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A Case Study of Agrarian Assets in the Territory of Caere (6th-5th century BC)

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Abstract – The present paper defines some approaches employed to study the agrarian landscape of the Etruscan city of *Caere*.The aim is to verify some features of rural infrastructures of this territory, which has been planned systematically since the end of the 7th- early 6th century BC. Through the use of different approaches – from the archaeomorfology to the metrology, to the aerial photo interpretation – the research seeks to verify those signssuggesting systematic and symmetrical forms of occupation of the *Caeretan*countryside, as an effect of an articulated plan imposed by the city at the time of its greatest expansion. The results, still under development, show the constant recurrence of distances and orientations, with variations often related to the characteristics of the territory or the needs of community exploitation.

Keywords – *Caere*, land use, archaeomorphology, rural landscape, landscape archaeology

I. INTRODUCTION

The present essay is related to a PhD research carried out by the writerin Methods and methodologies of archeological and territorial research of the University of Salerno. The aim of the research is to re-read and compare data and interpretative models of the Etruscan rural world in order to specify forms and phases of agrarian landscapes in a well-outlined chronological frame – the 6th and 5thcentury BC – through some significant case studies. Given the remarkable heterogeneity of available data and the different degree of knowledge of ancient territorial systems, it was decided to address the topic according to different scales of inquiry [1]. The paper presents the third level of analysis, a semi-micro scale reading of specified areas previouslyexamined through intensive field surveys.

A. The etruscanCaere: context and previous research

The territory of ancient *Caere* is currently one of the most studied in the Etruscan world [2]. Several surveys conducted by F. Enei have allowed to populate the territory through a large number of archaeological evidences showing a widespread occupation of the "agro" since the end of the 7th – beginning of 6th century BC [3].
The presence of a large number of small rural settlements demonstrates the fragmentation of cultivable land according to specific sections of the territory, within an unitary project imposed by the urban center [4].Extended investigations had also detected that the distribution of rural settlements seems to be conditioned by particular metric rules, since very often the distance among sites is around 150 and 300m [5].
Data allows us to examine the issue about land ownership: the fragmentation of agricultural parcels and the resulting settlement development are a symptom of great changes in the Ceretan society. It is not yet clear what land have been subdivided, whether belonging to the aristocratic *élite* or the community. It is however evident that in this period the growing demand forland is manifested by groups which tend to detach themselves from the patronage system typical of the Orientalizing period.
These premises drive the research to the reconstruction of an agrarian layout that imply quite a symmetry in shapes and infrastructures that compose the Caeretan countryside of 6th and 5th century BC.

II. METHODOLOGY

At the present state of documentation, it is decided to check if, through a critical reading of published data and the identification of specific archaeological signs, it is possible to develop a detailed definition of processes underlying the agrarian structures of the Caeretan territory. The analytical phase focuses on some of the aforementioned studies and aims to regroup and update the documentary basis of archaeological sources compared to the already published synthesis work. Contributions with homogeneous features in the data record were selected, with the aim of creating a coherent system with clear documentation boundaries. Therefore, the research had taken into account systematic territorial surveys and studies characterized by spatial continuity. This selection allows to reconstruct a more homogeneous picture of archaeological distribution by reducing the documentary gap and thus enhancing the spatial value of the archaeological data, especially in relation to the symmetry of settlement strategies of ancient landscapes. The census was carried out taking into account archaeological evidences dating from the 6th to the 5th century BC; also, 7th and 4th century sites were recorded, in order to highlight specific cases of continuity of exploitation and, above all, *longue durée*phaenomena of

agrarian spaces. In addition, all those special features such as roads, canalizations and bridges, have been incorporated: those evidences, though not always easily datable, could suggest spatial and functional information. Then, collected data has been merged into a database. The management of the information has required the use of a GIS, with the aim of preserving and representing geographical and spatial characteristics of each single evidence (Fig. 1). The geographical representation has imposed the use of a territorial base built on multiple and different scale factors. All the layers useful for the definition of the general topography, such as geology, hydrology and geomorphology have been included,taking into account also the temporal differences in the production of each support – even all aerial photo anomalies recorded in previous scientific research [6].Both anomalies and current traces of the territory have been treated from an archaeomorphological point of view: very often, anomalies are not a direct reference to ancient shapes, but rather the deformation of the routes habitually used or the degeneration of constant orientations over time.

