

CONTEMPORARY LANDSCAPE
AND THE ARCHAEOLOGICAL RECORD.
AN INTEGRATED APPROACH TO THE STUDY
OF THE ETRUSCAN-SAMNITE SITE OF PONTECAGNANO (SA)

1. INTRODUCTION

The present essay provides an overview of the investigations in the archaeological site of Pontecagnano conducted between 2003 and 2006 on the occasion of excavations carried out as part of the works to widen the Salerno-Reggio Calabria highway. The multidisciplinary approach adopted in these investigations has significantly increased our understanding of this ancient settlement. Our reconstruction of the ancient landscape and its transformations has shed further light on the site from Prehistory to the Roman Imperial Age.

Pontecagnano lies in the northern corner of the Sele plain, to the left of the Picentino river and about 3 km from the sea (Fig. 1, a). It is mainly known for its extensive necropoleis of the Etruscan and Samnite periods (from 9th to first half of the 3rd century BC). These necropoleis, investigated since 1962, have yielded about 10,000 tombs so far. Their study has allowed scholars to outline the phases in the history of the settlement. As early as the 1960s, B. d'Agostino found that the graves were clustered around a vast central area and hypothesized that this must be the settlement area, by analogy with the spatial organization observable in protourban towns of the "Villanovan" facies. His hypothesis was confirmed by a number of trials dug as part of an operation whose aim was to draw up the town plan of present-day Pontecagnano (the "Piano di Fabbricazione"). The purpose of this investigation was to determine the extension of the ancient settlement and to preserve it from the town's ongoing urban expansion.

Two physical prospection campaigns conducted by the Fondazione Lerici between 1978 and 1979 traced the limits of the settlement more accurately (DE SIMONE, PELLEGRINO, ROSSI 2015). Their investigation embraced an area of 150 ha, within which 950 core samples were taken at the intersections of a grid of squares measuring 20 m on the side (Fig. 1, b). In a few selected areas, the taking of core samples was complemented by geoelectrical and geomagnetic prospections.

This investigation showed that the ancient settlement extended over a slightly raised plateau laid out in terraces sloping away from NE to SW. The settlement occupied the two upper terraces, while one of the necropoleis spread out across the third. The other burial grounds were E and W of the bank.

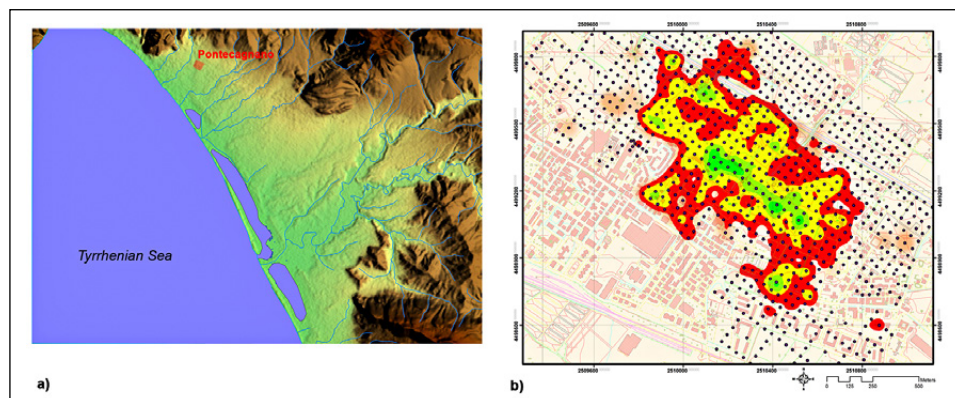


Fig. 1 – a) Location of Pontecagnano in the Sele plain; b) Pontecagnano, prospections of the Lericci Foundation: Kernel density estimate of the inhabited area (after DE SIMONE, PELLEGRINO, ROSSI 2015, fig. 1).

