CRUSTUMERIUM

DEATH AND AFTERLIFE AT THE GATES OF ROME

Glyptoteket

Ministero dei beni e delle attività culturali e del turismo

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TABLE OF CONTENTS

Foreword by Francesco Prosperetti of the Soprintendenza Speciale per il Colosseo e l'Area Archeologica Centrale

This exhibition organised by the Soprintendenza Speciale per il Colosseo e l'Area Archeologica Centrale at Rome (SS-Col) along with the Ny Carlsberg Glyptotek in Copenhagen and the Groningen Institute of Archaeology of the University of Groningen (GIA) stands as a shining example of international collaboration for the dissemination of knowledge of the Italian archaeological heritage. Europe is an ever increasing multicultural space, and transnational cultural relationships promote dialogue between countries: above all, they are an opportunity for mutual learning and exchange of information and ideas.

The organisation of this event comes from the awareness that culture is an essential element of the Italian identity in the world and represents a heritage both tangible and intangible, a fundamental element to meet the challenges of the contemporary world. The Superintendency, which I am proud to lead, operates precisely in the direction of promoting access to culture and audience development, stimulating creativity and innovation, in accord with the spirit of cultural policy-making of the EU.

For years the Crustumerium archaeological site has been a centre of international scientific interest and this exhibition allows a wider international audience to learn about the history of this Latin city, making accessible the grave goods of its necropolis. This exhibition is special not only for being the result of international scientific collaboration but also for its multimedia approach that will enable visitors to interact with the objects on display and with specialists at work: reconstructions of the burials, three-dimensional photos on touch screens, film and augmented reality, a restoration laboratory operating during the visits, video links between the various museums and the archaeological site during excavation.

Some thoughts about the topic "restoration": the archaeological artefacts exhibited, which have come from excavations that have now continued for almost thirty years, have been restored over time by either restorers within the Superintendency or by Italian external collaborators or by the laboratory of the Groningen Institute of Archaeology of the University of Groningen.

Carefully watching, the visitor will note some diversity especially in the aesthetic presentation of the pottery – i.e. the different criteria adopted in the reintegration of the missing parts – or in the depth of the cleaning of some metal finds. These differences are due both to the development of intervention techniques over the years and to the work of different restorers.

And here is therefore another valuable aspect of this exhibition: our aspiration to realise an example of "exchange of best practices" within the EU. In Italy we follow the principles laid down by Cesare Brandi and the teachings of the school he founded (the internationally renowned Istituto Centrale di Restauro, now ISCR) which are applied in all Italian restorations, with choices of action considered successful.

Finally may I express my deepest gratitude: starting with my colleague Francesco di Gennaro who for years, with great scientific knowledge, committed himself to preserving Crustumerium and established international research relationships, and Paola Filippini who, with the help of the archaeologist Barbara Belelli Marchesini, worked with dedication and enthusiasm towards the realisation of this exhibition. The restorers of the Superintendency Marina Angelini and Olimpia Colacicchi Alessandri, assisted by collaborator Domizia Colonello, have shown true professionalism and commitment.

My sincere thanks also go to the colleagues Jan Kindberg Jacobsen and Peter Attema for choosing Italy as the heart of their cultural interests and to Paolo Togninelli who hosts some of the prestigious grave goods from Crustumerium in the Monterotondo civic Museum actually on show in Copenhagen.

Foreword by Paola Filippini of the Soprintendenza Speciale per il Colosseo e l'Area Archeologica Centrale

In 2012 Francesco di Gennaro left the Superintendency of Rome for a new managerial position; for years he had dedicated himself, with enthusiasm and professionalism, to protecting and studying the third territorial district of the municipality of Rome, which includes the archaeological sites of Crustumerium and Fidenae.

It was with tremendous gratitude that I inherited this territory, and accepting this legacy has meant putting together the results of twenty years of excavations in the area of Porta di Roma (Fidenae) and giving further impetus to the scientific recognition and valorisation of the site of Crustumerium.

