

**PISAE AND ITS SUBURBIUM:
LOOKING FOR THE ANCIENT LANDSCAPE IN THE URBAN PERIPHERY**

Marinella Pasquinucci & Simonetta Menchelli

INTRODUCTION: PISAE AND THE AGER PISANUS

This paper is focused on research carried out in the *ager Pisanus*, within a wider project concerning northern coastal Etruria (Fig. 1). The area is studied by way of an integrated approach, combining geomorphology, intensive survey (with monitoring of surveyed areas), stratigraphic excavations, underwater archaeology, archaeometrical and archaeological artefact studies, remote sensing, bioarchaeology, palaeoecology and documentary research. The data are processed in a diachronic perspective from the Late Bronze Age up to the early medieval period (Pasquinucci & Menchelli 1999, 2002).

The Pisan plain (lower Arno and Serchio valleys) consists of an alluvial Holocene plain mostly formed by sand and silt deposits, and bordered by mountainous/hilly ranges (the *Monti Pisani* to the north; the *Colline Livornesi* to the south). At present arable land mainly occurs in the plain and on the lower hill slopes, while Mediterranean scrub covers the greatest part of the coastal strip and woods extend over the highest slopes of the interior hills (Mazzanti 1994).

During the Late Iron Age the urbanisation process began in those areas which afterwards were occupied by *Pisae* (Zanini 1997), the most important city in the district in historical times. Evidence of the Villanova culture has been identified in the present-day northern Pisa periphery, proving the Etruscan origin of the site. Since the 7th-6th centuries BC the settlement was located near the northern Arno bank (Tangheroni 2003). Information on Pisan topography is provided by literary sources (Strabo V.2.5; Pliny *NH.* III, 5, 50; Rutilius Namatianus I, 566; *scolium* to Tolomeus 3.1.4), mentioning that *Pisae* was situated at the confluence of an *Auser* branch into the *Armus*, on the right bank of the latter. The river system constituted a natural defence, complemented by walls. The town must have been protected on its northern and eastern borders because later, in 193 BC when the Ligurians besieged *Pisae*, they raided its territory but they

did not cause harm to the town (Liv., 35, 3, 1; Ciampoltrini 2004, 396-397).

During the 3rd century BC the process of Romanisation extended over the area and Pisa was a faithful ally to Rome during the Gallic invasion of 225 BC (Polyb. 2, 27, 1; 28, 2; Banti 1943, 126-127; Corretti 1994, 591-594). During the second Punic and Romano-Ligurian wars, Pisa, as *civitas foederata*, was a military base for sea and land expeditions (Liv. 21, 26, 3; 39, 3; Polyb. 3, 96, 6; Pasquinucci 2003b).

In Late Republican times the system of harbours, already established in the previous period, was further articulated in ports of call of different importance, usually located along coastal lagoons, close to river mouths and along the main rivers. Along the (palaeo)coast the main harbours were S. Rocchino, Isola di Migliarino/North S. Rossore area, S. Piero a Grado, *Portus Pisanus* and Castiglioncello (Pasquinucci 2003a) (Fig. 1). Since the Late Republican period the *ager Pisanus* included the whole Versilian district and extended northwards to the Porta Lake basin (Menchelli 1990; Sodi & Ceccarelli Lemut 1996), which separated it from the *ager Lunensis*. In the east the Monti Pisani and the Era river separated the *ager Pisanus* from the *ager Lucensis* and from the *Volaterranus* respectively (Ciampoltrini 1981, 2006). Southwards the *ager Pisanus* reached the Fine river, the hydronym reminiscent of its ancient boundary function (Fiumi 1968, 24-60).

Archaeological data provide evidence that the northern area of the modern town began to be urbanised in Late Republican times. Building activities most probably increased from the last decades of the 1st century BC onwards, when *Pisae*, probably *municipium* since 90-88 BC (*Festus* 155 L), became *Colonia Opsequens Iulia Pisana* (probably in 31-27 BC) (Pasquinucci 2003b, 81). In the same period a vast *centuriatio* was laid out in the plain north, east and south of the town (Pasquinucci 1995). The Pisan countryside was divided into *centuriae* (50 hectare large allotments) by means of *limites* (roads and/or canals), many of which are preserved. This reor-

ganisation of the countryside entailed deforestation, new drainage systems, tillage of previously uncultivated areas, and the construction of farmsteads (Pasquinucci & Menchelli 2002). One of its major consequences was an improvement in agricultural production, hence renowned for grain (*siligo, alica*; cf. Pliny *NH* 18, 86-87; 18, 109) and grapes (*Pariana uva*; cf. Pliny *NH* 18, 109). In the 1st century AD the local economy was booming thanks to thriving agricultural, manufacturing (Pisan terra sigillata) and trade activities (Pasquinucci & Menchelli 2006).