The mode of operation and the results achieved by the prospections of the Lericci Foundation were determined by their objective, which was the protection of the Archaeological Heritage. These investigations thus outlined the perimeter of the ancient settlement from the Iron Age to Roman Imperial times, but without yielding chronological indications for the occupation of each sector.

At the time, excavations had shown, for example, that the Roman town – whose name is known: Picentia – was smaller than the earlier Etruscan-Samnite settlement, having shrunk to a strip along the broad street that crossed the plateau from NW to SE – the so-called *decumanus*, incorporated in the Capua-Regium consular road. Instead, very little was known of the Etruscan-Samnite phase. Two sanctuaries established at the beginning of the 6th century BC had been found at the northwestern edge of the plateau (BAILLO MODESTI *et al.* 2005a, 2005b). One, located in Via Verdi, was dedicated to Apollo and the Etruscan god *Manth*. It seemed to be a sort of “piazza”, around which some traces of a hut settlement dated to the early 7th century BC were unearthed. The sanctuary in Pastini, instead, was dedicated to a female deity. An inscription on a vase indicates that this goddess was called *Luas* in the archaic period.

Therefore, the main source for the reconstruction of the history of the settlement was represented by its extensive necropoleis. Initially, the focus was on limited sectors within the cemeteries and on exceptional burials such as Tombs 926 and 928 (D’AGOSTINO 1977), which shed important light on the material culture and funerary behavior. At the end of the 1990s, a program for the overall study of the necropoleis was started. It envisaged systematic cataloguing of all the tomb assemblages and mapping out of the necropoleis

of Pontecagnano. All these data were gathered in a GIS database (IACOTUCCI, PELLEGRINO 2004).

The reconstruction of the history of the necropoleis was a crucial means to outline the main phases of the settlement. The expansion of the town's cemeteries was neither continuous nor linear. Spatial analysis has revealed, for example, phases of radical change when vast burial grounds were abandoned and/or new ones established. Studies on funerary behavior have shown that these changes went hand in hand with a more general reorganization of the settlement and its social structure (PELLEGRINO 1999; BONAUDO *et al.* 2009; PELLEGRINO 2015a).

New archaeological investigations, commissioned to the Università di Salerno and Università di Napoli "L'Orientale", were conducted between 2003 and 2006 on the occasion of excavation works for the widening of the A3 Salerno-Reggio Calabria highway (PELLEGRINO, ROSSI 2011). A fruitful collaboration between the commissioning institution (ANAS, the national highway agency), the Soprintendenza Archeologica and the universities mentioned above allowed these unavoidable public works to be carried out with the minimum possible damage to the archaeological heritage.

Actually, the investigation constituted an extraordinary opportunity to shed new light on the ancient settlement and its history. A strip about 2 km long running through the settlement and the contiguous suburban area was investigated. The excavation was complemented by investigations conducted with other methodological approaches aimed at reconstructing the history of the settlement and its landscape.

C.P.

2. METHODS AND MATERIALS

Our research at Pontecagnano was characterized by an approach regarding the context as a "geographical space", namely the result of a long sequence of "historical experiences" and environmental dynamics (CAMBI 2011). We used and combined methods from different disciplines, including archaeology, geoarchaeology, geomorphology, archaeobotany and pedology (PELLEGRINO, ROSSI 2011, 29-36, 227-259). Besides carrying out archaeological field surveys and consulting ancient literary sources, we reconstructed the ancient morphology of the area, used historical maps to study the formation of the present-day landscape, produced photogrammetric images for specific purposes, undertook geoarchaeological investigations, and studied existing satellite and aerial photographs.