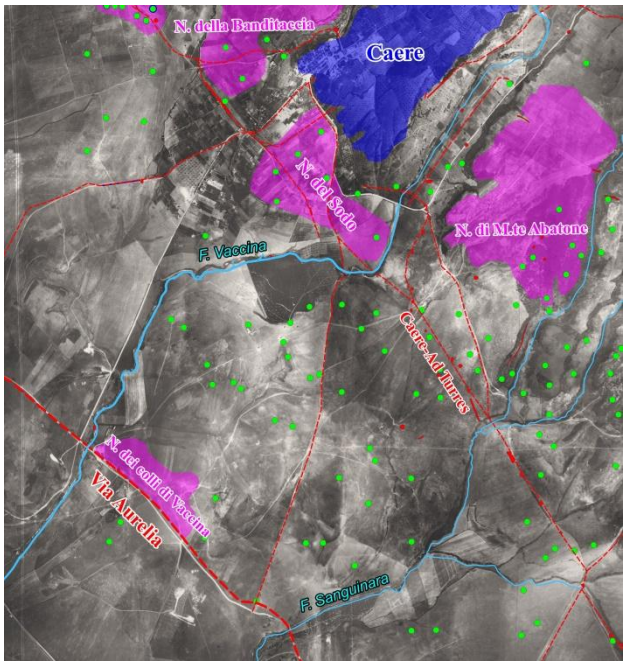

Fig.1. Study area. Representation of ancient road network (red lines), 6th-5th century sites (green dots), necropolis (purple areas), the city of Caere (blue area); in the background the orthophoto plan by P. Tartara.

Additional objects have been added to them aerial-photographic interpretation. The GIS database was thus used to carry out spatial analysis that involved regular distribution of evidences and territorial infrastructures, orientation of current fields in relation to ancient forms of organization. The result is a hierarchical system useful for reading agrarian systems, starting from the archaeological data to the traces still visible in the territory [7].

III. FIRST RESULTS

The work is still in progress but at the moment it is possibleto focus attention on some areas of Caeretan territory. The archaeological sites mentioned are indicated by the enumeration used by F. Enei [3].

A. Measurements in the area of Passo di Palo and Infernaccio

Here are the first results concerning the sector between the city of Caere and the Via Aurelia.It is an area of almost 3 km wide, characterized by flat surfaces delimited by the tufaceous plateaus of Monte Abatone, Vignali and Banditaccia to the North, and by the retro-dunalbelt on which the Via Aurelia and the necropolis of Colli di Vaccina are deployed to the South.Waterways and the ancient road network define areas differently characterized by aerial photography anomalies and archaeological evidences. The northwestern portion of this belt, circumscribed by FossiVaccina and Sanguinara, is characterized by at least two orientation systems: the first one (Fig. 2), with an orientation ofN 57° E, follows the gentle slope towards the sea; it appears to be partially generated from the important road axis *Caere-Ad Turres*. The existence of such orientation is confirmed by an excavated road (n. 888) of about 4m wide – dated to the Etruscan period – and by an aerial photo trace representing its extension. Along this route - theoretically reconstructed for about 2,4 km - the survey carried out by F. Enei shows archaeological evidences dating back at least to the 6th century BC. The track's end is represented by the southern limit of the Necropolideicolli di Vaccina: in this sense, the shape of the agrarian structure indicates also the change of function of the territory.

