompeii style (Maza 1998b:19–24). This structure appears to be unique for France given its date of mid to late second century BC. A similar structure has been excavated at Arnac-la-Poste in Limousin (Mur 1997–1998). Again, sherds of Dressel 1A amphorae form 99% of the total ceramic assemblage from a ditched enclosure (enclosing 1.5ha). Within the enclosure, there was an iron-forge and several buildings with Mediterranean style of construction, including the use of roof tiles (Mur 1997–1998). The excavators interpreted Arnac-la-Poste as a wine *emporium* owned by an Italian merchant (Mur 1997–1998), but it is much more likely that it represents a special site for the consumption of wine.

Although the sample of LTC-D inhumation burials from the Auvergne is modest, amphorae were not included as gravegoods (*cf.* Loison *et al.* 1991). Pits and wells adjacent to the cemetery of Pontcharaud III (Loison *et al.* 1991) contained amphorae, which may indicate that they were used in funerary rituals, but not as gravegoods. A LTD1 inhumation burial of a woman (43901) at Le Pâtural was richly furnished with a bronze and lignite bracelet, a spouted inturned rim-bowl, two coarseware vessels and a tall painted vase (Dunkley 1993). Possibly, the painted vase contained a liquid offering such as wine, which might be suggested by its upright position adjacent to the women's head. Only after the conquest during the late Augustan period does the



Auvergne witness burials associated with amphorae. There are four examples; a Dressel 1B amphora is associated with an Augustan cremation on the site of Le Pâtural, and the three Augustan deposits at Lussat Chaniat (2828, 5902, 5903).

## 11.7 Imported ceramics

Other imported ceramics found outside Mediterranean France during the late La Tène period include Italian Campanian wares (Morel 1985), *pâte claires* from southern France (Bats 1988) and *mortaria* from southern France and Italy (Bats 1988). These imports are much more common in southern and central Gaul than outside this core area (Collis 1984a:fig 9.5; Nash 1976a, fig. 9; Woolf 1998:178). In northern France, Campanian (all Campanian B) and *pâte claires* (no *mortaria*) are only found at a few findspots, nearly all from *oppida* (Pion 1996 I:97–98, 122, 137 fig. 71; Roymans 1990:150, table 7.2). Woolf plots 50 findspots of Campanian in France, mostly in the south (1998:178) and Colin has 66 findspots (1998:75 fig. 28). There are at least 24 findspots from the department of the Puy-de-Dôme alone, Cantal one, 16 in Haute-Loire and three for the Allier, and the true number of findspots for France is c.400–500 (Fig. 195).

### 11.7.1 Imported ceramics in the Auvergne during the late La Tène period

The Auvergne has examples of Campanian (mostly Campanian A) and *pâte claires* including *mortaria*; these generally predate the importation of amphorae (*contra* Woolf 1998:179). Both types have been found in LTC1–2 contexts at La Grande Borne Aulnat/Chantier 4 (Collis 1983; Guichard and Orengo 1999; Morel 1997:129) and at Le Pâtural (*pers. obs.*). The shallow dishes Lamboglia 5 Lamboglia 28 and Lamboglia 36 are common and the Lamboglia 31 (a deep bowl) is also frequent. As Campanian and amphorae were generally exported together this may suggest that the contexts that amphorae were deposited in are missing. The small farm of Le Pâtural has c.5 *mortaria* and there are several examples from La Grande Borne Aulnat/Chantiers 1–4 (Collis 1983), which suggests the widespread copying of new food preparation and cooking styles, at least in central France (*contra* Fitzpatrick

1989:36–37). Findspots of Campanian are widely distributed in the Grande Limagne and a high proportion of the LTC2-D1 sites have examples (Fig. 196). Findspots of Campanian are also widely distributed in Haute-Loire with 16 findspots (Simonnet 1983; Provost and Rémy 1994), although there are no examples of *pâte claires* or mortaria. The Saint-Paulien region has several Campanian findspots. There are two examples of *balsamaires* in the Auvergne; these vessels contained perfumes and tend to be found in funerary contexts in southern France (Deberge *in prep.*). One has been reported from Le Pâtural in a second century BC context and the other is from the fill of a ritual pit at Le Brézet (Deberge *in prep.*).

### 11.7.2 Imported ceramics in Burgundy, Berry and Forez during the late La Tène period

The Forez region has a concentration of Campanian findspots (Fig. 195) with examples from Crêt-Châtelard, Essalois, Feurs, Goincet, Joeuvre and Lijay (Colin 1998:73–75 fig. 28; Sanial *et al.* 1983). Campanian wares were contemporary with the amphorae at Feurs (Morel 1988:91–98) and Roanne (Morel 1997:119–129), although some of the Roanne Campanian may be residual and predate the amphorae (Morel 1997:129). *Pâte claires* are rarer and confined to the larger settlements of Roanne (Lavendhomme and Guichard 1997:132) and Feurs (Vaginay and Guichard 1988:98–99). *Mortaria* are absent from Feurs (Vaginay and Guichard 1988:98–99) and there are only four examples at Roanne, mostly dating to the post-conquest period (Lavendhomme and Guichard 1997:132).

Fewer findspots of Campanian wares have been reported from Berry (Centre) with examples from Amboise, Châteaumeillant, Levroux Les Arènes and Saint-Marcel (Colin 1998:73–75 fig. 28). At Levroux Les Arènes Campanian A is associated with Greco-Italic and Dressel 1A amphorae (Colin 1998:91) but there are no *pâte claires*, and *mortaria* (Colin 1998:73).

In Burgundy Campanian is found at many sites including Bibracte, Tournus Champsemard and Varennes-les-Mâcon (Colin 1998:73–775 fig. 28; Olmer 1997). At



Bibracte there is no correlation between Campanian and Republican amphorae and the frequency of Campanian wares is low (Gruel and Vitali 1998:89 fig. 51). At Bibracte *pâte claires*, are only found in contexts after 120–100 BC and are only frequent after 30–10 BC and *mortaria* are rare (Gruel and Vitali 1998:89 figs. 51–52). At Bibracte, other types of imported finewares only appeared after 80 BC (Gruel and Vitali 1998:89 fig. 51) however, imported metal vessels are frequent including many *passoires* (Gruel and Vitali 1998:76–78).

For the department of the Puy-de-Dôme and the Forez region there is no correlation between increased amphorae and increased imported finewares. The stone platform and amphorae pavement at Corent contained 5939 amphorae sherds but only 33 Campanian A and B sherds. Campanian and *pâte claires* are generally absent from the pits and wells with rich amphorae deposits at Le Brézet, La Grande Borne Aulnat/Chantier 1 and Pontcharaud III (although it is occasionally found in these features). Campanian however, is found in several of the inhumation burials from La Grande Borne Aulnat/Chantiers 1–3 and Pontcharaud III (Loison *et al.* 1991). At Le Pâtural Republican amphorae and Campanian tend to be found in different contexts although in the same area of the site. For both these regions, it is apparent that imported finewares were generally not used for the serving of wine and instead native vessels were preferred; this possibly suggests communal drinking practices. It is possible that Campanian may have been used as a communal cup; classical accounts of Celtic drinking practices refer to this (Arnold 1999:73). However, the range of Campanian forms imported into Gaul was restricted, with the majority being shallow dishes and bowls, yet cups, drinking and pouring vessels were rare (Fitzpatrick 1989:36; Morel 1985). The only exception is the Lamboglia 31 form and this bowl could have been used as a drinking vessel.

### 11.7.3 Imitation Campanian

The rapid development of imitation Campanian in central France from the middle to late second century BC (Genin *et al.* 1992) further reinforces this picture, as the main product of this industry were plates and dishes and not drinking/pouring vessels. The

development of imitation Campanian suggests a large-scale demand for food serving dishes but not for drinking vessels.

#### 11.7.4 Development of other finewares during the late La Tène period

The development of other fineware drinking and serving vessels in the Auvergne such as the Gergovie wares (Ward-Perkins 1940), which include tall pitchers, did not develop until after c.120 BC and they only become frequent from LTD2. However, several Gergovie pitchers have been found at Le Brézet Iveco (Mennessier-Jouannet 1998:12, 15 fig. 8). At Roanne native pouring vessels, and imported fine-ware goblets only appeared in the post-conquest layers (Lavendhomme and Guichard 1997:131) and the same pattern is seen in northern Gaul (Pion 1996 I:137–138 figs. 133–135, 306). At Agen, Rodez and the Toulouse region, a variety of drinking vessels, (tall ceramic vases, Campanian, ceramic *oenoches*, Spanish *sombrero-de-copa*, Catalan pitchers and imported metal drinking vessels), are found associated with amphorae, in the ritual and funerary pits and wells (Gruat 1993b; Gruat *et al.* 1991; Fouet 1969; Vidal 1986).

#### 11.7.5 Painted pottery

Of the indigenous ceramics, painted pottery may have been used to serve wine in the Auvergne and the Forez. Painted pottery developed during the second century BC and there are examples from ditch 12/13 at La Grande Borne Aulnat/Chantier 4 which is dated to LTC1 (Guichard and Orengo 1999). The common occurrence of painted pottery and amphorae in pits and wells in the Auvergne suggests a link between wine and these vessels for this region. Painted vessels are found at the majority of the second century BC settlements on the Grande Limagne (including Aigueperse, La Grande Borne/Chantier 1–4, Le Brézet Iveco and Le Pâtural). These vessels are generally tall and thin with a narrow mouth (Guichard 1987, 1994; Lavendhomme and Guichard 1997:114–118) and would have been ideal for containing and serving liquids or even drinking liquids from. These vessels may be the “terracotta or silver jars like spouted cups” used to serve wine, referred to by Athenaeus (*Deipnosophistae*



IV, 151). At Roanne, however, the features dominated by amphorae sherds contain few or sometimes no painted vessels (Lavendhomme and Guichard 1997:114 fig. 101, 133 fig. 115). Furthermore in these layers, the tall slender vases are generally absent from the layers rich in amphorae. The painted pottery at Roanne is concentrated in horizons 1 and 2 (middle to late second century BC), and perhaps was used to serve native alcoholic drinks. In the Auvergne painted pottery declines in importance after LTD1/2 and is rarely found by LTD2, when pouring vessels such as the Gergovie pitchers are more common. At Corent, the amphorae pavement only contained 82 painted sherds. La Tène painted pottery is rare in Berry with only a few examples from Levroux Les Arènes (Colin 1998:157) and it was of little importance in southern France (Guichard 1987:136).