Our archaeological and topographical investigations went hand in hand with a detailed geoarchaeological study, supported by interpretations of stratigraphic sequences, aimed at reconstructing the natural environment

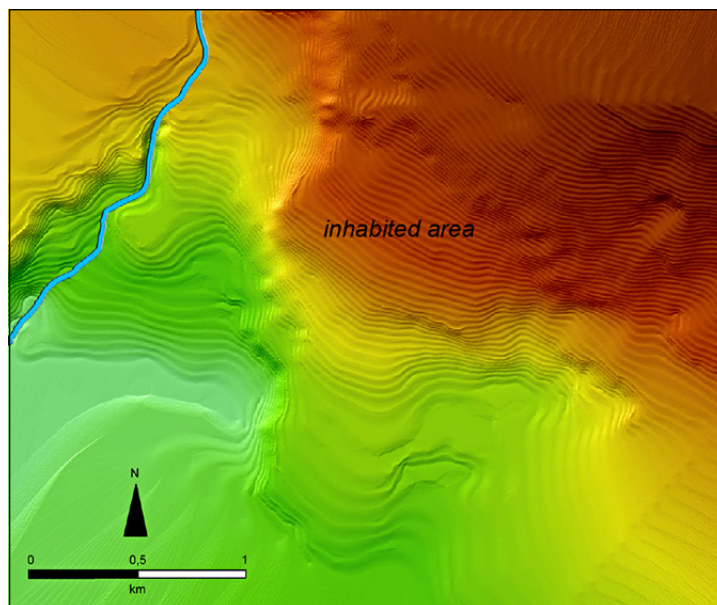


Fig. 2 – Pontecagnano, DTM based on 1:5000 geomorphological map.

in which the anthropic dynamics of ancient Pontecagnano unfolded. Therefore, we investigated stratigraphic sequences and the sedimentology of our excavation trenches and we complemented these observations with further stratigraphic data from geoarchaeological soundings, carried out to allow correct interpretation of the materials filling up the ancient riverbeds and canals that bordered the settlement.

Moreover, we conducted tests on limestone microfossils from the more significant strata and particularly on the ostracods. These tests revealed variations in the sedimentation environments and allowed us to put forward hypotheses about anthropic action on channeled waters in the ancient settlement. We also conducted palinological tests on many strata unearthed in excavation trials and trenches.

Wishing to situate the evidence of Pontecagnano within its geographical context, we carried out a study of a wider area to provide a detailed reconstruction of both the ancient and the present landscape. To achieve this goal, we worked on the 1:5000 (1984) map of the Cartografia Tecnica Regionale, 2003 aerial photographs of the town of Pontecagnano, aerial photographs of 1943, 1955 and 1956, and a series of satellite photographs taken between 1984 and 2015.

The result of this work was a detailed 1:5000 geomorphological map (with an equidistance of 1 m) of the ancient settlement, and a three-dimensional model of the ground (DTM with an equidistance of 0.2 m) (Fig. 2). The integration of these datasets has shed light on the relationship between the morphology of the ancient settlement and the dynamics of landscape use and transformation from Prehistory to Late Antiquity.

3. PHYSICAL GEOGRAPHY AND SETTLEMENT DYNAMICS

The present-day town of Pontecagnano lies in the Picentine plain, one of the most morphologically complex sectors of the Tyrrhenian lowland extension of the Apennine mountain range. The surfaces of this area have different origins and are of different natures: alluvial, conoid, marshy, wind-blown, or terraced. The overall surface is thus gently undulated, with broad channels where ancient riverbeds once stood and deep ruts that were mostly dug by torrents, which run along the length of semi-level raised areas connecting to hills further inland.

The Pontecagnano area, in particular, is characterized by massive deposits of travertine dating back to the Pleistocene, known as “Travertini di Pontecagnano” (D’ARGENIO *et al.* 1983). The surface of the geological stratum is irregular and deeply rutted by the water runoff phenomena, but over the last few thousand years these deposits have been leveled by the accumulation of debris, volcanic and alluvial events, and the formation of further travertine plates due to the high percentages of calcium carbonate in the water of foothill springs. This constant accumulation has caused the area to lift up, forming terraces that have affected the natural runoff of surface water. Therefore, these terraces have generated an unstable hydrographic reticule, formed by a series of shallow canals, meandering and intertwining, which have rutted the ground in various ways and at various times.