At the center of the plateau, orthogonal to this axis, there is the site n. 223, interpreted as the remains of a NW-SE oriented cobbled road. The projection of this track encounters further aerial photo anomalies – a probable road and a canal – which seem to create a right angle. From this point to the excavated road the distance is about 500m. Further anomalies are perpendicular to this axis, as well as some routes visible in 1895 cartography and now partially disappeared, along which it is possible to report additional evidences dating from the 6th century BC. The northern boundary of the plain is characterized by a slight scarp, which creates a remarkable break from the point of view of the distribution of archaeological evidence. Further north and up to the FossoVaccina, no archaeological evidence has been identified. Along the scarp are some burials (nn. 105 and 110) and a site (n. 107) characterized by the presence of a building decorated with architectural terracottas during the late archaic phase.

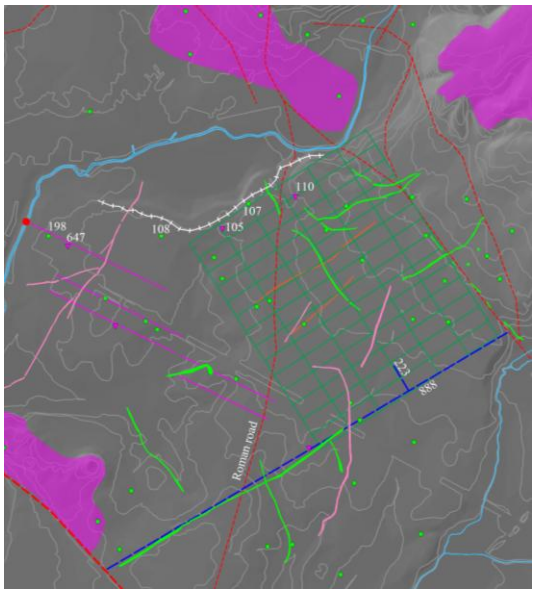

Fig.2. The N 57° E system. 600x300m grid (dark green lines), aerial photography anomalies (light green shapes); 1895 road network (orange lines), projection of the excavated road (blue dashed line),N 27° E orientations (purple lines) N 27° E anomalies (light purple shapes) northern scarp (white line), rural settlements (green dots), tombs (purple triangles), roman bridge (red point), ancient road network (red dashed lines), site numbers (in white)

If we use the road n. 888 and the scarp as boundaries of a symmetrical system, the covered distance is of about 1240m. The occurrences of some of the anomalies and the distribution of sites suggest a regular system based on the attic foot. In this sector it is possible to reconstruct rectangles of 600x300 feet – the ratio is 1:2. To the W of the system described above, there are few anomalies, though sites deployment suggest a continuity of orientation, at least up to the canalizations near the spring la Cannella.

The area of Infernaccio, characterized by gentle slopes and with a different orientation, show few traces. In the NW area there are two Etruscan sites (nn. 198 and 647) arranged on a N 28° E hypothetical axis proved by a ford on the FossoVaccina later occupied by a Roman bridge in the 1st–2nd sec. AD (n. 192). A clear anomaly that shows several forks runs more or less perpendicular to this axis along the crest of Infernaccio. Further iso-oriented tracks are visible in the portion immediately beyond the spring La Cannella:they seem to partially share the path of a paved road identified by R. Mengarelli [8]and visible on 1930 aerial photos, with a slightly different path to that proposed by F. Enei. The road is dated to the roman period, since along this route there is a rustic villa dating from the 3rd century BC to the 4th century AD. The traces so far described are discordant with what we have seen in the area of Passo di Palo and seem to fit with the elevation profile and the shape of the relief. This is not necessarily a new asset in the agrarian structure, but rather a possible change of orientation. It is also conceivable that in the area of Passo di Palo such orientations can intersect with the N 57° E system and create oblique boundaries and canalizations with respect to the orthogonal grid. The current canals – some of them already present in the 1895 cartography – maintain the same orientation that seems to transpire from the ancient organization.