Of the other main types of local pottery, few were ideally suited to the serving or pouring of liquids. Inturned-rim bowls are very common in the Auvergne LTC2-D1 assemblages, however these vessels have very wide diameters (from c.20–30+cm) which precludes their use as drinking vessels. Furthermore they are not suited for pouring liquids and although some inturned-rim bowls were spouted these are very rare.

### 11.7.6 Imported metal vessels

Imported metal drinking vessels may have been used according to classical accounts (Arnold 1999:73). This however, must be doubtful as although findspots of imported metal-vessels for central France are increasing, with recent findspots from Roanne (Lavendhomme and Guichard 1997:161), Agen and Rodez (Gruat *et al.* 1991; Boudet 1997), they are still rare. In the Auvergne, they have found at Gergovie in LTD2-Augustan contexts (Castoldi and Feugère 1991:80 no. 19; Guillaumet 1991:93 no. 26). They are absent from the second century BC ritual pits, wells and settlements in the Auvergne: unlike the examples from Agen, Rodez and Toulouse (Boudet 1994, 1997; Gruat *et al.* 1991; Vidal 1986). Imported metal drinking and serving vessels are also absent from the three Lussat cremations (2828, 5902, 5903). The reuse and melting down of these items may cloud the issue, but for the Auvergne at least these

items were not imported before the first century BC. This is perplexing given that the Arverni had access to other imports during this period and may reflect a deliberate cultural choice against the importation and use of these items. It is possible that the *jatte d'Aulnat* was used instead of imported metal cauldrons. Intriguingly the *jatte d'Aulnat* is not found after the LTD1/2 period (or 120/100> BC). The evidence is limited but it can be suggested that the *jatte d'Aulnat* was replaced by the use of imported or native metallic cauldrons of which examples have been found on Corent. Or the decline of the *jatte d'Aulnat* may instead imply a change in eating habits, away from the boiling of joints of meat in cauldrons referred to by Athenaeus (*Deipnosophistae* 4, 150) and by Diodorus Siculus (V, 28.4).

## 11.8 Conclusions

The scale and stability of the amphora trade to the Auvergne, for more than a century and during a period of social, political and economic change implies a firm base and stable market. If, as is commonly suggested, the exchange of amphorae was tied to a few goods such as slaves, and restricted to a small segment of society, it would not have prospered and survived for so long. For the Arverni a variety of factors were relevant: agricultural produce, tribute, taxes and the control of trade routes, political and economic links with adjacent tribes; the overall balance of these factors may have shifted over time. The increased frequency of amphorae after the defeat of the Arverni by the Romans in 121 BC may be linked with an attempt by the Romans to create pro-Roman elements in the Auvergne via trade and exchange.

Broad regional differences in drinking patterns and the adoption and use of Roman material culture have been suggested for central and southern France. The Auvergne shows subtle differences from the adjacent Forez region, other parts of central France and southern France. For the Auvergne, there was a contrast between an early preference for imported *mortaria* and individual serving dishes, and the continued use of communal drinking practices. There was a more rapid acceptance of foreign ideas in the preparation of food, than in the drinking sphere.



This review also suggests the widespread use and deposition of amphorae in special locations and associated with special events, but there is no evidence that these events were socially exclusive, at least for the second century BC. Classical accounts (Athenaeus and Phylarchus) specifically note the openness of these feasting events. Certain consistent points stand out from all the examples, particularly the association of amphorae with quern stones, iron slag, human remains and pottery. Most of these feasting sites, especially the *Viereckschanzen*, were in rural locations and wine may have been connected with agricultural work and agricultural rituals. Given the frequent association of iron slag at many of these contexts, feasting events might have been connected with iron working. The production of iron hoes by the Samia people of Kenya only took place at large feasts (Dietler 1996:94–95). Of special note is that these practices in central and southern France mostly involved the Dressel 1A, which suggests that the practice was *passé* by the start of the first century BC. By the first century BC, the deposition of amphorae in the Auvergne becomes increasingly associated with larger ritual events in the *oppida* and these have a more military nature. Wine and wine drinking also became an important symbolic tool of the elite throughout Gaul from the LTD2 period onward.

## Chapter 12 Republican amphorae stamps

### 12.1 Introduction

Stamps were first applied to late fourth-early third century BC Campanian wares, but this practice ceased during the second century (Fülle 1997:117). It has been suggested that the *Lex Claudia* of 218 BC, which prevented Senators from owning large ships, explained the decline of stamped Campanian wares, as Senators sought to conceal their involvement in this trade (Fülle 1997:117). Greek amphorae were frequently stamped with symbols and monograms (Whitbread 1995; Vandermersch 1994) and the practice was attested on early Italian Greco-Italic amphorae from the third century BC. Many Greco-Italic vessels bear Greek stamps including examples from the Capistela wreck (Frey *et al.* 1978) and were presumably manufactured in the Greek colonies in southern Italy and Sicily. Greek names and letters are rarely found on later Republican amphorae however, several Dressel 1Cs and Dressel 1As from the Riou 3 shipwreck were stamped with Greek letters (Long and Ximénès 1988).

Latin stamps were applied to Greco-Italic vessels; the stamp TR.LOISIO (Manacorda 1989:444 fig.1) has been found at Carthage, Ischia, Pompeii, Sicily, and Tarentum. This stamp was also found on a third century BC Greco-Italic vessel from the Cap Bear shipwreck and the fabric of the amphorae suggests a Campanian/Pompeii origin (Liou and Pomey 1985:551). Stamps were more frequently applied to the Dressel 1 and abbreviated names and symbols were used.

### 12.2 Reasons for stamping amphorae

Several explanations have been suggested for the stamping of ceramics including amphorae (Manacorda 1989). These have included indicating the maker of the amphorae; the names of the *officinatores* of the kilns (Tchernia 1993), the owner of the amphorae, and a form of quality control regarding the quantity and/or quality of the goods (Fülle 1997:115–117; Manacorda 1981:126). The explanations all have weaknesses when applied to amphorae. Stamping as a form of quality control is



unlikely, as the contents were separate and given the variation in amphorae size, stamps clearly did not indicate a standard volume. Furthermore, amphorae were sold by weight and not by their volume of contents (Paterson 1982:156–157).

It is more likely that stamps were connected with the production of the amphorae. Paterson (1982:155, 1998:159) suggests that amphorae stamps indicated the owners of the *figlina*, which produced the amphorae, or the slaves and officials who worked for them. For Republican amphorae, it was standard practice for the *negotiatores* to supply the amphorae and not the job of the wine producing estate (Arthur 1991a:75; Paterson 1982:155, 1998:164). This would explain the use of many different stamps at the same kiln; the Mondragone kiln is associated with seven different stamps (Arthur 1991a:75) and the Albinia kiln a greater number (more details later).

The Dressel 6B amphorae produced in the workshop at Fasana in Istria provide an instructive comparison. The Laecanius family owned this workshop, during the first century AD, and these amphorae are stamped with two names on the rim. One refers to the senatorial owner and the other indicates the name of the freedman (the *vilici*), who ran the pottery for the owner (Bezeczky 1998:11). Between 20–22 different *vilici* are known for the Laecanius Dressel 6B amphora over a period of 30–35 years (Bezeczky 1998:70). Unless the *vilici* were only employed for a year at most, the pottery must have been divided into several units (Bezeczky 1998:70–71).

Stamps found on the mortar seal covering the cork bouchon, possibly refer to the buyer of the amphorae, and/or the shipper, or the owner of the amphorae contents (Paterson 1982:156). Mortar stamps were more frequent than stamps found on the amphorae body, although exact figures are not available. When amphorae contain both body and mortar stamps, there is no correspondence between the two (cf. Hesnard and Gianfrotta 1989). An anchor and Dressel 1 mortar stamps from the Dramont A wreck were both stamped with the name *Sextus Arrius* and this *negotiator* owned part of the cargo, but also acted as a *mercator*, in that he owned or part owned the ship (Paterson 1998:160). This evidence would seem to suggest a different

function for these two types of stamps, or at least different groups of people were involved in the making of the amphorae and their distribution and shipping.

### 12.3 Stamping rate

Unlike ceramic finewares in which the majority of pieces were stamped (Fülle gives a 90% stamping rate for Arretine ware [1997:117]), amphorae were less frequently stamped. The percentage of stamped Republican amphorae from shipwreck contexts can vary from none to nearly all (Laubenheimer 1992:189). Will suggests that around 10% of amphorae (land and marine contexts) were stamped (1997:121) and a similar figure has been reported for brick and tile stamps (Will 1997:130 note 5). The Albenga (cargo of c.1000 Dressel 1Bs) (Parker 1992:50), the Cap Benat (Long 1987c) and many other wrecks contained no stamped amphorae. The majority of the Dressel 1A amphorae in the Grand Congloué 2 wreck were stamped (Benoit 1957). The three types of Dressel 1B amphorae from the Madrague de Giens shipwreck had stamping rates of 7.8%, 65% and 2.2% (Tchernia *et al.* 1978:40). In the Miladou wreck, 6.4% of the Dressel 1 amphorae were stamped (Dumontier and Joncheray 1991), for the Riou 3 wreck, the figure was 28% (Long and Ximénès 1988), and 82% for the Fourmigue C wreck (Baudoin *et al.* 1994:16).

### 12.4 Republican amphorae stamp catalogues

The main although now outdated catalogue of amphorae stamps is Callender's work. This was published in 1965, but only contains details on stamps up to 1955 (Callender 1965). This work has yet to be updated, or replaced and instead, several comprehensive site based catalogues are now used in-conjunction with Callender's work.

A series of catalogues is presently being published that aims to document all recent findspots of Republican amphorae stamps and so far two volumes have appeared for 1988 and 1988–1990 (Carre *et al.* 1995; Blanc-Bijon *et al.* 1998). Panella is also



compiling a gazetteer of Italian amphorae stamps (Panella 1994) which has 900 Dressel 1 stamps for France (Volpe 1994:221).