This geomorphological and hydrographic situation has influenced the human settlement, which has changed over time, concomitantly with the evolution of the sociopolitical organization, production systems, and the ability to transform the landscape. In prehistoric times, for example, vestiges of settlements were located along ancient riverbeds. Instead, groups of huts of the Eneolithic and Recent Bronze Age, unearthed in the highway excavation works, stood along the banks of watercourses running along the sides of the plateau (PELLEGRINO, ROSSI 2011, 37-52, 206-209, fig. 126).

The Etruscan settlement, instead, displays an “urban” and centralized pattern and lays on the central plateau, and particularly on the two upper terraces (Figs. 2-3). The drop that marked the southwestern limit of the settlement is still partly visible along State Road 18.

The plateau is bordered to the NW and SE by two natural channels (ROSSI 2004-2005, 227-228; PELLEGRINO, ROSSI 2011, 31-34). The NW one,

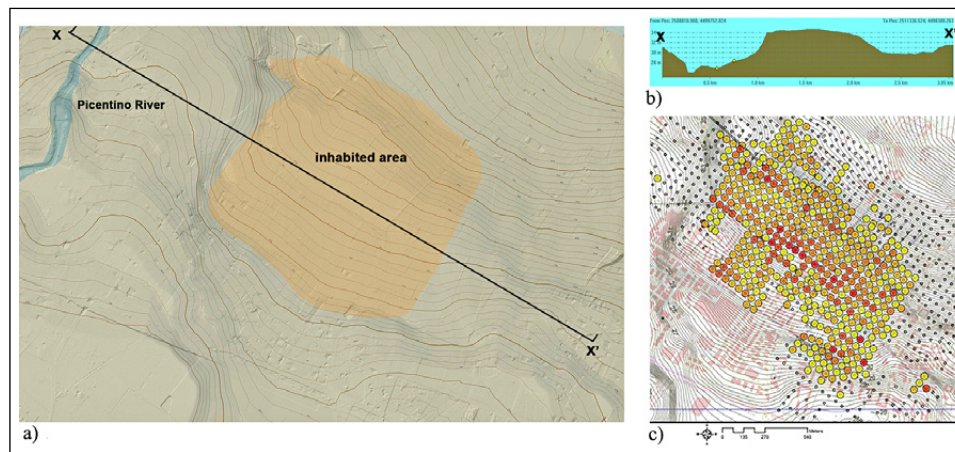


Fig. 3 – Pontecagnano: a) DTM from Campania Region’s LiDAR; b) Geomorphological profile of the inhabited area; c) Prospections of the Lericì Foundation: thickness of the archaeological stratum.

which had already been detected by soundings carried out by the Lericì company mentioned above, appears to be the result of the confluence of several riverbeds, traces of which have also surfaced in the highway excavations in the area of the sanctuary in present-day Pastini (BAILO MODESTI *et al.* 2005b; ALFANO *et al.* 2009). This sanctuary lays on a rise bordered by a depression in which a number of meandering canals originating from springs converged. One of these springs, the “Fontanone”, was active until few years ago.

On the SW versant of the settlement, the platform is also delimited by a system of riverbeds channeling spring and surface waters from the hills into a depression.

It is in the context of this landscape that the Villanovan settlement arose. From the outset it appears to have adopted a planned strategy of space utilization. The absence of vestiges of housing in the extensively investigated areas around the plateau, where the funerary areas are located, confirms the hypothesis that the settlement had a centralized plan, like the large protourban centers of Tyrrhenian Etruria.

Since the beginning, the main settlement must have extended over the two upper terraces of the plateau, with its main necropoleis on either side, beyond the channels of the streams. The necropoleis were bounded by roads or landscape elements such as watercourses or slopes, bearing witness to the accurate planning of the settlement space (BONAUDO *et al.* 2009).