Furthermore, it is interesting to note that the sites of the Etruscan period (nn. 107 and 108) that demonstrate by size and materials a high quality level are distributed along the slopes of modest reliefs, near burial areas – some of which can be dated to the second half of 7th century BC – and show themselves quite isolated or in relation to the flat plain directly in contact with big water resources such as the FossoVaccina.

B. The area of Migliorie di Zambra

The study area is located between the Orientalizing *tumuli* di Zambra – arranged along the road*Caere-Pyrgi* – and a current route already recognized as ancient by R. Mengarelli and F. Enei. At the center of this sector there is a further pathway, that connects the urban necropolis sector with the plain. The archaeological evidences connected to the rural settlement are scarce but significant (Fig.3). The site n. 15 is characterized by a long occupation that goes at least from VI century BC until 1st century AD and returned fragments of architectonical terracottas, *dolia* and *amphorae*. The site looks isolated from other rural settlements and stands in close relationship with the area of the *tumuli*. The distribution of surface materials is regular and seems to record a specific shape composed by three wings perpendicular to each other with a lengt of about 30-40m. The orientation is N 71° E and corresponds almost perfectly with the path of the current road to S, thus suggesting a substantial preservation of an ancient route.

To the N, aerial photo anomalies are complex and do not appear to have regular shapes – some of them may also refer to natural forms.

Immediately to the S, the sites nn. 619 and 620 are distributed on an axis that appears to be the continuation of the ancient road signaled by Mengarelli and Enei – more in detail, in its form documented on 1895 cartography. The orientation of this axis, which finds comparisons with some anomalies more or less distant about 175m (namely 300 feet), is N 22° E. Therefore, in this area there are considerable differences of settlements consistency and distribution,more in detail:

a large undivided area near Orientalizing *tumuli* characterized by one or more buildings decorated with architectural terracottas and an extensive life span;

a sector apparently organized in regular parcels, occupied by small short-lived rural sites, with no particular material evidences.

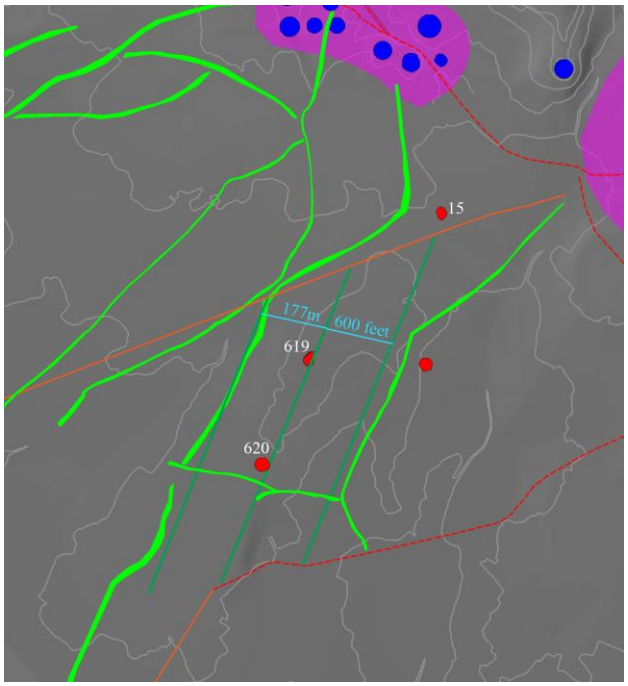

Fig.3Migliorie di Zambra. Hypothetical orientations (dark green lines), aerial photography anomalies (light green shapes), 1895 road network (orange lines), rural settlements (red areas), tumuli (blu circles), ancient road network (red dashed lines), site numbers (in white)