The *oppidum* of Bibracte has the largest collection of Republican amphorae stamps in Western Europe (Laubenheimer 1991; Olmer 1997). Laubenheimer (1991) published the 190 stamps from the nineteenth century excavations on the site. Olmer (1997) has recently published a gazetteer of a further 271 stamps from recent excavation on the site. Other important collections include Essalois (Preynat 1992; Verrier 1998) and Roanne both in the Forez region (Aulas 1981; Guichard 1997). Gruat (1994) has published a gazetteer of Republican stamps found in south-west France. These collections of stamps and several other collections have been used to provide a synthesis of Republican stamps in Western Europe (Table 202).

## 12.5 The source of Republican amphorae stamps

Increasing research is being dedicated to locating the place of origin of Republican amphorae stamps (Olmer 1997:155–166) and a growing body of stamps can now be assigned to kilns or parts of western Italy (Table 191).

### 12.5.1 Stamps from Etruria

Laubenheimer (1991) and Manacorda (1981) have suggested that double-letter stamps positioned on the shoulder/base of the handle indicate amphorae from Etruria. These double-letter stamps are very common on the Dressel 1 and many have been reported from the *ager Cosanus* in southern Etruria (Olmer 1997:155; Manacorda 1981). A series of double-letter stamps have been reported from the l'Esterel shipwreck (Liou 1975:589–590) and the Plane D shipwreck (Parker 1992:314) (Table 192). Both cargoes are believed to be from La Parrina near Cosa (Parker 1992:175, 314).

Fabric analysis of the double-letter stamps on the shoulder/base of the handle at Bibracte suggests that c.80% are in Etrurian fabrics (Laubenheimer 1991:133; Olmer 1997:155). Thin-sectioning of double-letter stamps from the Auvergne also shows the

majority to be in Albinian fabrics, with a smaller number in Cosan fabrics (chapter 9). However, several of the double-letter stamps in the Auvergne are in non-Etrurian fabrics. Arthur records two double-letter stamps on Republican amphorae (II and PI) from the *ager Falernus* in Campania (1995:243) that were presumably manufactured there. Several of the Dressel 1A amphorae from the Basses de Can shipwreck were stamped SI on the shoulder/base of the handle and were of Campanian manufacture (Long 1988:17). Weighing the evidence, the majority (c.80–90%) of double-letter stamps were on Etrurian Republican amphorae, although a minority came from Campania.

Olmer suggests that these double-letter stamps represented a counting system (running from AA to XX) that was used to record the number of amphorae produced (1997:157) *e.g.* C=100, L=50, M=1000 and X=10. The use of the letters O and Q were avoided to prevent confusion; thus showing that the recording system could not have been based upon abbreviated names as the *praenomem Quintus* is common (Olmer 1997:157). The use of this counting system would imply the large-scale mass production of amphorae. Many of the stamps however, have no relationship with Roman numerals and Hesnard and Carre have instead suggested that the first letter stood for the *officinatore* of the workshop/kiln and the second letter an additional *officinatore* working below him (Hesnard and Carre 1998:297).

According to Manacorda (1981) and Olmer most of these double-letter stamps are found on the Dressel 1B (1997:156). Shipwrecks containing Dressel 1B with double-letter stamps on the shoulder/base of the handle include the Fourmigue C (Baudoin *et al.* 1994), Plane D (Parker 1992:314; Manacorda 1981:25–28) and Sud-Est de Plane (Ximénès 1976) wrecks. In the Miladou shipwreck, double-letter stamps are found both on Dressel 1A and Dressel 1B amphorae (Dumontier and Joncheray 1991). Several of the Dressel 1As from the l'îlot Barthélémy wreck were stamped with double-letter stamps on the shoulder/base of the handle (Liou and Pomey 1985:572–576; Parker 1992:215). One Greco-Italic vessel from the Ciotat A shipwreck was stamped on the shoulder/base of the handle (Benoit 1960:44; Parker 1992:145).



A similar group of double-letter stamps are found on the rims of Dressel 1 amphorae and analysis of the fabric suggests an Etrurian origin (Olmer 1997:155). These double-letter stamps are also found on the Fos 1, Fourmigue C, Miladou and Plane 1 shipwrecks (Table 193), most of which also carry amphorae with double-letter stamps on the shoulder/base of the handle.

A second series of stamps using three letters often accompanied with triangular points (H.D.D, H.K.P, K.D.D, K.H.D) again placed on the rim are common in Burgundy and are found in Albinian and Cosan fabrics (Olmer 1997:158). The Roman villa of Torre Saline near to Albinia has two examples of these stamps: E.E.D and C.D.D (Ciampoltrini 1997:272 fig. 12). These stamps may be *tria nomina* (Hesnard and Carre 1998:297 note 23), or they may be an extension of the double-letter stamps, indicating the *officinatore* and two further levels of production levels and *officinatores* below him. The Torre Saline villa also has several double-letter stamps on the rim and on the shoulder/base of the handle (Ciampoltrini 1997:271, 275).

Four and five letter stamp series, including DION, DION.C, DION.D and SIN, SIN.A, SIN.E are also from the Albinia kiln (Olmer 1997:161) and other similar series of four–five letter stamps series may be from the same area. The stamps DIOCI and DION.D have been reported from the port of Cosa (Will 1987a:196–197; Manacorda 1978:124–125 fig. 2). The DION series of stamps is also found on the Lamboglia 2 and may have been manufactured at the same kilns as the Dressel 1 amphorae stamped DION (Hesnard and Carre 1998:297). It has been suggested that for these stamps the name stood for the *officinatore* of the kiln and the single letter for the slaves working under him (Hesnard and Carre 1998:297).

Further stamps from the region of Etruria include the following rim stamps: ANT, D, MA, MAHE, NON, SOS (Olmer 1997:161), however, the stamps MA and MAHE may also have been used in Latium/Campania. Many of these stamps were found on the Fos 1 (MA, MAHE, NON) (Amar and Liou 1984) and the Fourmigue C (ANT, MA and SOS) (Baudoin *et al.* 1994) wrecks. The stamp MAHE has been found at the Albinia kiln (Cambi 1994:498) and the stamp NON has been reported in the Cosan

fabric (Cambi 1994:502). The stamp ARME has been reported on a Greco-Italic rim from the Albinia kiln (Manacorda 1981:18–19, fig.5) and there is an example from Corent in the Albinia fabric. Olmer has suggested that the stamp FLACVS may be from the Albinia kiln (1997:166), however examination of two of these stamps from Bibracte shows them to be in a non-Etrurian fabric (*pers. obs.* 2000). The variety of stamps from the Albinia kiln and the *ager Cosanus* suggests that amphorae made for a variety of buyers were fired at these kilns, and or the presence of many different workshop managers.

One of the most common stamps in Western Europe (see later) is the ‘SEST’ (SESTIUS) stamp with a small symbol, and always stamped on the rim. Twelve different symbols are recorded including ALTAR, ANCHOR, CADUCE (vine prop), DOUBLE-AXE, HOOK, five and seven-pointed STAR, OAK WREATH, PALM BRANCH, SIGMA and TRIDENT (Will 1979, 1987a). The Grande Congloué 2 wreck of Marseilles contained c.1000 Dressel 1A amphorae stamped SES ANCHOR and SES TRIDENT (Will 1979:329, 343).

These stamps are widely distributed throughout Western Europe and are found in France, Germany, northern Italy and Spain, but none have been reported from Ostia, Rome, southern Latium and Campania (Manacorda 1978:129; Roman 1974; Roman and Rancoule 1967; Will 1956:79, 1987a:175 figs. 9–10; Vaussanvin 1979).

Benoit suggested that the stamp stood for the name ‘Sestius’ which he linked with *Marcus Sestius* a shipper from Frégelle in Campania; he was mentioned in an early second century BC inscription at Delos (Benoit 1961:68; Will 1979:340). Will (1979, 1987a) has linked these stamps with the late Republican Sestius family, who owned large estates at Cosa in Etruria. The symbol part of the stamp might have signified the *officinatores* or slaves in charge of production (Hesnard and Carre 1998:296–297) suggesting 12 different workshops.

Manacorda is however sceptical (1978) but the evidence for Will’s hypothesis is persuasive. The greatest number and variety of Sestius stamps are found at the port of



Cosa (Will 1987a:175; Manacorda 1978) and they account for 86% of all the Republican amphorae stamps from the port (Will 1979:342).

Cicero refers to *Publius Sestius* in several of his letters and wrote a work the *Pro Sestio*, in his defence when he was possibly charged with corruption. His son, *Lucius Sestius Quirinalis* owned a brick and tile factory at Rome (Will 1979:341, 347). From Cicero's *Pro Sestio Publius Sestius* was probably born in the mid-90s BC and he is known to have visited Marseilles and southern Gaul on several occasions; Will (1979:349) suggests that was possibly on business however, political reasons are more likely (Cicero *Pro Sestio* 3,7). Publius Sestius' father, Lucius Sestius, must have started the amphorae business at least, and the recent finding of SES TRIDENT stamp on a Greco-Italic Will type D amphora would suggest an even earlier origin (McCann 1998:46 fig. 3).

According to Will, the majority of Sestius stamps are found on the Dressel 1A, with a smaller numbers on the Dressel 1B and 1C (1979:344). Olmer has reported a SESTIUS stamp on a classic Dressel 1B rim from Burgundy (1997:159). There is no evidence that the different symbols associated with the Sestius stamp, had any chronological phasing (Manacorda 1978:128), but it has been argued that the rare Sestius stamps without any accompanying symbol, were early (Olmer 1997:159). However, the SES TRIDENT stamp (McCann 1998:46 fig. 3) on a Greco-Italic vessel would seem to contradict this.

Many of the symbols that accompany the Sestius stamp (such as the ANCHOR, PALM BRANCH, STAR, and TRIDENT) are also found individually often stamped upon the rim. Again, these stamps are common at Cosa and appear to indicate amphorae from the *ager Cosanus* (Will 1979:344; Olmer 1997:160). ANCHOR and COURONNE stamps from sites in the Aisne valley, were both in the Cosan fabric (Hénon 1995:177).