The transition to the Orientalizing period (last quarter of the 8th century BC) was a turning point in the history of the site. The necropoleis of the early Iron Age were simultaneously abandoned, replaced by cemeteries closer to

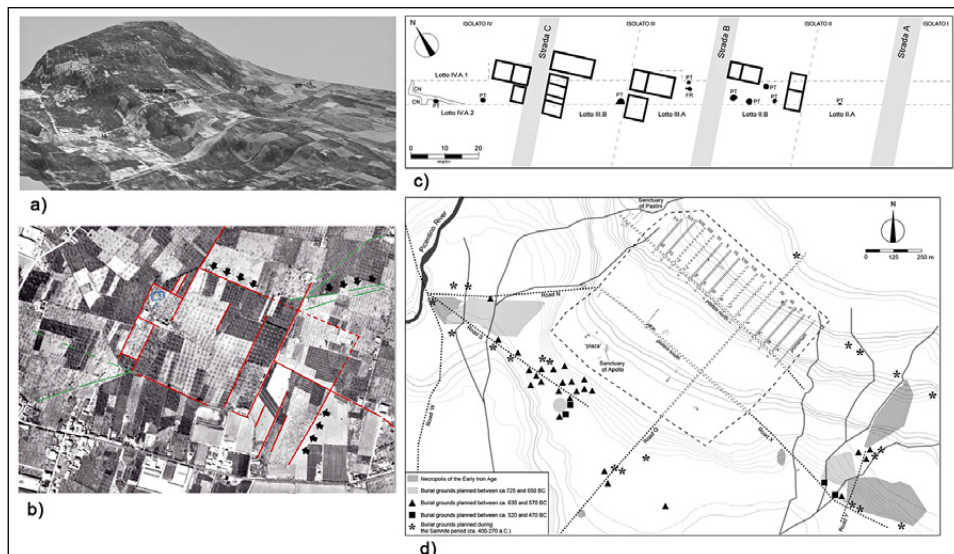


Fig. 4 – Pontecagnano: a) Draping of aerial photograph over DTM; b) Town limits in the aerial photograph of 1956; c) Housing blocks explored during the highway excavation (after PELLEGRINO, Rossi 2011, fig. 53); d) Plan of the ancient settlement.

the inhabited area (PELLEGRINO 1999, 35-40). This change depended first and foremost on a transformation of the social and political structure of the community (PELLEGRINO 2015a).

The new necropolis areas of the Orientalizing Period, contiguous to the cemeteries of the Early Iron Age, extended into the channel beds on either side of the plateau, which must have been reclaimed by draining surface water (ROSSI 2004-2005, 231-232). A third burial ground, located near present-day Piazza Risorgimento, stood at the edge of one of the lower terraces of the plateau. This appears to have been an eminent cemetery, on the evidence of its limited extension, its isolation from earlier burial grounds, and the wealth of the burial assemblages – most notably those from “princely” Tombs 926-928 (D’AGOSTINO 1977) and Tomb 3509, which yielded a donation inscription by the *Rasunie* family (PELLEGRINO 2015b, 50-54). The presence of an elite burial ground here is explainable by its nearness to the town’s public place, a square of sorts unearthed in the area of present-day Via Verdi and Via Bellini, where a sanctuary of Apollo was later erected (PELLEGRINO 2008, 447-449).

A further turning point in the settlement’s urban organization came about at the end of the 6th century BC, when the town limits were fortified and the urban space was laid out in a regular *per strigas* plan (PELLEGRINO, Rossi 2011, 73-127, 214-218). To retrace the city limits and its internal

organization, we integrated the excavation data with an aereo-topographic study combined with orographic reconstruction.