Remarkable data about further urbanisation in Early Imperial *Pisae* are provided by the *cenotaphia Pisana*, two inscriptions dated to 2 and 4 AD respectively (*CIL* XI, 1420-1421). This concerns the funeral honours decreed by the colonial *ordo decurionum* to be bestowed upon *Lucius* and *Gaius Caesares*, Augustus' nephews. These inscriptions mention an *Augusteum* overlooking the *forum*, and refer to the *decuriones'* resolution to build a triumphal arch in honour of *Lucius in celeberrimo coloniae nostrae loco* (Segenni 2003, 89). Both epigraphic sources also mention a *templa deorum immortalium, balnea publica, tabernae* and buildings for *ludi scaenici circiensesve*, with which *Pisae* was most probably provided¹. However, at the moment none of these buildings have been identified. A possible explanation for this lack may be the peculiarities of Pisan topography. Subsidence and hydrographical changes, and the intense building activity in the medieval and modern town, possibly obliterated many traces of the ancient Pisan urban and suburban topography. Moreover, the phreatic surface rises up to 1.5 m below the present-day surface, rendering excavations very expensive and difficult, thus further restricting chances for reconstructing ancient *Pisae* and its *suburbium*.

THE SUBURBIUM

The pomerium and the city walls

Information on the *Pisae suburbium* was mainly collected in the northern district, at present almost completely urbanised (Pl. 2). In this area

¹ Their general formulary quotes the buildings usually present in contemporary Roman towns.

many random finds occurred, and rescue and preventive excavations were carried out. Intensive surveys have been undertaken in the agricultural areas in the Pisa periphery (Pasquinucci & Menchelli 1999, 2002). Apart from literary and epigraphic sources, medieval archival data and topographical studies were very useful, since many excavations provided evidence that the Roman remains in Pisa were destroyed by the foundations of the tower-houses built at the end of the 10th-11th centuries AD (Bruni 1993; Bruni, Abela & Berti 2000).

As for the ancient connotation of the *suburbium*, E. Champlin wrote that "it is clearly less of a geographical expression than it is a state of the mind", after H.J. Dyos, dealing with the Victorian *suburbium* (Champlin 1982, 97).

The word *suburbium* itself is quoted only three times by Latin writers (Cicero, *Philippica* 12, 24; *Schol. ad Juvenalem* 4.7; Rufinus, *ex Origene*, Homelia 11), while it is completely absent in the *Bibliotheca Iuris Antiqui*².

The adjective *suburbanus* (-a, -um) occurs more frequently. It is mentioned 19 times in legal texts, mostly referring to *praedium* (nine times), *possessio* (three times), *domus* (twice), *villa* (once); the generically neutral term recurs four times (cf. *Bibliotheca Iuris Antiqui*).

In literary sources too, the adjective is referred mostly in connection with properties (*rus, fundus, ager, villa, hortus*) (Champlin 1982, *passim*). More rarely it is applied to people dwelling near the city, the growing or cultivating of crops near the city, actions taking place in the suburban areas or habits characteristic of those living near the city (Champlin 1982, *passim*).

Therefore the word *suburbium* has no specific topographical meaning. Often it was even hard to identify it on the ground: discussing Augustan Rome, Dionysius of Halicarnassus was not able to identify where the town ceased to be town, as both *astu* and *chora* were so closely interwoven (Dionysius, 4.13.3-4; Panciera 1999, 9-15).

Closely linked with the *suburbium* is the *pomerium*. The latter was the strip beyond which the urban *auspicia* and the *imperium domi* were

² We could consult the *Bibliotheca Iuris Antiqui* in its digital version: Palazzolo 2000.

over. Within the *pomerium* burials and some rites were forbidden³. Rome had a *pomerium* borderline, as well as other ancient towns in Latium. It was reproduced in the *coloniae*, both in Italy and in the provinces (Panciera 1999, 13-14). The *pomerium* was strictly linked with the city walls. Besides its strong defensive and symbolic value, it had also a legal meaning, as among the *cives* and *incolae* of a town a distinction was made between *intramurani* and *extramurani*.⁴

Although *Pisae* must have been protected by defensive works, especially in the 3rd-2nd centuries BC, when it was an ally of Rome and repeatedly attacked by the *Ligures*, no archaeological evidence of city walls has been preserved. However, according to A. Maggiani, sandstone blocks of the Late Republican-Early Imperial walls are incorporated in the medieval walls near the Porta del Leone (Maggiani 1988; contra Bruni 1998, 228-232). On the basis of archival documentation, in its northern and western stretches the Roman walls presumably followed the same circuit of the later medieval walls. In the south they ran along the Arno banks. On the eastern side the border was marked by the necropolis identified in S. Paolo all'Orto square (Tolaini 1992, 16-18; Garzella 1990; Pasquinucci 2003b)⁵ (Pl. 2).

(M.P)

The continentia tecta

As with *suburbium*, the *continentia tecta* is another ancient term mentioned in the *Digestus* (*Dig.* 50, 16, 87; *Dig.* 33, 9, 4, 3-4; Letta 2005). It indicated later continuous city growth beyond the more ancient *pomerium* and city walls.