C. The sanctuary of Montetosto

The area is characterized by the presence of a large orientalizingtumulo and a sanctuary dating to the 3rd quarter of the 6th century AC, placed along the great road *Caere-Pyrgi*[9]. Two are the hypothesis about the path of this route: R. Mengarelli recorded the remains of a paved road flanking the great mound; F. Giuliani and L. Quilici [10] proposed his passage further S, near the sanctuary.Both hypotheses suggested a crossing on the fossoCentocorvi. The study of 1930 and 1954 aerial photos has confirmed both the paths. After overcoming the FossoCentocorvi, the two roads run parallel for at least 480m while maintaining a distance of about 175m, which is close to 300 feet (Fig. 4). The orientation is N 105° E, congruent with the excavation of a section of the *Caere-Pyrgy* in CasaleCentocorvi [11]. The track further S seems to be directly referable to the great road, since it is in its direct continuity. It is therefore probable that near the Montetosto mound there was a crossroad.From a 1968 aerial photo it has been 1possible to re-allocate the sanctuary building area and the remains of a canalization found in Quilici e Giuliani 1960s survey.The filtering of the 1954 frame – increasing contrast, false colours and shaded reliefs – shows the continuation of this infrastructure for several hundred meters, immediately located SE of the sanctuary, probably below the terracing system on which the structure is displayed (Fig. 5).

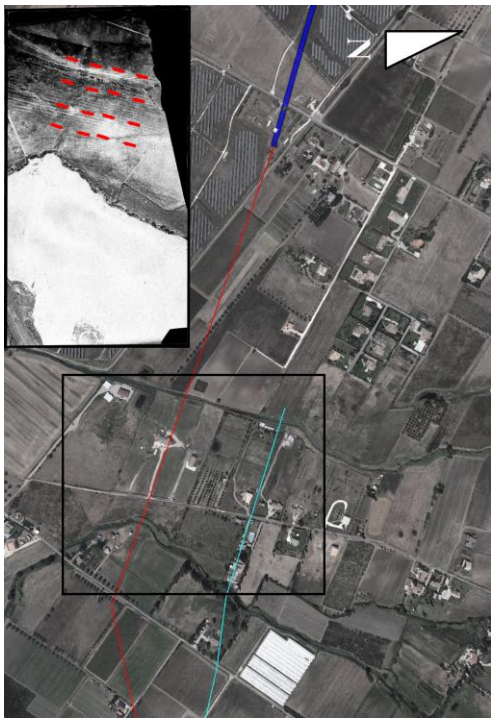

Fig.4CasaleCentocorvi. In the box the 1930 photogram with two anomalies of the roads; projection of the southern road (red);projection of the northern road (pale blue); section of the excavated road Caere-Pyrgi (blue). The north is on the right.

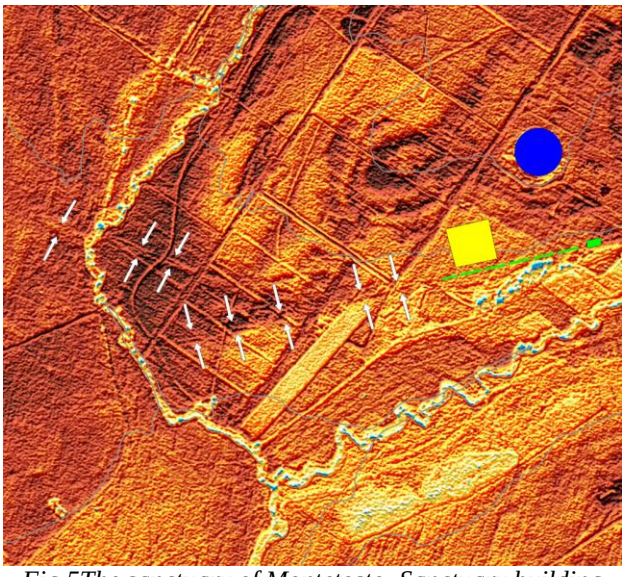

Fig.5The sanctuary of Montetosto. Sanctuary building (yellow area), tumulo di Montetosto (blue circle);ancient canalization (green area) andhypotethical projection (green dashed line); white arrows highlight the anomalies of the Caere-Pyrgi road and the water infrastructure.