The plateau has natural boundaries in the form of slight but significant drops in altitude delimiting a quadrangular area (PELLEGRINO, ROSSI 2011, 31-33, 233-234). Excavations along these boundaries have revealed segments of walls or moats (Fig. 4, a-b). The clearest evidence has emerged from the highway excavation works on the SE side of the ancient town. Here the town extended to encompass a fluvial-marshy area originated by a watercourse. To drain the area, two vast moats, 10 m wide and 2 deep, were dug to channel the stream away from the inhabited area (ROSSI 2010; PELLEGRINO, ROSSI 2011, 101).

Since this phase, we date a 2 m wide fortification wall, documented only by its foundation trench (PELLEGRINO, ROSSI 2011, 75-79). Along its inner side runs a furrow – known as *solco-canale* – which L. Cerchiali interpreted as the *sulcus primigenius*. This furrow was dug as part of a ceremony in which the city was ritually founded again (CERCHIAI 2008, 404-407).

This stretch of the town walls was renovated and strengthened at the beginning and at the end of the 4th century BC, still respecting the limit traced by the *sulcus* (PELLEGRINO, ROSSI 2011, 133-136). Externally, a large moat was added, 23 m wide and about 7 deep in the middle. The excavation has revealed the moat of a earlier phase. The later was presumably dug into its predecessor. On this side, a further stretch of the town limits is visible in an aerial photograph, where it appears as a slight furrow in the ground aligned with the excavated wall stretch.

To the SW, as mentioned above, the settlement limits run along the drop of State Road 18 still visible downhill. Immediately beyond it, the urban necropolis area begins. *In situ* or collapsed travertine blocks from the walls have come to light in several places during the excavation of a sewer running along the road.

On the NW versant, the inhabited area is bounded by a sharp drop. This boundary coincides with the one detected by the prospections of the Lerici company. Locating the NE limits of the settlement is not easy. They may coincide with a rectilinear trace, which has the same orientation of the town plan, highlighted by a variation in humidity recently detected on remote-sensed images and coinciding with modern plot limits. This hypothesis is confirmed by the fact that a cemetery of the 4th century BC lies immediately NE of it.

As regards the internal organization of the urban area, the highway excavations have intercepted eight streets oriented NE/SW (N 42° E), 5.50 m wide, often with gutters running alongside them (PELLEGRINO, ROSSI 2011, 79-83). These streets probably intersected orthogonally two wider ones (*plateiai*), which divided the city into three horizontal strips (Fig. 4, c-d). This plan *per strigas* resembles those of Poseidonia and Neapolis in the same period.

The southern *plateia* presumably ran where the so-called *decumanus* of the Roman town was found, which was presumably superimposed on the

earlier street. Indeed, this *decumanus* connects to extra-urban roads dating back to the Etruscan period. The position of the northern *plateia* is more hypothetical. It possibly ran along a drop in altitude and a trace is visible in the aerial photographs of 1943.

The housing blocks explored during the highway excavation works are arranged in longitudinal rows (PELLEGRINO, ROSSI 2011, 83-100). In the 5th century BC, each block was occupied by two L-shaped buildings enclosing an area set aside for domestic production (vegetable gardens, livestock). This layout endured down to the Samnite period (PELLEGRINO, ROSSI 2011, 129-179, 218-220). At the end of the 5th century BC, as mentioned above, new town walls using *ad aggere* construction were built and subsequently strengthened, respecting the limit drawn by the *sulcus primigenius* of the earlier walls. Within the town limits, the houses were rebuilt, without altering the original town plan and its longitudinal subdivision into blocks. The sanctuaries were also renovated and new buildings erected.

The town declined after the first decades of the 3rd century BC, concomitantly with the arrival of the Romans (PELLEGRINO, ROSSI 2011, 220). Its end was marked by the closing down of its temples, which were dismantled and ritually desacralized (BAILO MODESTI *et al.* 2005a, 2005b).