Mariarosaria Barbera, former Superintendent, supported the requalification and development projects of this state property of 60 hectares, comprising the Monte Del Bufalo necropolis of the ancient Latin city of Crustumerium. Fortunately, the current Superintendent, Francesco Prosperetti, is demonstrating just as much commitment.

The idea of organising an international exhibition on Crustumerium follows a decades-long research path promoted by the Superintendency in collaboration with several universities (Leipzig, Oulu, Cambridge, Groningen, Sapienza of Rome, Federico II of Naples) and in particular with the Groningen Institute of Archaeology: in fact since 2009, the research activities on the site have merged into the five-year project 'The People and the State. Material culture, social structure and political centralisation in Central Italy (800 - 450 BC)' funded by the Netherlands Organisation for Scientific Research (NWO), which has meant an intensification of geophysical surveys, territorial surveys and excavations in the southern district of the settlement and adjacent burial area of Monte Del Bufalo, in addition to the promotion of specific interdisciplinary investigations.

In order to also introduce Crustumerium to an audience of non-specialists, as early as 2014 the Superintendency and the Groningen Institute of Archaeology established relations with the Allard Pierson Museum in Amsterdam and in 2015 with the Ny Carlsberg Glyptotek in Copenhagen. Both institutions enthusiastically welcomed the proposal to collaborate on this event of major scientific importance that is opening in Copenhagen, will continue to Amsterdam and will end in Rome, as called for by the present Superintendent arch. Francesco Prosperetti, in 2017.

With this exhibition we want to recount the birth and rise of Crustumerium, to highlight its cultural originality within the wider historical landscape between the 9th and 7th century BC. and to involve the public in the dynamics and aspects of archaeological research in the field and in the laboratory.

The exhibition is divided into four sections: the first three focus on the diachronic presentation of archaeological data while the fourth section offers varied specific content, featuring the exhibition differently in various museums, at present in Copenhagen: 'Crustumerium. Death and Afterlife at the Gates of Rome'.

This international exhibition is one of the steps that the Superintendency is taking towards the promotion and valorisation of the archaeological site of Crustumerium, which is situated in an exceptionally well-preserved part of the Roman countryside protected since 1989 over a total area of approximately 5 square km.

In the burial ground of Monte Del Bufalo and in the surroundings of the farmhouses of Cisterna Grande the Superintendency is restoring buildings and making interventions to confer quickly to this archaeological site its role and function of an international cultural centre.

The success of this project lies in the hands and in the dreams of all those who have dedicated their work to Crustumerium and to whom I extend my heartfelt thanks: Angelo Amoroso, Peter Attema, Bert Nijboer, Jorn Seubers, Sarah Willemsen and all the GIA staff and students, Barbara Belelli Marchesini, Maria Rosaria Borzetti, Arturo Bove, Paola Catalano, Gabriella Ceroli, Romana Cocciolo, Domizia Colonnello, Francesco di Gennaro, Valeria Didomenicantonio, Gruppo Archeologico DLF, Andrea Di Napoli, Eastern Atlas, EcolB. (Carlo Brecciaroli and Orietta Casponi), Pasquale Gaudino, Istituto di Cristallografia del C.N.R. - U.O.S. Montelibretti, Roma (Marcello Colapietro and Augusto Pifferi), Anselmo Malizia, Paolo Morganti, Walter Pantano, Ettore Pellegrini, Massimo Sabatini, Maria Maddalena Scoccianti, Ombretta Tarquini, Claudio Vercelli and the Geores staff.

Foreword by Peter Attema of the Groningen Institute of Archaeology
Dutch archaeologists have a long fieldwork tradition of archaeological research into the protohistory of Latium Vetus, the lands of the ancient Latin peoples that lived south of the Tiber. The participation of the Groningen Institute of Archaeology (GIA) of the University of Groningen in the International Crustumerium Project and in this exhibition should indeed be seen in the perspective of the Institute's long-lasting and profound interest in the protohistory of the Latin cultures. Ever since 1977, when the Royal Netherlands Institute in Rome (KNIR) was invited by the Italian authorities to bring together Dutch universities to excavate at the protohistorical site of Satricum, endangered by agricultural mechanisation, archaeologists from Groningen have spent their summers in the field studying the material remains of the civilisation of the Latins through excavation, regional archaeological surveys and artefact studies.