The fastest Pisan urban growth occurred in the 1st-2nd centuries AD, when the local economy was booming. Even if the archaeological data are

sketchy, due to the above mentioned reasons, in our opinion the *continentia tecta* covered the area between the Arno and the *Auser* river, with the largest expansion in the northwestern and northeastern districts (Fig. 2). In the northwestern area, corresponding to the present-day Piazza del Duomo, excavations carried out in the last decades identified an Archaic and Classical sacred area, which was densely built-over in the Early Imperial period. Some buildings and a *domus* facing an E-W street have been excavated (Bruni 1995, 163-185). In the Late Roman and in the Lombard period the area was occupied by a large necropolis. Excavations and random finds in the 19th century attest to a zone with continuous buildings, including *balnea* (locally called *Terme di Nerone*) dated in the early 2nd century AD (Pasquinucci & Menchelli 1989), extending from the Piazza del Duomo area to the northeastern district, and further eastwards to the S. Zeno area (Corretti 1994, 598-617; Pasquinucci 2003b). The latter district was located on the outskirts of *Pisae* and was part of the *Civitate Vetera* mentioned in the medieval archives (Garzella 1990). In this area excavations identified buildings, such as a probable *domus*, dated to the 2nd century BC-2nd century AD (Pasquinucci 1995) and an Ateian kiln for terra sigillata production (in S. Zeno street) (Menchelli *et al.* 2001). On the grounds of toponymy (Parlascio, a le Grotte, Petricio) (Garzella 1990), and archaeological finds (Ciampoltrini 1992, 43-44, fig. 14; Corretti 1994, 604), we think that the city's theatre and/or amphitheatre was located here.

The 10th-11th centuries sources mention a *murus civitatis* bounding the early medieval town (Garzella 1990; Tolaini 1992, 16-18) (Pl. 2). In the east it ran from the Borgo Stretto street to the Parlascio area, westwards it continued along the present S. Maria Street. On its northern and southern side it ran parallel to the *Auser* and *Armus* rivers respectively (Garzella 1990; Tolaini 1992). Therefore the early medieval town was much smaller than Roman Pisa; only to the south did the ancient and the early medieval walls possibly follow the same course or, perhaps, shared the same defensive construction⁶.

³ Bibliography concerning this topic is extensive: a.o. De Martino 1973; Dumézil 1974; Magdelain 1976; Sordi 1987; Hinard 1994; Panciera 1999; Andreussi 1999; Coarelli 2000.

⁴ See the cases of *Vei*, *Salpensa*, *Compsa* quoted by Panciera 1999, 9.

⁵ Gelichi (1998) doubts the existence of urban walls in Roman times.

⁶ Gelichi expresses a different opinion: according to this scholar the Roman town was not larger than the medieval one surrounded by the 11th century walls (Gelichi 1998, 86).

The medieval city walls, at the moment well-preserved, were built since 1155, when Cocco Griffi was consul in Pisa. They enclosed the district south of the Arno river, an area which, in the previous period, was not urbanised. The medieval sources provide useful data to trace both the course of the *Auser*, called *Oseris* in the archives, and the bridge built over it, near S. Stefano street (Garzella 1990, 57). Most probably the topographic situation was very similar in the Roman period (Pl. 2, Fig. 2), since the sigillata workshops identified in the area used *Auser* clays, as shown by chemical and minero-petrographic analyses (Menchelli *et al.* 2001).

THE SUBURBAN LANDSCAPE OF PISAE

After having discussed the role and extent of the *suburbium*, the *pomerium* and the *continentia tecta*, let us now consider the suburban landscape of *Pisa*.

It is known that *horti*, large enclosed *villae* with parks, were one of the most characteristic elements in the *suburbia*, constituting an inner ring surrounding the city centre (Champlin 1982). *Horti urbi iuncti* are mentioned by the *Digestus* (Dig.33, 9, 4, 3-4)⁷, and many literary and legal sources discuss a topographic sequence of *urbs/horti/suburban* properties (Panciera 1999; *Bibliotheca Iuris Antiqui*, see respective words; Pergola, Santangeli Valenzani & Volpe 2003).

Concerning the Pisan *suburbium*, some *villae*, interpretable as *horti*, were identified in the northern, northwestern and southern districts. In general, they date from the Late Republican to the Late Roman period (Corretti 1994; Pasquinucci 2003b). These *villae* actually constituted nodes of contact in the complementary system of urban fabric and rural settlement patterns and economy. Usually, the towns provided manure and workmen (*servi*, *liberti* and *ingenui* belonging to the *plebs urbana*) for the rural production in their hinterland, while the *horti* supplied the towns with vegetables, fruits, flowers, eggs, honey, poultries, snails etc. (Carandini

1985; Scagliarini 1991 for the Bologna *suburbium*).

The outskirts of *Pisae* had economic potential not only for agriculture, but also for commercial and manufacturing purposes. In the northwestern present-day periphery (Pisa-S. Rossore Railway Station area) archaeological excavations carried out since 1999 by the *Soprintendenza per i Beni Archeologici della Toscana* have revealed an urban port of call (Bruni 2003, 45-55) or an area frequented by boats (Camilli & Setari 2005). This site was located along an *Auser* branch, where nine shipwrecks and several parts of boats were identified (Camilli & Setari 2005, fig. on p. 30). The numerous finds date from the Late Republican to the Late Roman age. The area had been frequented since the 8th-7th centuries BC; the progressive shipwrecks mound was formed owing to the successive floods of the Arno river, running a little further to the south (Camilli & Setari 2005).

