The Landscape of Ancient Caere through Historic Air Photographs

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Abstract

This paper briefly shows the use of an analysis of a large number of IGM 1930 glass slide negatives and an accurate photo-interpretation of crop-marks to create a particular view of the territory of ancient Caere, almost 30 km NW of Rome. This territory was covered by a great number of tumuli and tombs of different kind, giving a very strong and impressive sensation of power and wealth. Topographical analysis of the case study area by direct survey, field-checking and revision of previous data and pertinent documentation (bibliographic, public and private archives and information in loco, etc.) was accompanied by examination and analysis of historical and recent aerial photographs from different archives, with additional monitoring flights over areas of risk. The aim was to obtain an historical perspective of the territory to help the protection of cultural heritage remains, meet the need for the establishment of a global Cultural Heritage cadastre connected to studies for legal protection and enjoyment of great interest sites, and finally, not least, for a correct territorial planning.

Keywords: Monitoring Flights, Photogrammetric Restitution, Field Survey, Aerial Photographs, Cartography.

A detailed study of the territory of ancient Caere, almost 30 km NW of Rome (see location map in fig. 2), has been dedicated to the topographical definition and the correct geographical positioning of every archaeological cropmarks relating to its extensive necropolis and ancient road-network (Tartara, 2003; 2008). The territorial analysis, still

Fig. 1. Cerveteri. Mosaic of aerial photographs of the Banditaccia plateau created from historical aerial photographs IGM 1930. It allows a good overview of the archaeological heritage of the area and a partial reconstruction of the ancient landscape. A few already excavated large tumuli are well visible as well as traces of tombs on the same frontage along the primary and secondary road system. [Mosaic by Tartara, 2003].
Fig. 2. Cerveteri. Cartographic restitution of traces [in red] from the ancient city to the coast, as seen on IGM 1930 glass slides (from Tartara, 2003).
in progress, started with the plateaux of Banditaccia and Monte Abbadone that lie upon two sides of the ancient city and has gradually been extended to the coast, S and NNW (Pyrgi-Santa Severa). The maps used were those best suited for geographical positioning, in particular those for the Regione Lazio, at 1:10,000 scale. The maps of the Comune di Cerveteri have also been used, which are on the same scale but more accurate.

For the vast complex of the monumental necropolis and for the urban area, it was decided to take aero-photogrammetric shots which would enable digital restitution. Observation of the overall vision that emerges from this assembling of the gathered data, even if this view is largely provisional at present, allows for some reflection upon the current state of the archaeological heritage which, it should be remembered, has for some years now been listed amongst UNESCO sites.

With a density that is on a par with that of Banditaccia, even if its tumuli are perhaps less monumental in size, the necropolis of Monte Abbadone...
is in fact substantially unknown (it has not been intensively excavated in the past, nor effectively protected). Cultivation progressively erodes the structure of the tumuli that were spectacularly evident even half a century ago but have gradually blurred and disappeared. In the low-lying plain beneath the acropolis, where the modern settlement of Cerveteri has developed over the past 30 years, there were once visible numerous tumuli (some even quite large) in connection with a series of roads. The most ancient phases of the necropolis have also been documented in this area. Alas, much of the evidence has been obliterated by urban development and the density of construction [urbanisation] has destroyed any possibility of the “appreciation” of the surviving monuments. Even in this instance, a good knowledge and a detailed census of the archaeological patrimony would have permitted a more rational urban development.

A photo-mosaic has been created from more than 40 “photograms” (fig. 1) and successively geo-referenced on cartography. The restitution of the vast number of traces evident in the historical aerial images of 1930 allows a good global view of the archaeological area and a (currently partial) reconstruction of the ancient landscape. These traces were positioned upon the map (fig. 2) with detailed topographic accuracy and correct positioning and subsequently upon the three-dimensional model (fig. 3) realised for that purpose.

Fig. 4. Cerveteri. Banditaccia: central northern part of the plateau. Oblique aerial image taken during monitoring activities with the Nucleo Tutela Patrimonio Culturale of the Carabinieri and the Carabinieri Helicopter Group of Pratica di Mare. Cropmarks of a large number of tumuli are clearly visible with their entrances (dromoi) and sometimes burial chambers. Some of the unknown tumuli are monumental in size with several rooms inside, as shown in the image. Even clandestine excavations can be seen in the photograph (photo by P. Tartara).
The excellent definition of the images also allows the reading and restitution even of the entrances (dromoi) and sometimes the burial chambers of each single tumulus, as well as the primary and secondary road-systems. The research, collation, geographical positioning and collage of the oldest images available [1929-1930] for the better part of the territory on study is considerably time-con-

Fig. 5. A) Santa Severa. Pyrgi. Trace of an ancient road leading to the Roman colony (probably the Via Caere-Pyrgi); B) Traces of residential structures (and baths?), probably Roman in date, that lie to the E of the colony of Pyrgi; B1) Trace of a structure linked to the previous group; B2) Trace of a structure (cistern?), (photos: P. Tartara).
suming and requires mental dexterity. These photographic images, consisting of series of pairs of negative glass plates (13x18 cm), constitute the first example of photogrammetric survey for cadastral purposes. They were taken with the "new double-chamber Santoni" camera designed and manufactured by Ermenegildo Santoni for the Istituto Geografico Militare of Florence (IGM) in 1926, where they are still preserved.

The immense necropolis on either side of the large plain in which the settlement is located make clear the overall aspect of the ensemble. This is in contrast with the limited view that a visitor today has of the monumental necropolis of Banditaccia that lies in front of the modern settlement and the medieval borgo on the acropolis. The actual archaeological area for public fruition of Cerveteri consists of a small portion of the necropolis on the Banditaccia tufa plateau, protected by a fence. For these same areas, upon the basis of the same documentation, it has proved possible to recover much of the ancient road-network that linked the city with the coast and served the marginal centres and necropolis.

Using the documentation gathered in various archives, the research work is now engaged in the restitution of the cropmarks present in the many flight shots that have been found. Beginning with the IGM photographs of 1930, then with those taken by the British RAF in 1943-1944 (already partially published by Bradford) and continuing with IGM photographs of 1955, 1958, 1960, and 1968, this restitution also utilised the latest information from flights specifically commissioned for this purpose (in particular, low-altitude photogrammetric flights needed for the above-mentioned analytical restitution). To be added to the cropmarks that are visible in the planimetric aerial photographs are hundreds of oblique images shot during monitoring activities. Monthly monitoring flights carried out with the Reparto Elicotteri of the Raggruppamento Aeromobili Carabinieri of Prat-ica di Mare have allowed a large increase in the knowledge of the territory of Caere. The oblique photographs show highly defined images of the tumuli tombs with their entrances (dromoi) and rooms, some partially built tombs “a dado” (fig. 4), some traces of the road system, farms, settlements, etc. (fig. 5).

It is very interesting to note (with the help of historical aerial photographs that in this case show their great importance) how much the landscape has changed in the last sixty years. The industrialisation of farming from the beginning of the 1960s brought the use of mechanical equipment for the cultivation of land and ploughing began to go deeper, with many consequences. Since 1930 (as glass slides show) hills have been lowered by ploughing, part of the bushland has been cut, even the path of the streams changed, giving to the landscape a different shape (so that the present day landscape is sometimes not easy to compare with the historical air photos). Last but not least, uncontrolled urbanising development has obliterated part of the land. In the last few decades all these elements have gradually hidden the historical remains of every kind of settlement related to Caere and its very important territory with ports and sanctuaries, as historical sources and archaeological evidences testify.

References