The measurement of the orientations attests a layer of N 75/80° E both for the channel and for the sanctuary, coherent with the *Caere-Pyrgi* hypothesized by L. Quilici and F. Giuliani. It is thus possible to reconstruct a system congruent with the road, along which sanctuarial structures and water infrastructures are distributed starting from the 3rd quarter of the 6th century BC (Fig. 6).

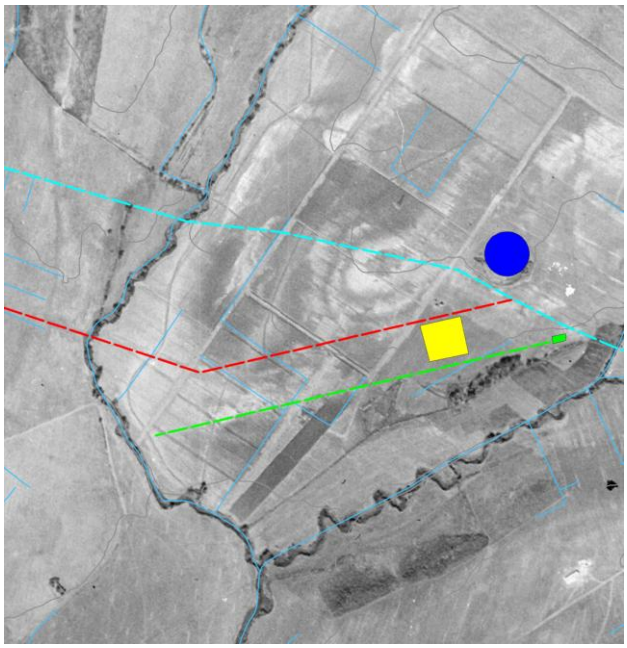

Fig.5The sanctuary of Montetosto. Sanctuary building (yellow area), tumulo di Montetosto (blue circle);ancient canalization (green area and green dashed line); Caere-Pyrgi (red dashed line), Caere-Pyrgi according to Mengarelli (pale blue dashed line).

IV. CONCLUSIONS

The analysis suggests as in the 6th century BC the Caeretan territory is already structured. The comparison between archaeological evidences, remote sensing data and archaeomorphological shows, at least in the sector close to the city, measured rural spaces, organized in a more or less geometric way. The measurements indicate the presence of a N 57° E oriented system, hypothetically consisting of rectangles of about 600x300 feet according to a 1:2 ratio and presumably based on the attic foot.

It should also be noted that another set of alignments (N 22° E) is also found, which does not agree with the system described above:it seems to be linked to a variation in land shapes in the Infernaccio sector. Some of the N 22° E shapes visible in the Passo di Palo, however, seem to respond to the need of infrastructures for water management. The viability of Roman period appear to follow in part this orientation.

Comparisons with agrarian systems based on the attic foot and the *stadion* (1 *stadion* = 600 feet) are significant: they are present in Etruria Padana, but also in Greek foundations such as Emporion in Spain and Pharos in Croatia[12]. It would still be necessary to clarify the internal articulation of the parcels, hypothetically characterized by channels or oblique boundaries.

In the area of Migliorie di Zambra,iso-oriented parcels (of 600 feet wide, or about 177m) occupied by small rural settlements are opposed to large and apparently undivided spaces perhaps related to *agrigentilicii* occupied by structures with complex plant and decorated with architectural terracottas. A. Zifferero hypothesized that some of these buildings could be instead rural sanctuaries aimed at specify the boundaries of the rural territory in the 6th century, as markers that replace the great Orientalizing *tumuli*[4]. But without any evidence that can attest a concrete cultural manifestation, one might imagine a real difference in the forms of land possession: a class of small landowners, who benefit from the land distribution of 6th century AC, is opposed to an aristocracy or, however, to a privileged social class which makes the connection with its ancestors an element of distinction and legitimacy in the possession of land. Furthermore, it cannot be excluded that regular subdivisions may be related to *clientes* directly reffering to aristocratic *élites*. In the late etruscanVegoia's prophecy, reference is made to *clientes* who move boundary stones to modify the internal subdivision of aristocratic properties[13]. This information could refer to extensive land plots owned by *élites*, which in turn are geometrically assigned to *clientes*.