The manufacturing aspect is constituted by workshops located in the northern peri-urban area, along the *Auser* river, where pottery kilns were active since the Republican period (Pasquinucci & Menchelli 2006; Cherubini, Del Rio & Menchelli 2006). During the Augustan age this district specialised in the production of terra sigillata, and from here workshops spread in the northern *suburbium*. Chemical and minero-petrographic analyses identified many fabrics manufactured in the northern Pisan plain, in an area extending between the town and the Isola di Migliarino, a port and “industrial” site (Menchelli *et al.* 2001). The pottery production requested a lot of seasonal workmen, who most probably alternated agricultural and manufacturing activities and lived in poor dwellings (*casae repentinae*; *tuguria*) (Carandini 1985) on the outskirts of the town and in the suburban area.

As for as the extent of the Pisan *suburbium* (Pl. 3), we can presume that on the northern side it reached as far as the *Auser/Auserculus* river, including the Isola di Migliarino site (about 5 *milia* or 7 km from *Pisae*). The *suburbium*'s northeastern border might be constituted by the *Monti Pisani* offshoots: here San Giuliano Terme is located, a spa centre about 7 km from the town, identifiable with the *aquae Pisanae* quoted by Pliny (*NH* II, 227; Redi 1990). On the southern side, the *Portus Pisanus* area (today Santo Stefano ai Lupi, Livorno), can be considered part of

⁷ Also Pliny mentions *hortorum nomine in ipsa urbe delicias agros villasque* (Pliny *NH* 19, 51).

the Pisan *suburbium* because of the close economic relationships between the town and its main harbour. They were located about 12.5 *milia*⁸ (= 18 km) from each other and were well connected both by the possibilities of fluvial navigation and the road network (see further). In the 18th and 19th centuries conspicuous remains of the harbour settlement were identified in the S. Stefano area: they dated from the 3rd century BC to the Late Roman period (Targioni Tozzetti, 1768; Banti 1943). A recent project, including archaeological and palaeogeographic research, has provided new data on the evolution of the shoreline, the harbour structures and the related settlements (Ducci *et al.* 2005, 29-44). According to literary and epigraphic sources, the Pisan shipyards (*navalia*) were active from the Republican to the Late Roman period (Strabo, 5, 2, 5; Claudianus, *De Bello Gildonico* 483)⁹. Most probably, shipyard activities were located both on the *Pisae* outskirts and along the coast, close to the main harbours¹⁰.

In our reconstruction (Pl. 3), the extent of the Pisan *suburbium* is rather large, as it includes the Isola Migliarino in the north and the *Portus Pisanus* in the south. However, it is under the 20-25 miles limit, which, according to Champlin, was the maximum distance allowing daily commuting between the suburban properties and Rome (Champlin 1982; FIRA II 1.68.5,104 ss.)¹¹.

Usually, a “typical” suburban landscape consisted of *villae*, aqueducts, tombs and necropoleis located along the main roads (Coarelli 1993², 11-13).

In the case of *Pisae*, we have scanty evidence of the urban planning¹², and therefore the relationship between the urban and suburban roads can only be assumed¹³. However, random finds and more recent excavations concerning necropoleis allow us to outline the Pisan road network (Fig. 2). The main roads, the *via Aurelia* and the *via Aemilia*, ran south-north. The first, following the coast, connected *Portus Pisanus* and S. Piero to Pisa along the left bank of the Arno, and entered the town through the southwestern quarter, as marked by the Porta a Mare and the S. Giovanni al Gatano necropoleis (Pasquinucci & Ceccarelli Lemut 1991). The *via Aemilia* followed a course more in the interior and reached Pisa through the southeastern periphery. In the Putignano area it joined the road connecting *Pisae* with *Florentia*, built in the 2nd century BC along the Arno left bank (Pasquinucci & Ceccarelli Lemut 1991). The road linking *Pisae* with *Luca* is well documented by numerous tombs and necropoleis identified in the northeastern *suburbium* (Corretti 1994). In addition to these published data we can mention a Late Roman necropolis, identified recently (2005-2006), and mostly constituted by *enchytrismos* tombs using African amphorae¹⁴. Especially in the northeastern district, the Pisan outskirts appear to have been densely occupied by tombs that, as a rule, were integrated with gardens and *horti*. These necropoleis constituted a strong link between the *urbs* and the *suburbium*, because they entailed periodic travelling for obsequies and various funeral services (banquets, sacrifices and so on). *Parentalia* and *rosaria* were mentioned also in a Pisan funeral inscription (*CIL* XI, 1436).

Tombs located on the outskirts of the town and along the main roads had a very good visibility: therefore the rich owners of the suburban *villae* decided to build their sepulchres in these *fundi* (Chioffi 1999). Epigraphic sources, mostly con-

⁸ According to an itinerary source (*Itinerarium Maritimum*, 501) the harbour was located 18 *milia* from *Vada Volaterrana* and 9 from the Arno river (*Pisae fluvius*).

⁹ *Fabri tignarii* and *fabri navales* are mentioned by *CIL* XI, 1436.

¹⁰ For the medieval period see Garzella 2003a-b.

¹¹ For the large extent of the Roman *suburbium* including *Saxa Rubra*, *Nomentum*, *Antium* and *Praeneste*, see Tomei 1985.

¹² It is well documented that the city's medieval/modern road system did not replace the Roman one (Pasquinucci 1995).

¹³ The *Bononia* situation, on the contrary, is better understood (Scagliarini 1991).