### 12.5.2 Stamps from Latium and Campania

There is a group of stamps from the Campania and Latium areas of Italy (especially from the areas of *Minturnae*, Mondragone, Sinuessa and *Terracine*), that are generally found on the Dressel 1B (Table 191). Many of these stamps are found on the Dramont A (Parker 1992:165), Dramont C (Joncheray 1994), Madrague de Giens (Tchernia *et al.* 1978), Plane A (Parker 1992:313) and the Santa Severa wrecks (Gianfrotta 1982; Parker 1992:385), which date from c.80–50 BC (Table 194). The examples HERACLIDA, L.M, MOC DAUPHIN, PHIL, and PHILIP are particularly common with many examples reported from France. The Dressel 1B stamp L.LENTV.P.F which is reported from several sites in Western Europe, has been linked with the Republican Senator *L. Cornelius Lentulus Crus* (consul in 49 BC) and were presumably manufactured on his estates at *Minturnae* (Arthur 1991a:66, 115; Gianfrotta 1982:16–21).

The stamp L.M has been reported from Mondragone/Sinuessa and has been reported from several sites in Western Europe: Ampurias, Bibracte, Bordeneuve-de-Bory Boé, Essalois, Gulf of Fos and Oberaden (Arthur 1982:32 note 15, 1991a:74 fig. 16). The Papius family who owned estates in the *ager Falernus* may be represented by the Dressel 1 stamps PAPA and P which have been found at Sinuessa (Arthur 1991a:68).

The Madrague de Giens shipwreck with its cargo of amphorae from the kilns of Canneto and San Anastasia (Fondi, southern Latium) contained a variety of stamps; ACIME, ALEXSAND, P.VEVEI/PAP, Q.MAE.ANT, SABINA, TIMOT and VEIVIVS (Tchernia *et al.* 1978; Hesnard and Lemoine 1981). From the kiln at Monte Vico in Campania, the stamps TR.LOISIO and M.ANTERIUS have been reported on Greco-Italic vessels (Arthur 1982:31).

The stamp FELIX may be from *Minturnae* in southern Latium (Laubenheimer 1991:67, 134) and the stamp ROD/GALLI has been reported from a Dressel 1B from the Garigliano kiln (Laubenheimer 1991:78); the *Galli* family came from nearby *Minturnae* (Arthur 1991a:74).



Will has linked the stamps C.SEX, L.SE, L.SEX, SE.LEVC and JLVCLVSE, found on Dressel 1 amphorae at Cosa, with *Lucius Sestius Quirinalis* (Will 1979:348; Manacorda 1981:37–38), and the stamps, CL.SEX and C.SEXTILI.I may also be related (Desbat and Maza 1997). Olmer has instead suggested that the stamps C.SEX and L.SEX refer to another family from Etruria (Olmer 1997:160). As the stamps CL.SEX, C.SEX, C.SEXTILI.I and L.SEX are found on Dressel 1A rims which have been dated to the second century BC, they are too early to be associated with *Lucius Sestius Quirinalis* (Desbat and Maza 1997:513–514). Furthermore, chemical analysis has indicated a southern Latium/northern Campanian origin possibly Mondragone, for these stamps (Desbat and Maza 1997:515) and see chapter 9.

The stamp ARTEMO, which is associated with Sestius stamps at Roanne (Guichard 1997), has been linked with Cosa (Manacorda 1981:7 note 44; Olmer 1997 no. 84). An example of this stamp from Roanne appears to be in a Latium fabric and examples of this stamp are found on the Plane A wreck associated with other stamps from the Latium-Campania region (Parker 1992:313). Single-letter base stamps might be from Campania and an example at Condé-sur-Suippe was found to be in the Pompeii/false Pompeii fabric (Hénon 1995:175). Symbol stamps applied to Republican amphorae on the body or the handles appear to be from Campania (Olmer 1997:163–164).

It is apparent that amphorae from the regions of Latium and Campania, unlike Etruria, were often stamped with names or a series of names. These names refer to the owner of the kiln or the slaves who ran the kilns. The majority of the name stamps from Bibracte according to Laubenheimer (1991:133) are in Latium/Campania fabrics, and few are in the Albinia or Cosa fabrics. For Latium and Campania, there is less use of series of single or double-letter stamps suggesting that the manufacture of amphorae was organised differently and the level of production was lower. Perhaps the Republican amphorae kilns in Latium/Campania had a closer connection with the wine producing estates than the Etrurian kilns?

### 12.5.3 Series of stamps whose origin is unknown

There are several series of Republican stamps whose place of origin is presently unknown (Table 191). This includes single-letter stamps on the shoulder/base of the handle, on the rim (possibly Albinia), double-letter stamps on the top of the handle, and on the neck (Olmer 1997:164–166).

### 12.5.4 Stamp series

Olmer has draw attention to several series of Republican amphorae stamps found in Burgundy (1997:161) and further series can be suggested (Table 195). For example, there is the following series of stamps that may be linked: HER, HERA, HERAC, HERACL, HERACLID, HERALCID//FAB, HERACLIDA, and RACLIDA. Some of these series may represent a counting system or variations and abbreviations of names *e.g.* the name of the owner and the kiln manager. Further evidence however, needs to be sought from the fabrics of these stamp series and the morphology of the actual stamp.

### 12.5.5 Republican amphorae production and Senatorial involvement

*Whether Roman Senators* were involved in late Republican trade is subject to great debate. On the one hand, both Purcell and Garnsey *have argued that there is no* evidence for their involvement in trade and commerce (Garnsey 1983:129; Purcell 1985:5). That freedmen or slaves involved in trade may have been fronts for Senators is according to Garnsey “pure speculation” (1983:129). D’Arms has however, argued that Senators and *equites* were involved in commerce, but generally cloaked their activities by working through freedmen and slaves (1980). That the *Sestii* were involved in the amphorae trade is unquestionable and the stamp L.LENTV.P.F indicates that *L. Cornelius Lentulus Crus* was involved in this trade, or his slaves/freedmen. The great Republican family the *Domitii Ahenobarbi* may have owned the Albinia kiln (Olmer 1997:162). These examples suggest that senators during the late Republican period were clearly involved in trade and commerce.



## 12.6 Republican amphorae stamps in the Auvergne

There are 151 Republican amphorae stamps from the Auvergne, which includes 60 stamps from recent excavations (appendix 3). The remaining stamps are from private collections and material from old excavations at Clermont-Ferrand, Corent, and Gergovie. Most of the stamps have been found from sites around Clermont-Ferrand and there are four stamps from the department of Haute-Loire, three from Cantal and two from the Allier. Apart from two stamps on Lamboglia 2s, two on Greco-Italic, all the remaining stamps are found on the Dressel 1.

### 12.6.1 Frequency of stamping in the Auvergne

The percentage of stamped amphorae (Table 196) ranges from a high of 13.3% for the Augustan deposits (A710–2828, 5903), 6.7% for Gergovie, 3.4% for Le Pâtural, while 10 sites had no stamped amphorae (including Aigueperse, La Grande Borne Aulnat/Chantier 4, Le Bay and Pontcharaud III).

The overall figure for stamped amphorae in the Auvergne is 4.2% and the average of the stamping rates for all the assemblages is 2.9%. It is possible to study how the frequency of stamping changed with time, by dividing the assemblages into four chronological groups (Table 197). The frequency of stamping amphorae increased with time from 3.5% for LTC2-D1, to 13.3% by the late Augustan period. However, the high figure for the Augustan cremation may be down to the small sample size. The higher figure of 5.7% for the LTD2 assemblage (mainly amphorae from Gergovie) may be significant given the larger sample size. It would appear that the Dressel 1B was stamped more frequently than the Dressel 1A.

### 12.6.2 Placement for the stamps

The sample of stamps from recent excavations and from old collections contains examples of stamps placed on the shoulder/base of the handle, on the body, neck, top of the handle, and the base (Table 198). There is a preference for the placing of

stamps on the rim, or the shoulder/base of the handle (Table 199) and 87% of all stamps are found in these two locations (47% on the rim and 40% on the shoulder/base of the handle). Other locations are rare with only 3% of stamps on the handle and body and 2% on the base.

Examining how the location for stamps changed over time (Table 200) the LTC2-D1 and LTD1/D2 assemblages are dominated by stamps placed upon the shoulder/base of the handle. Most of the shoulder stamps are double-letter stamps (Table 201), which represent 31% of the stamps for LTC2-D1, 36–41% for LTD1/2 but are less frequent in the LTD2 assemblages (7–16%) (Table 201). Le Pâtural, Le Brézet Iveco and Le Brézet 51 rue Jules Verne all have examples of double-letter stamps from LTC2-D1 context. The example from Le Brézet Iveco is on a Greco-Italic shoulder. Corent has many double-letter stamps, and the Dressel 1A dominates this assemblage although one example at this site is found on a vessel with a transitional Dressel 1A/B rim. Similarly, double-letter stamps are found on transitional Dressel 1A/1B amphorae in the l'Esterel shipwreck (Liou 1975:589–590; Manacorda 1981:25–28). Double-letter stamps on the shoulder/base of the handle are found at Gergovie, although most of the examples are from old collections and only one example came from the excavation at *Chemin de la Croix* (Table 201).

The LTC2-D1 assemblages show greater variety in stamp locations (with small numbers of stamps on the handles, body and neck) than later assemblages. The percentage of rim stamps increases with time in contrast shoulder/base of the handle and handle stamps decrease with time. The LTD2 and Augustan assemblages show a preference for stamps to be placed upon the rim (50–100%). It appears that the Dressel 1A was generally stamped upon the shoulder/base of the handle whereas the Dressel 1B was stamped upon the rim.

### 12.6.3 Types of stamps

Symbol stamps are rare forming under 10% of the stamps for the different chronological samples (Table 201). They are more frequent in the LTC2-D1 sample,



but this may be down to the smaller sample size. Name stamps account for *c.*20% of the stamps for the LTD1/2 and LTD2 samples, but they are less common in the LTC2-D1 assemblages, sample size again may account for this. Double-letter and triple-letter stamps on the rim are absent from the LTC2-D1 sample, and are found in low numbers in the LTD1/2 and LTD2 samples (under 10%). The same pattern is seen for the triple-letter stamps on the shoulder/base of the handle.