The Roman settlement of Picentia shrunk to an area alongside the southern *plateia* of the old town, which was included in the route of the Capua-Regium consular road until the end of the late antique period (PELLEGRINO, ROSSI 2011, 181-204, 220-222).

A.R.

CARMINE PELLEGRINO, AMEDEO ROSSI

Università degli Studi di Salerno

Dipartimento di Scienze del Patrimonio Culturale
cpellegrino@unisa.it, amedeorossi1@gmail.com

REFERENCES

- ALFANO D., AURINO P., BASILE F., CARACCILOLO E., D'ANDREA M., PELLEGRINO C., ROSSI A., VISCIONE M. 2009, *Pontecagnano tra Etruschi, Sanniti e Romani. Gli scavi dell'Università di Salerno e dell'Università di Napoli "L'Orientale" lungo l'autostrada SA-RC*, in M. OSANNA, E. CURTI (eds.), *Verso la città. Forme insediative in Lucania e nel mondo italico tra il IV e il III sec. a.C. Atti del Convegno (Venosa 2006)*, Venosa, Osanna, 463-496.
- BAILO MODESTI G., CERCHIAI L., AMATO V., MANCUSI M., NEGRO D., ROSSI A., VISCIONE M., LUPA A. 2005a, *I santuari di Pontecagnano: paesaggio, azioni rituali e offerte*, in M.L. NAVA, M. OSANNA (eds.), *Lo spazio del rito. Santuari e culti in Italia meridionale tra Indigeni e Greci. Atti delle Giornate di Studio (Matera 2002)*, Bari, Edipuglia, 193-214.
- BAILO MODESTI G., FREZZA A., LUPA A., MANCUSI M. 2005b, *Le acque intorno agli dei: rituali e offerte votive nel santuario settentrionale di Pontecagnano*, in M. BONGHI JOVINO, F. CHIESA (eds.), *Tarquinia. Offerte dal regno vegetale e dal regno animale nelle manifestazioni del sacro. Atti dell'Incontro di Studio (Milano 2003)*, Tarchna suppl. 1, Roma, L'Erma di Bretschneider, 37-63.