¹⁴ Excavations in progress by the *Soprintendenza per i Beni Archeologici della Toscana*.

cerning Rome, mention *horti sepulchrales* (Gregori 1987-1988; Chioffi 1999). Their architecture was probably complex and included buildings with gardens, vineyards, and flowerbeds. Wells, columns, porticoes and pavilions are quoted too. Shops, stalls and hired lodgings (*tabernae et meritoria*) were mentioned nearby.

In the Bologna *suburbium* residential and commercial buildings have also been identified alongside cemeteries (Brizzolara 1983). A similar situation can be presumed for *Pisae*¹⁵.

Aqueducts were equally characteristic features in the Roman suburban landscapes, linking towns with their territories. Their presence guaranteed the *salubritas* and *amoenitas*, which characterised the *suburbia* (Champlin 1982). Moreover, apart from providing water for baths and fountains, water was necessary for the agricultural and manufacturing activities carried out in the peri-urban areas (Coarelli 1993; Dell'Era 2000). Till now two aqueducts have been identified in the Pisan *suburbium*, respectively carrying water to *Pisae* and *Portus Pisanus*. The first aqueduct had its sources in the *Monti Pisani* and passed through Caldaccoli (*Calidae aquae*), where eight *arcuationes* are still standing (Pasquinucci 1990, 165-179). These remains are about 1 km NW from San Giuliano Terme, the spa centre mentioned above. A large part of the aqueduct could be traced by surveys. It reached the northeastern district of the town, where in 1500 and 1700 scholars still could see its remains, which they interpreted as part of a *castellum aquarum*. On the grounds of archaeological and epigraphic evidence, the aqueduct can be dated to the end of the 1st century AD (Pasquinucci 1990, 178-179). The *Portus Pisanus* aqueduct was a brick and tile built structure originating in the *Monti Livornesi* (Menchelli 2003; Tölle-Kasteinbein 1993, 101-103). Most probably it was built in Late Republican-Early Imperial times, judging by the chronology of the farmsteads and amphora workshops located along its route (Cherubini, Del Rio & Menchelli 2006; Menchelli *et al.* 2006).

Pisae, with its *suburbium*, was well integrated in the surrounding *territorium*. In general there was

¹⁵ A religious-funeral association, the *cultores* (worshippers) of *Hercules Somnialis*, is documented in the Pisan territory (*CIL* XI, 4449, dated to Hadrian times). See Pasquinucci 1986, 51-56.

no conceptual opposition between town, *suburbium* and countryside (Quilici 1974). Also in the legal texts, the *praedia rustica* are often mentioned together with the *suburbana* ones, connected by the conjunction *vel*. Some *centuriae* are well-preserved in the suburban area of *Pisae*: along their *limites* several farmsteads (clearly *praedia suburbana*) have been identified.

In the same way, a close relationship and economic interdependence linked the town (providing administrative religious and cultural services) with its *suburbium* and its *territorium*, in which several productive and trading activities were carried out¹⁶. On the basis of the available sources, the Pisan countryside was densely populated until Late Roman times; agricultural, manufacturing and trade activities continued to be well embedded (Pasquinucci & Menchelli 2002; Cherubini, Del Rio & Menchelli 2006).

For the Late Roman period Rutilius Namatianus provides evidence that the *Portus Pisanus* area kept its *suburbanitas*. Here were located *villae maritimae*, like that of Protadius where Rutilius was put up (Rut. Nam I, 526-560). This villa confirmed perfectly to the *suburbanitas* characteristics: from here the poet reached *Pisae* very quickly by a *carpentum* offered by Protadius¹⁷, and when he came back he could devote his *otia navalia* to wild boar hunting in the woods located in the coastal strip. In the Late Roman period *Pisae* with its *suburbium* could thus still provide *otium*, *salubritas* and *amoenitas*.

(S.M.)

CONCLUSION

In conclusion, while Roman Pisa is concealed by the medieval and modern towns, many features of the ancient landscape in the urban periphery and territory can be reasonably delineated, thanks to a multidisciplinary approach.

We analysed the Pisan district focusing on its most important historical, economic and social aspects, which were shared in the three studied constituents (town/*suburbium*/*ager*).

¹⁶ For this topic see in general Leveau 1994, 273-281.

¹⁷ He went *qua solet ire pedes* (Rut. Nam I, 560-562), most probably through the *via Aurelia* (see above).

Domus and *villae*, workshops, *tabernae*, *tuguria*, necropoleis, *centuriae*, aqueducts, roads and harbours, formed the local system of buildings and facilities, which linked the whole district in a close economic and social interdependence. These close relationships and the embedded economy produced wealth in Roman times and constituted the foundations of the Pisan power in the Middle Ages when it was a maritime Republic.

(M.P. & S.M.)