Of the rim stamps, it is possible to study rim height and inclination for 29 examples. Around a third (34%) of the stamps are found on classic Dressel 1B rims (rim height greater than 55mm) and 55% are on rims with a height greater than 50mm. In fact, 72% of the stamps are on rims with a height over 45mm, only 28% are on rims with a height under 45mm and only 7% under 35mm. Most of the rim stamps are therefore found on the classic Dressel 1B, early Dressel 1B transitional Dressel 1A/B rims and Dressel 1 'Spargi' rims. Rim stamps on rims with a low rim height (Greco-Italic and early Dressel 1A) are rare and this explains the lack of rim stamps from the LTC2-D1 assemblages. The median values are high: 51mm for height and 87° for inclination.

Double-letter stamps on the shoulder/base of the handle represent 31% of the LTC2-D1 and 36–40% of the LTD1/2 stamps and are found in smaller numbers for the LTD2 samples (7–16%). The two preferred locations for stamping (rim, shoulder/base of the handle) are not mutually exclusive as regards the Dressel 1A and 1B. Given the small number of stamps placed in other locations it is not possible to draw any meaningful conclusions concerning them.

#### 12.6.4 Source of the stamps in the Auvergne

Of all the stamps from the Auvergne (recent excavations and older collections), 48% could be identified as coming from Etruria and the Latium/Campania region (taking into account fabric data from chapter 9). The majority of the stamps are Etrurian (39%) (mostly double-letter stamps on the shoulder/base of the handle) and 9% are from Latium/Campania. Examining the data by chronological periods, for LTC2-D1: 31% of the stamps are from Etruria, as opposed to 19% from Latium/Campania. The

dominance of Etrurian stamps is even greater for the LTD1/2 period with 68–60% as opposed to 13–18% for Latium/Campanian stamps. For LTD2 Etrurian stamps represent 21–29% of the stamps and Latium/Campania stamps 13–14%.

For Corent 36% of the stamps (14 examples) are found at Bibracte, including the stamps BG, D, RALF, SES stamps, and TRIDENT. For Gergovie 10 (29%) stamps are found at Bibracte, including CDD, ML, MOC DAUPHIN, and PHIL. On the evidence of the stamped amphorae, the sites all received a high proportion of amphorae from similar sources.

It is questionable how much should be made of this evidence as it suffers from several biases and weaknesses. Firstly, stamps that are more frequent may indicate a greater stamping rate, rather than greater importation. Secondly, as only a minority of the Republican amphorae in the Auvergne were stamped (4.3%), any conclusions only apply to a fraction (1/20th) of the amphorae. However, at the very least it can be said that the Auvergne received wine from specific parts of Italy. The presence of Sestius stamps at Corent and Gondole indicate amphorae from Cosa. The stamps, ARME and RALF at Corent indicate amphorae from the Albinia kiln. The stamps MOC DAUPHIN, PHIL and DAUPHIN at Gergovie and the stamps L.SEX and L.LENT.P indicate wine from Latium/Campania, especially *Minturnae* and Mondragone.

## 12.7 Synthesis of Republican amphorae stamps in Western Europe

In the following section, the Republican amphorae stamps from the Auvergne are compared with other major collections of Republican stamps from Western Europe (Table 202). When possible the main available stamp assemblages have been used, which provide a reasonable coverage of France (Figure 197) and a wide chronological span from the second to the end of the first century BC.



### 12.7.1 Frequency of stamping

The sample consists of 72 assemblages, and the average stamping rate for all the separate assemblages is 9.1%, combining all the assemblages gives a figure of 7.6% (Table 203). Both figures are higher than those for the Auvergne (4.2% and 2.9%) are. The range of figures makes it hard to discern any clear trends, which is further hampered by the fact that many of the samples are from sites with long occupations.

Several of the earlier assemblages LTC2-D1 (Baou-Rou, Levroux Les Arènes, Numance, and Rodez) have low stamping values, however there are early sites with much higher values (Entremont, Basel Gasfabrik). There is a tendency for the latest assemblages (LTD2) to have higher stamping rates; 13% at Alesia, 29% at Lyon Croix, Paris A19 14.3%, and 17% at Villeneuve-Saint-Germain; hinting that the Dressel 1B was more frequently stamped than the Dressel 1A.

### 12.7.2 Placement of the stamps

For most assemblages two locations were preferred, the rim and on the shoulder/base of the handle (Table 204). For several of the assemblages stamps placed on the top of the handle and on the body were frequent (Basel Gasfabrik, Arnac-la-Poste, Entremont, Rodez and Saint Blaise). Stamps placed upon the top of the handle are more frequent in the earlier assemblages (LTC2-D1) and generally absent from later assemblages (after c.120–100 BC). This might be because these stamps tend to be on Greco-Italic vessels or transitional vessels. Stamps placed on the neck or the base are infrequent and do not appear to be confined to any one chronological period. One further trend is for an increasing proportion of stamps to be placed upon the rim. Assemblages from Besançon, Bibracte, Saintes Ma Maison, Titelberg and Villeneuve-Saint-Germain (LTD1–2) have a high proportion of stamps on the rim, representing over 50% of the stamps and a similar trend is seen in the Auvergne.

Stamps placed upon the shoulder/base of the handle remain frequent throughout the second to the first centuries BC, although there is a tendency for them to be less

common in the later assemblages (LTD2 period onwards). However, there are exceptions such as the Lyon Croix assemblage, where the majority of the stamps are on the shoulder/base of the handle (but small sample size). The majority of the stamps on the shoulder/base of the handle are of double-letter stamps (Table 205) and for many of the assemblages, they form a sizeable proportion of the stamps with figures ranging from 2–67%. Double-letter stamps are found at Saint-Blaise (which was abandoned between c.130–100 BC) and at Entremont (abandoned slightly later around 90 BC) (Gateau 1990).

Chronologically double-letter stamps are found on sites throughout the second to the first centuries BC. Olmer has argued that the majority of double-letter stamps in Burgundy are found on the Dressel 1B (1997:156). Unlike the Auvergne double-letter stamps on the shoulder/base of the handle, are less common in LTD1–2 assemblages (Alesia, Besançon, Saintes Ma Maison, Titelberg and Villeneuve-Saint-Germain). Double-letter stamps were not applied predominantly to the Dressel 1B, but more frequently to the Dressel 1A.

Symbol stamps are found at many of the assemblages (Table 205) although in low numbers (less than 10% of the stamped amphorae). However, there are several exceptions: Arnac-la-Poste with 41%, and Roanne 18% and Titelberg 36%. Symbol stamps are found in the earliest assemblages (Basel Gasfabrik, Eynesse) but are absent from the LTD2b assemblages (Alesia, Lyon Croix and Saintes Ma Maison). Name stamps are common in all the assemblages (Table 205) dating from the second to the end of the first century BC and there are no obvious trends.

### 12.7.3 Source of the stamps.

Etrurian stamps are frequent at most of the assemblages, however stamps from Latium-Campania are less frequent (Table 206). At Bibracte 30% of the stamps are Etrurian as against 5% for Latium/Campania (Olmer 1997:165). For Burgundy there are only 23 stamps from the Latium/Campania region and 270 from Etruria (Olmer 1997:165). According to Olmer (1997:165) amphorae from Latium/Campania



dominate the earliest layers at Bibracte (LTD1) and Etrurian stamps are not frequent until the Dressel 1B and the first century BC. Many LTC2-D1 sites however show a dominance of Etrurian stamps including Basel Gasfabrik, and sites in the Auvergne. For south-west France, Etrurian stamps are less frequent (19%) and stamps from Latium/Campania are more common (14%) than the other assemblages.

For the majority of the sites a high proportion of the stamps are also found at Bibracte ranging from 11–97% with figures clustering around 24–32% (Table 206). These sites and regions were all receiving amphorae from the same sources, it does not suggest that specific regions or tribes had preferential ties with specific regions/suppliers. The trade appears to be open and homogeneous.

## 12.8 Distribution of Republican amphorae stamps in the different regions of France

It is possible to study the distribution of Republican stamps via individual regions (Table 207). This provides bigger samples (although for some of the regions the samples are still too small to allow meaningful conclusions to be drawn) and allows the identification of any regional patterning in the distribution of Republican amphorae stamps. The regions created are:

1. Aquitania: 114 stamps (Agen L'Ermitage, Bordeneuve-de-Bory Boé, Enserune, Eynesse, Rodez, and Villeneuve-sur-Lot).
2. Auvergne: 151 stamps.
3. Brittany/Normandy: eight stamps (Caen, Exmes, and Rieux).
4. Burgundy: 552 stamps (Alesia, Aze, Bibracte, Cersot, Tournus Clos Roy, Tournus Champsemard, Tournus Sept-Fontaines, Les Bolards, Mâcon, Mâlain, and Verdun-sur-le-Doubs).
5. Centre: 11 stamps (Amboise, Blois, Châteaumeillant, and Levroux Les Arènes).
6. Forez: 275 stamps (Chézieux, Crêt-Chatelard, Essalois, Feurs, Moingt, Montbrison and Roanne).

7. Ile de France: 24 stamps (Balloy, Chartres, Paris, Thillay, and Villeneuve-sur-Yonne).
8. Limousin: 22 stamps (Arnac-la-Poste, Chiroux, and Monceaux-sur-Dordogne).
9. Lyon region: 105 stamps (Lyon Verbe Incarné, Valence, and Vienne).
10. Luxembourg: 14 stamps (Titelberg).
11. North-east France: 43 stamps (Besançon, Essey-les-Nancy, Metz-Hauts-de-Ste-Croix, and Sierentz).
12. Picardy: 44 stamps (Condé-sur-Suippe, Pommiers and Villeneuve-Saint-Germain).
13. Poitou-Charentes: 18 stamps (Poitiers, Pons, and Saintes Ma Maison).
14. Provence: 51 stamps (Baou-Rou, Entremont, Glanum, Nimes, and Saint Blaise).
15. Southern France: 329 stamps (Albi, Ales, Auterive, Belestia, La Lagaste, Le Mas d'Angenais-Ussubium, Lectoure Mailhac, Montfaucon Magalas, Mouliets-et-Villemartin, Nages, Narbonne, Pamiers, Toulouse).
16. Switzerland: 19 stamps (Basel Gasfabrik, Geneva).