In the Montetosto area, geometric symmetry criteria have been applied: the study of road network highlighted the presence of two parallel axes which, apart from each other 600 feet, may have been used as a basis for further agrarian subdivisions. The sanctuary area and the necessary water infrastructure seem to be influenced by this geometric organization, since the structure is coherent with the orientation of channels and roads.

What has so far been said is the result of a work in progress and it is likely to be revised.

REFERENCES

[1] A. Clark, Seeing beneath the soil. Prospecting methods in archaeology", Batsford, London, England, 1990.

[2] M. Rendeli, "Città aperte. Ambiente e paesaggio rurale organizzato nell'Etruria meridionale costiera durante l'età orientalizzante e arcaica", Gruppo Editoriale Internazionale. Roma, Italia, 1993.

[3] F. Enei, "Progetto AgerCaeretanus. Il litorale di *Alsium*. Ricognizioni archeologiche nel territorio dei comuni di Ladispoli, Cerveteri e Fiumicino (*Alsium, Caere, Ad Turres, Ceri*)", S.I., Ladispoli, Italia, 2001.

[4] A. Zifferero, "La formazione del tessuto rurale nell'agro cerite: una proposta di lettura", Dinamiche di sviluppo delle città nell'Etruria Meridionale: Veio,

Caere, Tarquinia, Vulci, Atti del XXIII Convegno di studi etruschi ed italici, 2005, pp. 257-272.

[5] F. Enei, "Cerveteri (Roma). Località Tenuta di Montetosto a Mare. Santa Marinella (Roma). Riserva regionale naturale di Macchiatonda. Ricognizioni Archeologiche", BdA, n.23, 1993, p. 117-123.

[6] P. Tartara, "Ortofotopiano storico IGM 1930 del territorio tra Cerveteri e la costa", Lo sguardo di Icaro. Le collezioni dell'Aerofototeca Nazionale per la conoscenza del territorio, Campisano, Roma, Italia, 2003, pp. 157-166.

[7] C. B. De Vita, A. Terribile, "Ancient Appia Landscapes: formation and degeneration processes in landscapes stratification of Benevento area", Proc. of the 3rd International Landscapes Archaeology Conference (LAC), 2014, 1-11.

[8] R. Mengarelli, "La città di *Caere*: i pagi, le vie, le ville nel territorio cerite durante il periodo etrusco en romano", Atti del IV Congresso Nazionale di Studi Romani, 1938, pp. 221-231.

[9] B. Belelli Marchesini (eds), "Il santuariodi Montetosto sulla via Caere-Pyrgi", Officina, Roma, Italia 2015.

[10] F. Giuliani, L. Quilici, "La via Caere-Pyrgi", Università degli studi di Roma, Roma, Italia, 1964.

[11] L. Petacco, "La viabilità in uscita da Cerveteri: osservazioni sulla via Caere-Pyrgi", Caere.6. Caere e Pyrgi: il territorio, la viabilità e le fortificazioni, Serra, Roma, Italia, 2014.

[12] C. Rampazzo, "Alle origini della *limitatio*. Tracce di suddivisioni agrarie in Etruria", Università Ca' Foscari di Venezia, PhDthesis, 2012.

[13] A. Carandini, "La villa dell'Auditorium interpretata", in A. Carandini, M. T. D'Alessio, H. di Giuseppe (eds.), "La fattoria e la villa dell'Auditorium nel quartiere Flaminio di Roma", L'Erma di Bretschneider, Roma, Italy, pp. 559-610.