References

- M. Andreussi (1999) *Pomerium*, in *Lexicon Topographicum Urbis Romae* IV, Rome, 96-105.
- L. Banti (1943) *Pisae*, *Atti della Pontificia Accademia Romana di Archeologia, Memorie* S.III, VI, 1.
- A.M. Brizzolara (1983) Analisi distributiva della documentazione funeraria di Bonomia. Contributo alla definizione del suburbio, in *Studi sulla città antica. L'Emilia Romagna*, Rome, 211-243.
- S. Bruni (ed.) (1993) *Pisa. Piazza Dante: uno spaccato della storia pisana. La campagna di scavo 1991*, Pontedera.
- S. Bruni (1993) *Prolegomena a Pisa etrusca*, in *Pisa. Piazza Dante: uno spaccato della storia pisana. La campagna di scavo 1991*, ed. S. Bruni, Pontedera, 17-94.
- S. Bruni (1995) Prima dei Miracoli. Aspetti e problemi dell'insediamento antico nell'area della Piazza del Duomo, *Opera della Primaziale Pisana* 4, 163-185.
- S. Bruni (1998) *Pisa etrusca. Anatomia di una città scomparsa*, Milan.
- S. Bruni, E. Abela & G. Berti (eds.) (2000) *Ricerche di archeologia medievale a Pisa. Piazza Cavalieri, la campagna di scavo 1993*, Florence.
- S. Bruni (2003) 'Pisa etrusca et loca et flumina'...sed etiam maria. Appunti sulla vicenda di Pisa etrusca, in *Pisa e il Mediterraneo. Uomini, merci, idee dagli Etruschi ai Medici*, ed. M. Tangheroni, Milan, 45-55.
- A. Camilli & E. Setari (eds.) (2005) *Le navi antiche di Pisa. Guida Archeologica*, Milan.
- A. Carandini (1985) *Hortensia. Orti e frutteti intorno a Roma*, in *Misurare la terra: centuriazione e coloni nel mondo romano. Città, agricoltura, commercio: materiali da roma e dal suburbio*, Modena, 66-74.
- E. Champlin (1982) The suburbium of Rome, *American Journal of History* 7, 97-117.
- L. Cherubini, A. Del Rio & S. Menchelli (2006) Paesaggi della produzione: attività agricole e manifatturiere nel territorio pisano-volterrano in età romana, in *Territorio e produzioni ceramiche. Paesaggi, economia e società in età romana*, eds. S. Menchelli & M. Pasquinucci, Pisa, 69-76.
- L. Chioffi (1999) Epigrafia ed insediamenti: il caso del suburbio di Roma, in *La forma della città e del territorio. Esperienze metodologiche e risultati a confronto, Atti Incontro di studio S. Maria Capua Vetere 1998*, ed. S. Quilici Gigli, Rome, 51-60.
- G. Ciampoltrini (1981) Note sulla colonizzazione augustea nell'Etruria settentrionale, *Studi Classici e Orientali* 31, 41-55.
- G. Ciampoltrini (1992) Municipali ambizione. La tradizione locale negli edifici per lo spettacolo di Lucca romana, *Prospettiva*, 39-48.
- G. Ciampoltrini (2004) La seconda fase della guerra: dall'attacco a Pisa alla presa del Ballista (193-179 a.C.), in *I Liguri. Un antico popolo europeo tra Alpi e Mediterraneo*, eds. R.C. de Marinis & G. Spadea, Milan, 396-397.
- G. Ciampoltrini (2006) *La Valdera romana fra Pisa e Volterra, Incontro di studio La Valdera romana fra Pisa e Volterra. L'area archeologica di Santa Mustiola (Colle Mustarola) di Peccioli*, Peccioli.
- F. Coarelli (1993) *Dintorni di Roma*, Rome-Bari.