- BONAUDO R., CUOZZO M., MUGIONE E., PELLEGRINO C., SERRITELLA A. 2009, *Le necropoli di Pontecagnano: studi recenti*, in R. BONAUDO, L. CERCHIAI, C. PELLEGRINO (eds.), *Tra Etruria, Lazio e Magna Grecia: indagini sulle necropoli. Atti dell'Incontro di Studio (Fisciano 2009)*, *Tekmeria* 9, Paestum, Pandemos, 169-208.
- CAMBI F. 2011, *Manuale di archeologia dei paesaggi. Metodologie, fonti, contesti*, Roma, Carocci.
- CERCHIAI L. 2008, *La Campania: i fenomeni di colonizzazione*, «Annali della Fondazione per il Museo Claudio Faina», 15, 401-421.
- D'AGOSTINO B. 1977, *Tombe principesche dell'orientalizzante antico da Pontecagnano*, «Monumenti Antichi», 49 (serie misc. 2.1), 9-110.
- D'ARGENIO B., FERRERI V., STANZIONE D., BRANCACCIO L., FERRERI M. 1983, *I travertini di Pontecagnano (Campania). Geomorfologia, Sedimentologia, Geochimica*, «Bollettino della Società Geologica Italiana», 102, 123-136.
- DE SIMONE L., PELLEGRINO C., ROSSI A. 2015, *Pontecagnano (SA): "To measure" an ancient settlement through quantitative and qualitative data*, in *Metrology for Archaeology. Proceedings of the 1st International Conference on Metrology for Archaeology (Benevento 2015)*, Benevento, 450-454.
- IACOTUCCI F., PELLEGRINO C. 2004, *An user-friendly approach to GIS-application: an utility for the study of Etruscan cemetery of Pontecagnano (Italy)*, in F. NICCOLUCCI, S. HERMON (eds.), *Beyond the Artifact. Digital Interpretation of the Past. Proceedings of the 32nd Conference of the Computer Applications and Quantitative Methods in Archaeology (CAA) (Prato 2004)*, Budapest, Archaeolingua, 217-219.
- PELLEGRINO C. 1999, *Continuità/Discontinuità tra Età del Ferro e Orientalizzante nella necropoli occidentale di Pontecagnano*, «Annali dell'Istituto universitario orientale di Napoli. Dipartimento di studi del mondo classico e del Mediterraneo antico. Sezione di archeologia e storia antica», 6 (n.s.), 35-58.
- PELLEGRINO C. 2008, *Pontecagnano: la scrittura e l'onomastica in una comunità etrusca di frontiera*, «Annali della Fondazione per il Museo Claudio Faina», 15, 423-463.
- PELLEGRINO C. 2015a, *Pontecagnano e l'Agro Picentino: processi sociali, dinamiche territoriali e di strutturazione urbana tra VIII e VII sec. a. C.*, in G. SALTINI SEMERARI, G.J. BURGERS (eds.), *Early Iron Age Communities of Southern Italy. Proceedings of the International Workshop (Rome 2011)*, Papers of the Royal Netherlands Institute in Rome 63, Roma, Palombi, 26-47.
- PELLEGRINO C. 2015b, *I più antichi oggetti iscritti di Pontecagnano: fisionomia e contesti di rinvenimento*, in M.-H. HAACK (ed.), *L'écriture et l'espace de la mort. Épigraphie et nécropoles à l'époque pré-romaine*, Rome, Publications de l'École française de Rome, 49-61 (<http://books.openedition.org/efr/2771>).
- PELLEGRINO C., ROSSI A. 2011, *Pontecagnano I.1. Città e campagna nell'Agro Picentino (Gli scavi dell'autostrada 2001-2006)*, Fisciano, Dipartimento di Scienze del Patrimonio Culturale.
- ROSSI A. 2004-2005, *Contesto ambientale e dinamiche insediative tra l'Età del Ferro e l'Età Arcaica*, «Annali dell'Istituto universitario orientale di Napoli. Dipartimento di studi del mondo classico e del Mediterraneo antico. Sezione di archeologia e storia antica», 11-12 (n.s.), 225-234.
- ROSSI A. 2010, *Acque violate: il caso dei canali tardo-arcaici di Pontecagnano*, in H. DI GIUSEPPE, M. SERLORENZI (eds.), *I riti del costruire nelle acque violate. Atti del Convegno Internazionale (Roma 2008)*, Roma, Scienze e Lettere, 359-365.

ABSTRACT

Pontecagnano is a large Etruscan-Samnite settlement located 8 km SE of Salerno, at the northern edge of the Sele plain. The well-investigated necropolis provided data that made it possible to analyse the structure of the ancient community and reconstruct its long-term

development. Over the last few years, after archaeological investigations carried out during roadwork to widen the Salerno-Reggio Calabria highway, a more systematic study of the site was begun. The analysis of archaeological data was combined with environmental and landscape studies, shedding light on the reasons behind the spatial organisation of the settlement, which was influenced by natural or man-made landscape elements such as streams, non-uniform dislocation of geological formations, terraces, roads, canals, etc. The aim of this paper is to illustrate the methods and instruments we used to develop a system that can dynamically combine archaeological and geomorphological data. The paper focuses particularly on the reconstruction of paleo-topographical areas of the ancient settlement. Our investigation outlined the physical and environmental limits within which the old town developed, especially as regards the archaic and classical period. Part of the work was devoted to reconstructing in detail the connections between the modern and the ancient landscape, not only by reading and interpreting the aerial photographs from 1945 to the present-day, but also by analyzing the evidence from the excavations. This approach allowed us to draw up a detailed geomorphologic map of the area of the ancient settlement – part of the GIS platform – and develop a three-dimensional model of the ground (DEM).