For the distribution of diagnostic stamps (Table 205, Figs. 197–225), there are few clear-cut patterns and generally the larger the sample, the more examples of diagnostic stamps. The regions of Burgundy, Forez and southern France have the greatest number of different diagnostic stamps (but also the largest samples of stamps). The majority of the diagnostic stamps are distributed throughout Western Europe and within France. The most common stamps: ANCHOR (Fig. 199), ANT (Fig. 200), C.L.SEX/C.SEX/L.SEX (Fig. 204), L.LENTV.P.F (Fig. 209), L.M (Fig. 210), MA (Fig. 211), PHIL (Fig. 217), SESTIUS (Fig. 220) and TRIDENT (Fig. 224) were *clearly distributed via the Rhône-Saône and the Garonne rivers*

The SESTIUS stamp has a widespread distribution in Western Europe (Fig. 220). The geographical distribution of the SESTIUS stamps does not greatly differ from the distribution map produced by Will (1987a:175 fig 9.1). These stamps have been reported from Basel Gasfabrik in Switzerland, north-east France (Baudoux 1996), Besançon in eastern France (Laubenheimer 1992) and Poitiers in south west France. There is a concentration of findspots in the Saône-et-Loire regions (Vaussanvin 1979) with many examples at Bibracte (Laubenheimer 1991; Olmer 1997), Alesia and



Tournus (Olmer 1997). In the Auvergne SESTIUS stamps have been found at Corent, Gondole and Lezoux and in the adjacent Forez region they have been found at Roanne (Guichard 1997). They have also been found at Lyon Verbe-Incarné with 50 examples (Goudineau *et al.* 1989) and there is 1 example from Larina near to Lyon (Perrin 1990:117 fig. 119). SESTIUS stamps have been reported from Lagaste (Aude) in southern France (Roman and Rancoule 1967) and many have been found in the *puits funéraire* around Toulouse (Bats 1986). They have also been reported from Ampurias in Spain (Nolla 1974:181 figs. 23, 27) and there are many examples from northern Italy.

Manacorda dates most of the SESTIUS stamps to the first century BC and to the Gallic war, apart from a SESTIUS stamp at Vada Sabatia dated to the second century BC (Manacorda 1978:128–130). Uenze dated the Sestius amphorae from the Grand Congloué 2 wreck to c.130 BC (1958:16–17) while Long dated them to 110–80 BC (Long 1987a:165). Examining the SESTIUS stamp rims, most are found on the Dressel 1A whereas examples on Greco-Italic and classic Dressel 1Bs are rare. There are a group of rims with heights over 50mm, but with moderate angles of inclination (70–80°) which gives them a distinctive high triangular appearance (Dressel 1 ‘l’Esterel’ type), but not the vertical profile of the Dressel 1B. The different Sestius stamps do not have distinct rim shapes. From the morphology of the rims most of the stamps date to c.125–70 BC.

An exception are the triple-name stamps found on the top of the body mostly on the Dressel 1A (Gruat 1994) that are confined to south-west France with 20 examples (Gruat 1994:195–201) and see Fig. 225. It could, however be possible that these examples came from just one cargo. The place of manufacture of these amphorae is not known but an origin in Latium/Campania has been suggested (Gruat 1994:200, note no. 88).

The stamp APRO is only found in central and eastern France (Fig. 201) and appears to have been only distributed via the Rhône-Saône route although the sample size is very small. The stamp NON has a similar distribution (Fig. 214) but again the small

number of findspots precludes any strong conclusions. Stronger is the distribution of the ARTEMIO stamp and the five findspots are all from central, eastern and north-east France (Fig. 203). Interestingly the symbols stamps associated with the SESTIUS stamps: COURRONE (Fig. 205), PALM BRANCH (Fig. 216) and five and seven-pointed STAR (Fig. 222) only appeared to have been distributed via the Rhône-Saône. However, the TRIDENT stamp has a much wider distribution including examples around Narbonne and Toulouse and central France (Fig. 224). The stamp HERACLIDA has a cluster of findspots in eastern France (Fig. 207), however there are possible examples around Toulouse. The stamps PILIP//SVL (Fig. 218) and SVR (Fig. 223) are concentrated in the west and south-west of France and may only have been distributed via Narbonne and Toulouse.

Looking at the percentages for the placement of stamp via individual regions there is little evidence for any regional patterning (Table 208). Aquitania, Brittany and Normandy, and Ile de France have higher proportion of stamps placed on the body and perhaps these amphorae were mainly distributed via the Toulouse and western Atlantic route. However, these stamps are absent from Poitou-Charentes although the samples size for this region is small. A western distribution of these stamps would not explain the examples from Ile de France and Centre (samples sizes are small), although body stamps are rare or absent from many other parts of central and eastern France including the Auvergne, Burgundy, Forez and Lyon regions.

Stamps on the shoulder/base of the handle show a great range of figures from 0% (Brittany/Normandy, but the sample size is small) to 41% (Auvergne). The lower figures tend to be for the northern and eastern regions (Luxembourg, Picardy, north-east France and Switzerland), although Limousin has no examples. Double-letter stamps on the shoulder/base of the handle are most common in central France (Auvergne, Burgundy and Forez). Name stamps are very frequent representing between c.40–80% for Aquitania, Centre, Lyon, Poitou-Charente and Southern France. They are found in moderate numbers in Burgundy, Forez and Provence and low numbers (under 15%), in the Auvergne, Ile de France, Limousin, Luxembourg



and Picardy. There is no clear patterning the frequency of name stamps for the different regions.

Stamps on the neck, and base are rare in all the regions. Limousin, Provence and Switzerland have a high number of stamps placed on the handle this might be chronological, as the samples tend to come from earlier sites (LTC2-D1) dominated by Greco-Italic and early Dressel 1A amphorae.

For most of the regions symbol stamps account for fewer than 10% of the stamps; an exception is Limousin and Luxembourg where they represent 36% (but this may be down to the smaller sample size). Symbol stamps are rare in the Forez (2%) and absent from Lyon (although there are many examples of SESTIUS stamps with symbols).

## 12.9 Conclusions

A growing body of stamps can now be assigned to areas of production and to individual kilns but much more work is needed before the potential of this analysis can be fully realised. Future work must be directed towards the analysis of stamp fabrics and there is a clear need for a programme of fabric analysis of Republican stamps from France. At present only the broad trends and patterns can be seen from the stamps and the finer-details are presently hidden.

Between 5–7% of Republican amphorae were stamped and the figure may have been slightly higher for the Dressel 1B. For France the stamp evidence suggests that Etrurian stamps are more frequent than those from Latium/Campania throughout the second to first centuries BC although, stamps from Latium/Campania were slightly more frequent during the first century BC.

For many of the different types of stamps there is little evidence for any regional patterning and many stamps are found widely distributed throughout France and Western Europe (*e.g.* ANCHOR, L.M and SESTIUS stamps) suggesting that all

regions were receiving their amphorae from the same or similar sources. It further suggests the large-scale exportation of amphorae from certain production centres. More restricted distribution of stamps might indicate two things; firstly that areas had closed access to amphorae from specific sources and secondly that certain stamps indicated special higher quality wines. Subtle differences in the distribution of some stamps (ARTEMO, PILIP//SVL and SVR stamps) hint that this may have been the case, but any conclusions have to be tempered by the limitations in the evidence especially the small number of findspots.

This review has suggested that series of stamps, single and double-letter stamps were predominantly used in Etruria, while names were instead favoured in Latium and Campania. Certain regions may have preferably stamped their amphorae in specific places: on the shoulder/base of the handle in Etruria, on the base in Campania, and on the top of the handle for Greco-Italic and early Dressel 1A amphorae from Sicily and Campania.



## Chapter 13 Conclusions

This thesis has studied the chronology, morphology and fabrics of Republican amphorae in the Auvergne. Attention has also been directed towards the deposition of Republican amphorae and the importation and use of other Mediterranean imports (Campanian, mortaria and *pâte claires*) found in the Auvergne.

Several important conclusions can be drawn from this study. It has been demonstrated that the detailed analysis of Republican amphorae morphology, especially of the rims from shipwreck and terrestrial assemblages, can provide a wealth of information and data concerning the importation of Republican amphorae. This has allowed for a more subtle understanding of the chronology and nature of this trade to the Auvergne.

### 13.1 Classification

The problematical area of classification has been addressed by examining the morphology of Republican amphorae from the cargoes of Mediterranean shipwrecks (Chapter 6) and several suggestions for greater clarification of this topic have been proposed. For example the majority of Greco-Italic rims tend to have rim heights that are less than their rim widths, while rim heights tend to be under 30mm and inclinations less than 65°.

It has been suggested that the traditional classification of the Dressel 1A contains several different amphorae types (Dressel 1A/C, Dressel 1 'l'Esterel', Dressel 1 'Spargi'), many of which it is possible to recognise in land assemblages. These different Dressel 1A subtypes indicate that the period c.120–80 BC was characterised by much greater morphological variation in Republican amphorae rim and body morphology than preceding and later periods. Future work on additional cargoes of Republican amphorae is likely to further increase the number of subtypes of Dressel 1A amphorae. Access to the original cargoes, instead of using the published reports, will be required. Finally, it has been suggested that the rim criterion for the Dressel

1B needs modification. Instead of just using a rim height of 55mm as a cut off point, a height of 50mm is more accurate although this does overlap with the rims from the Dressel 1 'Spargi'.