- F. Coarelli (2000) *Mundus, pomerium, ager*: la concezione dello spazio a Roma, in *Paesaggi di potere: problemi e prospettive, Atti del seminario, Udine 1996*, eds. G. Camassa, A. De Guio & F. Veronese, Rome, 285-292.
- A. Corretti (1994) Pisa, in *Bibliografia Topografica della Colonizzazione Greca in Italia e nelle Isole Tirreniche*, eds. G. Nenci & G. Vallet, Pisa-Rome, 591-660.
- F. Dell'Era (2000) Villa e paesaggio: gli impianti idraulici, *Bollettino della Commissione Archeologica Comunale Roma* 101, 249-262.
- F. De Martino (1973) *Storia della costituzione romana*, 3 vol., Naples.
- S. Ducci, S. Genovesi, S. Menchelli & M. Pasquinucci (2005) La scoperta di Portus Pisanus, in *Atti Convegno Rete Archeologica. Provincia di Livorno. Valorizzazione e ricerche*, eds. C. Maruccci & C. Megale, Livorno, 29-44.
- G. Dumézil (1974) *Religion romaine archaïque*, Paris.
- E. Fiumi (1968) I confini della Diocesi ecclesiastica, del municipio romano e dello stato etrusco di Volterra, *Archivio Storico Italiano* 38-39, 24-60.
- G. Garzella (1990) *Pisa com'era. Topografia e insediamento dall'impianto tardo-antico alla città murata del secolo XII*, Naples.
- G. Garzella (2003a) In Silva Tumuli e in Stagno: paesaggio dell' incolto e risorse naturali lungo il litorale pisano nel Medioevo, in *Incolti, Fiumi, Paludi: utilizzazioni delle risorse naturali nella Toscana medievale e moderna*, eds. A. Malvolti & G. Pinto, Florence, 143-156.
- G. Garzella (2003b) Pisa: la forma urbana e gli impianti portuali sul fiume, in *Pisa e il Mediterraneo. Uomini, merci, idee dagli Etruschi ai Medici*, ed. M. Tangheroni, Milan, 151-155.
- S. Gelichi (1998) Le mura inesistenti e la città dimezzata. Note di topografia pisana altomedievale, *Archaeologia Medievale* 25, 75-88.
- G.L. Gregori (1987-88) Horti sepulchrales e cenotaphia nelle iscrizioni urbane, *Bollettino della Capitale, Roma* 92, 175-188.
- F. Hinard (1994) L'élargissement du *pomerium*. L'Italie et l'espace urbain de Rome, in *La ciudad en el mundo romano, XIV Congreso Internacional de Arqueologia Clàsica, Tarragona 1993*, Tarragona, 2, 233-237.
- C. Letta (2005) Vicus rurale e vicus urbano nella definizione di Festo (PP. 502 E 508 L.), *Rivista di cultura Classica e Medievale* 47.1, 81-96.
- P. Leveau (1994) La ville romaine et son espace territorial, in *La ciudad en el mundo romano, XIV Congreso Internacional de Arqueologia Clàsica, Tarragona 1993*, Tarragona, 2, 273-284.
- A. Magdelain (1976) Le *pomerium* archaïque et le *mundus*, *Revue d'Etudes Latines* 44, 71-109.
- A. Maggiani (1988) Le mura di Pisa, in *Le mura di Pisa, documenti e materiali per lo studio della cerchia del XII secolo*, eds. I. Luperini & E. Tolaini, Pisa, 38-43.
- R. Mazzanti (ed.) (1994) *La pianura di Pisa ed i rilievi contermini*, Rome.
- S. Menchelli (1990) Materiali per la storia della Versilia in età romana, *Studi Classici e Orientali* 40, 387-429.
- S. Menchelli (2003) Un acquedotto romano a Portus Pisanus, *Rassegna di Archeologia* 20b (2003/2004), 123-141.
- S. Menchelli, C. Capelli, A. Del Rio, M. Pasquinucci, V. Thiron-Merle & M. Picon (2001) Ateliers de céramiques sigillées de l'Etrurie septentrionale maritime: données archéologiques et archéométriques (*Rei Cretariae Romanae Fautorum Acta* 37) Lyon, 89-105.
- S. Menchelli, R. Cabella, A. Del Rio, M. Pasquinucci & G. Picchi (2006) Anfore dell'Etruria settentrionale costiera in età romana: nuovi dati alla luce delle recenti indagini archeologiche ed archeometriche, in *Le fornaci di Albinia*, ed. D. Vitali, in press.

- N. Palazzolo (ed.) (2000) *Bibliotheca Iuris Antiqui* (digital version) Rome.
- S. Panciera (1999) Dove finisce la città, in *La forma della città e del territorio. Esperienze metodologiche e risultati a confronto, Atti Incontro di studio S. Maria Capua Vetere 1998*, ed. S. Quilici Gigli, Rome, 9-15.
- M. Pasquinucci (1986) L'area di Cascina nell'Antichità, in *Cascina dall'Antichità al Medioevo* 2, eds. M. Pasquinucci, G. Garzella & M. L. Ceccarelli Lemut, Pisa, 13-59.
- M. Pasquinucci & S. Menchelli (eds.) (1989) *Pisa: le terme "di Nerone"*, Pontedera.
- M. Pasquinucci (1990) L'acquedotto romano, in *San Giuliano Terme. La storia, il territorio*, ed. F. Redi, Pisa, 165-179.
- M. Pasquinucci & M.L. Ceccarelli Lemut (1991) Fonti antiche e medievali per la viabilità del territorio pisano, *Bollettino Storico Pisano* 60, 111-138.
- M. Pasquinucci (1995) Colonia Opsequens Iulia Pisana: qualche riflessione sulla città ed il suo territorio, *Annali Scuola Normale Superiore*, S III. 25, 311-317.
- M. Pasquinucci & S. Menchelli (1999) The landscape and economy of the territories of Pisae and Volaterrae (Coastal North Etruria), *Journal of Roman Archaeology* 12.1, 122-141.
- M. Pasquinucci & S. Menchelli (2002) Insediamenti e strutture rurali negli agri Pisanus e Volaterranus, *Journal of Roman Topography* 12, 137-152.
- M. Pasquinucci (2003a) Pisa e i suoi porti in età etrusca e romana, in *Pisa e il Mediterraneo. Uomini, merci, idee dagli Etruschi ai Medici*, ed. M. Tangheroni, Milan, 93-97.
- M. Pasquinucci (2003b) Pisa romana, in *Pisa e il Mediterraneo. Uomini, merci, idee dagli Etruschi ai Medici*, ed. M. Tangheroni, Milan, 80-85.
- M. Pasquinucci & S. Menchelli (2006) Pisa ed Isola di Migliarino : città, territorio e produzioni di terra sigillata, in *Territorio e produzioni ceramiche. Paesaggi, economia e società in età romana*, eds. S. Menchelli & M. Pasquinucci, Pisa, 217-224.
- Ph. Pergola, R. Santangeli Valenzani R. & R. Volpe (eds.) (2003) *Suburbium. Il suburbio di Roma dalla crisi del sistema delle ville a Gregorio Magno*, Rome.
- L. Quilici (1974) La campagna romana come suburbio di Roma antica, *La Parola del Passato* 29, 410-438.
- S. Quilici Gigli (ed.) (1999) *La forma della città e del territorio. Esperienze metodologiche e risultati a confronto, Atti Incontro di studio S. Maria Capua Vetere 1998*, Rome.
- F. Redi (ed.) (1990) *San Giuliano Terme. La storia, il territorio*, Pisa.
- D. Scagliarini (1991) Bologna (Bononia) and its suburban territory, in *Roman Landscapes. Archaeological Survey in the Mediterranean Region*, eds. G. Barker & J. Lloyd, London, 88-95.
- S. Segenni (2003) Pisa in età romana: le fonti letterarie ed epigrafiche, in *Pisa e il Mediterraneo. Uomini, merci, idee dagli Etruschi ai Medici*, ed. M. Tangheroni, Milan, 87-91.
- S. Sodi & M.L. Ceccarelli Lemut (1996) Per una riconsiderazione dell'evangelizzazione della Toscana: la chiesa pisana dalle origini all'età carolingia, in *Rivista di Storia della Chiesa in Italia* 50, 9-56.
- M. Sordi (1987) Silla e lo *ius pomerii proferendi*, in *Il confine nel mondo classico (Contributi dell'Istituto di Storia Antica dell'Università del Sacro Cuore* 13), Milan, 200-211.
- M. Tangheroni (ed.) (2003) *Pisa e il Mediterraneo. Uomini, merci, idee dagli Etruschi ai Medici*, Milan.
- G. Targioni Tozzetti (1768) *Relazione di alcuni viaggi fatti in diverse parti della Toscana* 2, Florence.
- E. Tolaini (1992) *Le città nella storia d'Italia. Pisa*, Bari.

R. Tolle-Kastenbein (1993) *Archeologia dell'acqua. La cultura idraulica nel mondo classico*, Milan.

M.A. Tomei (1985) Il suburbio di Roma. Tibur e il territorio tiburtino, in *Misurare la terra: centuriazione e coloni nel mondo romano. Città, agri-*

coltura, commercio: materiali da Roma e dal suburbio, Modena, 107-109.

A. Zanini (ed.) (1997) *Dal Bronzo al Ferro. Il II millennio a.C. nella Toscana centro-occidentale*, Pisa.

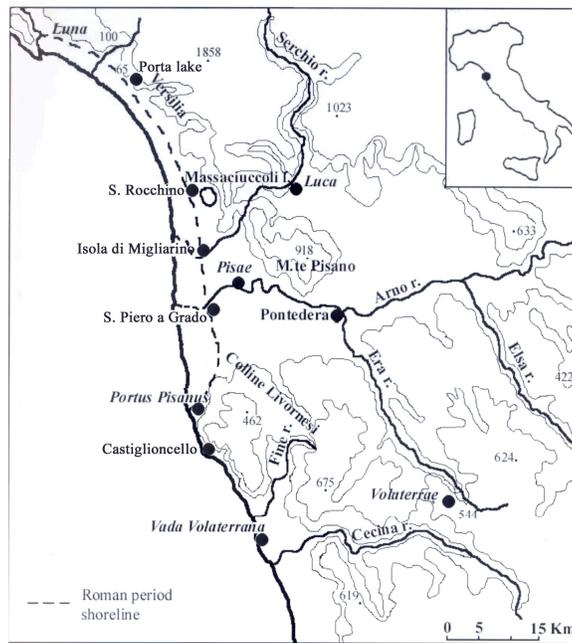


Fig. 1. *Pisae* and northern coastal Etruria.

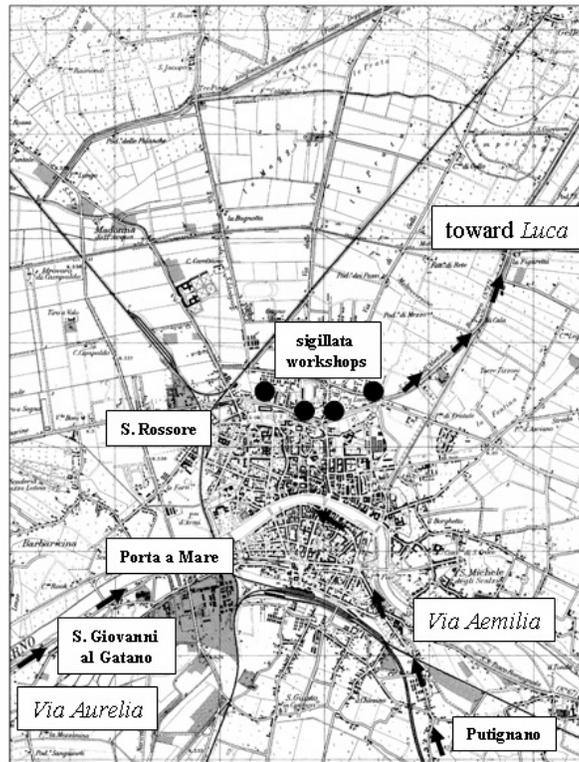


Fig. 2. *Pisae*: ancient road-system; dots: necropoleis.