### 13.2 Auvergne Republican amphorae assemblages

Analysis of the morphology of the Republican amphorae assemblages in the Auvergne suggests a division into three groups (Chapter 8). Firstly, the LTC2-D1 assemblages from the Grande Limagne plain lack rims with a height over 50mm (Dressel 1 'l'Esterel', Dressel 1 'Spargi', classic Dressel 1B and Dressel 1C rims). This suggests, and by comparing them with well dated assemblages from Western Europe, that these sites were abandoned between 130–100 BC and settlement did not continue into the early first century BC. Secondly, the Republican amphorae from Corent and Le Bay/Pont de Longues show many similarities with the LTC2-D1 assemblages and only differ in that they contain moderate numbers of Dressel 1 'l'Esterel', Dressel 1 'Spargi', Dressel 1B and Dressel 1C amphorae. Lastly the LTD2-Augustan assemblages, are dominated by Dressel 1B and classic Dressel 1B rims, while Dressel 1A rims are absent or rare. In the Auvergne then the Dressel 1B replaced the Dressel 1A between the occupation of Corent/Le Bay and Gondole. The great difference between the Republican amphorae at Corent/Le Bay and Gondole either suggests a rapid change from the Dressel 1A to the Dressel 1B or instead that the settlement record is incomplete and Corent and Le Bay were abandoned before Gondole was first occupied.

### 13.3 End of the Dressel 1 trade

Dressel 1B amphorae were still exported to the Auvergne during the late Augustan period as indicated by the assemblages from Gergovie and A710 2828 and 5903. The arguments put forward by Pion (1996 II:177–178) and Desbat (1998), that the Dressel 1B was not exported after c.50–30 BC are far from convincing. Although the most recently dated Dressel 1B cargoes are of c.50 BC, many wrecks remain poorly dated. Furthermore the sample of excavated and well-dated Republican amphorae wrecks is



limited for the whole of the first century BC, so the lack of post 50 BC Dressel 1B wrecks may be down to sample bias and not significant. There are frequent examples of consular dates on Dressel 1B amphorae that post-date 50 BC (see chapter 3). To explain these as vessels that were reused (Desbat 1998:33; Pion 1996 II:177) is questionable, as no evidence can be provided to confirm this statement or disprove it; the natural hypothesis would be that these vessels were not reused unless there is evidence to the contrary.

### 13.4 Rim evolution

The model proposed by Aulas (1983, 1987) for a trend of increasing rim height and angle of inclination for Republican amphorae is generally confirmed by the sequence of amphorae assemblages from the Auvergne and France (Chapter 8). The presence of different types of Dressel 1A amphorae does not invalidate this general scheme. This is because many of the distinct subtypes of Dressel 1A amphorae (Dressel 1 'l'Esterel' and Dressel 1 'Spargi') show many transitional features with the Dressel 1B. Analysis of the Republican amphorae fabrics in the Auvergne shows that the most frequent fabric groups (Albinia, Cosa, Sinuessia) all tend to contain a great range of rim shapes, suggesting that there was a general morphological development of rim form throughout the different production centres.

The reason for the reduction in the range of later Dressel 1 rim morphology and the gradual morphological evolution of rim shape may be sought in four possible explanations:

1. stylistic
2. functional
3. reduction in the number of amphorae workshops producing amphorae during the later first century BC
4. changes in the organisation of the Republican amphorae industry

A more standardised morphology would have aided the stacking and transport of amphorae in ships. Higher and more vertical rims may also have provided more strength and stability and favoured the transporting of larger cargoes of stacked amphorae. A reduction in the number of production centres would naturally have reduced the potential for morphological variation. However, the fabric evidence suggests no great reduction in the number of amphorae kilns and production sources during the second to first centuries BC; there may have been slightly more production centres during the second half of the second century BC, but the evidence is far from conclusive.

### 13.5 Chronology of the Republican wine trade to the Auvergne

The date for the commencement of the Republican wine trade to central France requires considerable revision (Chapter 8). For the Auvergne it has been demonstrated that Greco-Italic amphorae first appeared in moderate numbers during LTC2 with the level of importation significantly increasing around LTC2/D1 (c.170–150 BC). This coincided with the great wealth of their king Louernius (see chapter 2). The commencement of large-scale exportation of amphorae to the Auvergne corresponds with the origin of the Dressel 1A around c.150/140 BC; the large numbers of transitional vessels and archaic Dressel 1A and classic Dressel 1A rims at the Grande Limagne sites indicates this. This would coincide with the height of Arvernian power under their king Bituitus and their Empire.

There was therefore a much longer chronological period for the importation of Republican amphorae to the Auvergne. The upsurge in wine importation pre-dated the conquest of southern France and the foundation of the port of *Narbo* and these two events can not be used to explain the upsurge in the wine trade to the Auvergne. The amphorae trade to the Auvergne before 120 BC was also of some significance. The presence of large numbers of Greco-Italic amphorae at Lyon (see Chapter 8 and 10) would suggest a similar date for the commencement of the wine trade. In contrast for the department of the Loire (Aulas 1988; Lavendhomme and Guichard 1997:133



fig. 115), Burgundy (Olmer 1997) and northern Gaul (Haselgrove 1996:168; Hénou 1995), the importation of Dressel 1 amphorae was not significant until c.120–100 BC.

Although the late second to the early first century BC has been seen as the formative period for socio-economic and industrial change, the period c.200–120 BC may have been more significant. For the Auvergne, there is greater evidence for industrial specialization and production during the LTC2 period than there is for the late second to first century BC. The Republican wine trade did not herald an industrial boom and there is no obvious correlation between the wine trade and the possible goods exchanged for the amphorae.

### 13.6 Distribution and political centralization

The frequent distribution of Republican amphorae during the second half of the second century BC in the Auvergne suggests that sophisticated redistribution and exchange mechanisms existed well before the development of the *oppida* (Chapter 10). That the amphorae trade to the Auvergne began around the time of Louernius and prospered under his son Bituitus suggests that it was dependent upon strong centralized political power. It further supports the view that the Arverni held sway over many of the adjacent smaller tribes during the early second century BC; providing access to raw materials and to trade routes.

Interestingly the importation of Republican amphorae by the Arverni continued unabated following their defeat by the Romans in 121 BC, the loss of their kingship, the abandonment of the Grande Limagne sites and the rise of the Aedui. However, the use of and distribution of amphorae changed. The distribution of amphorae during the second century BC was open and widespread, with little evidence for social control. Both Greco-Italic and Dressel 1 amphorae were widely distributed in the department of the Puy-de-Dôme and there is no evidence that these goods were restricted to higher status settlements. Agricultural labour and labour for the maintenance of the drainage ditches on the Grande Limagne was probably mobilised via the use of small-scale work feasts in which imported wine played a prominent role.

With the end of kingship and the formation of the *oppida*, the redistribution of amphorae and the social contexts in which wine was used radically changed. During this period there was less redistribution of amphorae, and amphorae were used in larger feasting events divorced from the rural sphere; at these events, wine consumption may have been limited to the warriors and the elite. The end of kingship may have unleashed a cycle of political competition in which small chiefs attempted to fill the vacuum left by the capture of Bituitus and his son. Elite's may have competed for followers and access to imported goods. Such a scenario would explain the continuous importation of amphorae after the Arvernian defeat by the Romans, especially if the Romans attempted to foster pro-Roman elements in the tribe by providing access to Roman goods. It might also explain the appearance of inscribed coinage after c.120 BC.

Greater socio-political competition might see the use differentiated drinking and eating patterns by the elite to symbolise status differences. The appearance of amphora motifs on the coinage of Vercingetorix might be explained in the light of this, but apart from this there is little other evidence to suggests differentiated drinking and eating patterns during the second to first centuries BC. Clearly, this was not the case during the second century BC when there was a rapid adoption of imported mortaria and Campanian wares by a wide element of society (Chapter 11). In contrast drinking patterns during the second century BC remained relatively unchanged with the continued use of native vessels and communal drinking practices, and a rejection of imported metal drinking vessels. For the first century BC, there is only slight evidence for changes in eating and drinking behaviours. A greater range of ceramic drinking and serving vessels might have developed, such as the Gergovie wares, but it is not clear if this indicates the development of more differentiated drinking behaviours, let alone whether this was by the elite. The decline in the importation of Dressel 1 amphorae and the later Dressel 2-4 to Gaul should not be sought in a decline in Italian output, but instead as a consequence of changing elite socio-political strategies in Gaul.



Examining the distribution of Republican amphorae in France (Chapter 10), it is apparent that there were chronologically and geographically dispersed spells of greater importation. The overall distribution of Dressel 1 amphorae in France does not show a simple linear fall-off although northern areas do contain fewer findspots and generally lack large assemblages of Republican amphorae. More detailed studies of *the distribution of Republican amphorae* for individual regions or departments may demonstrate subtle local patterning. The importation of amphorae appears to have had little to do with 'economic' factors but more to do with local social and ritual practices.

### 13.7 Mediterranean imports in the Auvergne and the rest of France

Comparing the importation of Republican amphorae to the Auvergne with the rest of France shows many similarities but also many important and subtle differences (Chapter 10). Examples of Greco-Italic amphorae are found scattered at sites throughout France; however, they are less common in northern France and interestingly in the Forez region. Only in Berry and Lyon are large assemblages of Greco-Italic amphorae also found (Châteaumeillant, Levroux Les Arènes, Lyon Souvenir à Vaise) but they tend not to be widely distributed in these regions. There may have been less redistribution of amphorae and greater social control over their use in these areas. The Auvergne is unique in that Greco-Italic amphorae were not restricted to *oppida* (Châteaumeillant), larger open sites (Levroux Les Arènes), cult sites (Lyon Souvenir à Vaise) or rural aristocratic settlements (Saint Symphorien in Brittany), but were widely distributed. Similarly, the widespread distribution of Republican amphorae in the Auvergne resembles the situation in southern France.

In contrast with other parts of central (Berry, Forez) and eastern France (Burgundy) Campanian, mortaria and *pâte claires* are found in frequent numbers and were widely distributed in the Auvergne during the second century BC (Chapter 11). In this regard, the Auvergne resembles southern France, but differs in the lack of imported metal vessels.

## 13.8 Republican amphorae fabrics

It is possible to recognise many distinct Republican amphorae fabrics in hand specimen and in thin-section, many of which can be assigned to individual kilns or regions of production (Chapter 9). The collection of additional reference sherds will allow more of the Auvergne fabrics to be assigned to kilns or production regions. Analysis of the Auvergne's Republican amphorae fabrics suggests that there were only subtle changes over the second to first centuries BC. The open LTC2-D1 settlements obtained their amphorae from the same/similar sources as the later *oppida*. Overall, there is no evidence for major changes in the regions and the kilns supplying amphorae during LTC2-D2. Like most other fabric studies of Republican amphora in France, the Etrurian kilns of Albinia and Cosa were the most important suppliers of amphorae throughout this period, a conclusion also suggested by the analysis of the Republican amphorae stamps in the Auvergne (Chapter 12). The Republican stamp assemblages from the Auvergne and from other regions of France show many similarities (Chapter 12). Many of the same stamps are found distributed throughout France and stamps from Etruria (Albinia and Cosa) tend to be found at most sites and often in frequent numbers. These lines of evidence show that most regions had access to the same sources of amphorae (and contents) in Western Italy. There is little evidence to suggest any major upheavals in the Italian wine industry during the first century BC; further supporting the hypothesis that the decline in the importation of Republican amphorae to Gaul was due a lack of demand and not from a lack of availability.

## 13.9 Overall conclusion

The main conclusion to this study has been that the detailed analysis of Republican amphorae can provide a great wealth of details concerning the chronology, distribution and exchange, social use and deposition of amphorae. A broad summary would be that the Auvergne and other parts of central France received an exceptional amount of Republican amphorae and over a much longer chronological period than current models suggest. Over this period the access to and the use of Republican



amphorae (and other Mediterranean goods) varied: while practices also varied between the different regions of France. For the Auvergne, the importation of Republican amphorae had little influence on industrial production, nor towards the development of the *oppida* or state development. In-fact the Republican amphorae trade followed socio-political and industrial developments. Instead, the influence was reflected in socio-economic competition between settlements, elite competition and ritual practices.

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Several important conclusions can be drawn from this study. It has been demonstrated that the detailed analysis of Republican amphorae morphology, especially of the rims from *shipwreck and terrestrial assemblages*, can provide a wealth of information and data concerning the importation of Republican amphorae. This has allowed for a more subtle understanding of the chronology and nature of this trade to the Auvergne.

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It has been suggested that the traditional classification of the Dressel 1A contains several different amphorae types (Dressel 1A/C, Dressel 1 'l'Esterel', Dressel 1 'Spargi'), many of which it is possible to recognise in land assemblages. These different Dressel 1A subtypes indicate that the period c.120–80 BC was characterised by much greater morphological variation in Republican amphorae rim and body morphology than preceding and later periods. Future work on additional cargoes of Republican amphorae is likely to further increase the number of subtypes of Dressel 1A amphorae. Access to the original cargoes, instead of using the published reports, will be required. Finally, it has been suggested that the rim criterion for the Dressel

1B needs modification. Instead of just using a rim height of 55mm as a cut off point, a height of 50mm is more accurate although this does overlap with the rims from the Dressel 1 'Spargi'.

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### 13.4 Rim evolution

The model proposed by Aulas (1983, 1987) for a trend of increasing rim height and angle of inclination for Republican amphorae is generally confirmed by the sequence of amphorae assemblages from the Auvergne and France (Chapter 8). The presence of different types of Dressel 1A amphorae does not invalidate this general scheme. This is because many of the distinct subtypes of Dressel 1A amphorae (Dressel 1 'l'Esterel' and Dressel 1 'Spargi') show many transitional features with the Dressel 1B. Analysis of the Republican amphorae fabrics in the Auvergne shows that the most frequent fabric groups (Albinia, Cosa, Sinuessa) all tend to contain a great range of rim shapes, suggesting that there was a general morphological development of rim form throughout the different production centres.

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fig. 115), Burgundy (Olmer 1997) and northern Gaul (Haselgrove 1996:168; Hénou 1995), the importation of Dressel 1 amphorae was not significant until c.120–100 BC.

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### 13.6 Distribution and political centralization

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Interestingly the importation of Republican amphorae by the Arverni continued unabated following their defeat by the Romans in 121 BC, the loss of their kingship, the abandonment of the Grande Limagne sites and the rise of the Aedui. However, the use of and distribution of amphorae changed. The distribution of amphorae during the second century BC was open and widespread, with little evidence for social control. Both Greco-Italic and Dressel 1 amphorae were widely distributed in the department of the Puy-de-Dôme and there is no evidence that these goods were restricted to higher status settlements. Agricultural labour and labour for the maintenance of the drainage ditches on the Grande Limagne was probably mobilised via the use of small-scale work feasts in which imported wine played a prominent role.

With the end of kingship and the formation of the *oppida*, the redistribution of amphorae and the social contexts in which wine was used radically changed. During this period there was less redistribution of amphorae, and amphorae were used in larger feasting events divorced from the rural sphere; at these events, wine consumption may have been limited to the warriors and the elite. The end of kingship may have unleashed a cycle of political competition in which small chiefs attempted to fill the vacuum left by the capture of Bituitus and his son. Elite's may have competed for followers and access to imported goods. Such a scenario would explain the continuous importation of amphorae after the Arvernian defeat by the Romans, especially if the Romans attempted to foster pro-Roman elements in the tribe by providing access to Roman goods. It might also explain the appearance of inscribed coinage after c.120 BC.

Greater socio-political competition might see the use differentiated drinking and eating patterns by the elite to symbolise status differences. The appearance of amphora motifs on the coinage of Vercingetorix might be explained in the light of this, but apart from this there is little other evidence to suggests differentiated drinking and eating patterns during the second to first centuries BC. Clearly, this was not the case during the second century BC when there was a rapid adoption of imported mortaria and Campanian wares by a wide element of society (Chapter 11). In contrast drinking patterns during the second century BC remained relatively unchanged with the continued use of native vessels and communal drinking practices, and a rejection of imported metal drinking vessels. For the first century BC, there is only slight evidence for changes in eating and drinking behaviours. A greater range of ceramic drinking and serving vessels might have developed, such as the Gergovie wares, but it is not clear if this indicates the development of more differentiated drinking behaviours, let alone whether this was by the elite. The decline in the importation of Dressel 1 amphorae and the later Dressel 2–4 to Gaul should not be sought in a decline in Italian output, but instead as a consequence of changing elite socio-political strategies in Gaul.



Examining the distribution of Republican amphorae in France (Chapter 10), it is apparent that there were chronologically and geographically dispersed spells of greater importation. The overall distribution of Dressel 1 amphorae in France does not show a simple linear fall-off although northern areas do contain fewer findspots and generally lack large assemblages of Republican amphorae. More detailed studies of the distribution of Republican amphorae for individual regions or departments may demonstrate subtle local patterning. The importation of amphorae appears to have had little to do with 'economic' factors but more to do with local social and ritual practices.

### 13.7 Mediterranean imports in the Auvergne and the rest of France

Comparing the importation of Republican amphorae to the Auvergne with the rest of France shows many similarities but also many important and subtle differences (Chapter 10). Examples of Greco-Italic amphorae are found scattered at sites throughout France; however, they are less common in northern France and interestingly in the Forez region. Only in Berry and Lyon are large assemblages of Greco-Italic amphorae also found (Châteaumeillant, Levroux Les Arènes, Lyon Souvenir à Vaise) but they tend not to be widely distributed in these regions. There may have been less redistribution of amphorae and greater social control over their use in these areas. The Auvergne is unique in that Greco-Italic amphorae were not restricted to *oppida* (Châteaumeillant), larger open sites (Levroux Les Arènes), cult sites (Lyon Souvenir à Vaise) or rural aristocratic settlements (Saint Symphorien in Brittany), but were widely distributed. Similarly, the widespread distribution of Republican amphorae in the Auvergne resembles the situation in southern France.

In contrast with other parts of central (Berry, Forez) and eastern France (Burgundy) Campanian, mortaria and *pâte claires* are found in frequent numbers and were widely distributed in the Auvergne during the second century BC (Chapter 11). In this regard, the Auvergne resembles southern France, but differs in the lack of imported metal vessels.

### 13.8 Republican amphorae fabrics

It is possible to recognise many distinct Republican amphorae fabrics in hand specimen and in thin-section, many of which can be assigned to individual kilns or regions of production (Chapter 9). The collection of additional reference sherds will allow more of the Auvergne fabrics to be assigned to kilns or production regions. Analysis of the Auvergne's Republican amphorae fabrics suggests that there were only subtle changes over the second to first centuries BC. The open LTC2-D1 settlements obtained their amphorae from the same/similar sources as the later *oppida*. Overall, there is no evidence for major changes in the regions and the kilns supplying amphorae during LTC2-D2. Like most other fabric studies of Republican amphora in France, the Etrurian kilns of Albinia and Cosa were the most important suppliers of amphorae throughout this period, a conclusion also suggested by the analysis of the Republican amphorae stamps in the Auvergne (Chapter 12). The Republican stamp assemblages from the Auvergne and from other regions of France show many similarities (Chapter 12). Many of the same stamps are found distributed throughout France and stamps from Etruria (Albinia and Cosa) tend to be found at most sites and often in frequent numbers. These lines of evidence show that most regions had access to the same sources of amphorae (and contents) in Western Italy. There is little evidence to suggest any major upheavals in the Italian wine industry during the first century BC; further supporting the hypothesis that the decline in the importation of Republican amphorae to Gaul was due a lack of demand and not from a lack of availability.

### 13.9 Overall conclusion

The main conclusion to this study has been that the detailed analysis of Republican amphorae can provide a great wealth of details concerning the chronology, distribution and exchange, social use and deposition of amphorae. A broad summary would be that the Auvergne and other parts of central France received an exceptional amount of Republican amphorae and over a much longer chronological period than current models suggest. Over this period the access to and the use of Republican



amphorae (and other Mediterranean goods) varied: while practices also varied between the different regions of France. For the Auvergne, the importation of Republican amphorae had little influence on industrial production, nor towards the development of the *oppida* or state development. In-fact the Republican amphorae trade followed socio-political and industrial developments. Instead, the influence was reflected in socio-economic competition between settlements, elite competition and ritual practices.