It is therefore no coincidence that the first contacts on a possible collaboration between GIA and the archaeological Superintendency (SS-Col) in the Crustumerium project were established during an archaeological conference at Rome where I met Francesco di Gennaro, then Inspector of Crustumerium and initiator of the International Crustumerium Project, who offered to take me to the site of Crustumerium for an archaeological tour. Driving onto the site and having put the 1980 publication by Lorenzo Quilici and Stefania Quilici Gigli on my lap, Francesco started to explain the morphology of the settlement and its still visible archaeological features. He pointed out the vast extent and the immense cultural value of the burial grounds surrounding the settlement while at the same time emphasising their endangered state due to the burial grounds being targets of clandestine diggers, the so-called 'tombaroli'. The tour was an unforgettable experience and aroused my interest in participating, together with our staff and students in both excavation and post-excavation work at Crustumerium. The collaboration between SS-Col and GIA led to a highly advantageous collegial and intense collaboration between the two institutions that is now over a decade old in which excavation, post-excavation and publication alike have been central to the efforts of both institutions.

During this period much new information on Crustumerium has been brought to light thanks to the combined expertise of the Italian and Dutch researchers in the fields of funerary archaeology, settlement and landscape archaeology and material culture studies. Fuelled by the urge to bring into full view the unique place Crustumerium occupies in the archaeological record of Latium Vetus and to monitor the current state of the 60 ha site and its surroundings, SS-Col and GIA have experimented with large-scale geophysical prospections and air-borne remote sensing covering all of the settlement, including the larger part of the Monte Del Bufalo burial ground. The multi-layered archaeological base map that has resulted from these modern recording techniques is of great value for both research and heritage purposes.

One specific contribution of the GIA to the Crustumerium project is the regional landscape archaeological approach it has introduced at the site, building on a long tradition of Dutch survey archaeology in Latium Vetus in which geomorphological studies and surface artefact surveys are a means of furthering our understanding of settlements and settlement systems on the micro-regional level but are always linked to observations at the level of the individual site. Crustumerium is unique in this sense. Whereas other protohistorical sites so near to Rome have been overbuilt or otherwise destroyed, Crustumerium and the surrounding countryside can still be appreciated as an integrated ensemble and invaluable archaeological archive. This unique quality of Crustumerium and the full support of the SS-Col have been instrumental in the successful application in 2010 by the GIA for a substantial grant from the Netherlands Organisation for Scientific Research to carry out research at Crustumerium with a project entitled 'The People and the State. Material culture, social structure and political centralisation in Central Italy (800 - 450 BC)'. In this project landscape archaeology, settlement and funerary archaeology, and material culture studies as well as Italian and Dutch research traditions were integrated to tackle important issues concerning the archaeology of the early Latins and the rise of Rome.

While this exhibition and this catalogue deal foremost with the funerary record and thus the reconstruction of mortuary activity at Crustumerium, it should not be forgotten that the people buried there spent their lives in the

settlement and countryside around Crustumerium and were eyewitnesses to, and participants in the changes that Latin civilisation underwent in that historically crucial period of the rise of urban settlements and the creation of overarching political structures. In this sense the significance of the word 'afterlife' from the second part of the title of this exhibition 'Death and Afterlife at the Gates of Rome' can be extended to Crustumerium itself, which, having succumbed to Rome early in the 5th century BC, lives on in today's archaeological practice in the field and now also in the museum. An important aim of this exhibition is to make the public both aware of the intriguing and beautiful cultural heritage of the Latin peoples, but also of the endangered state it is now in, and how archaeologists and restorers in their daily activity work to safeguard this heritage for the future.

The GIA is grateful to Crustumerium's current Inspector Paola Filippini who, actively engaging in the research at Crustumerium herself, fully supports the collaboration between SS-Col and GIA. Sincere thanks are also due to Jan Kindberg Jacobsen who, following a visit to Crustumerium in 2014, showed from the start great enthusiasm and interest in bringing the archaeology of Crustumerium to Copenhagen.

Foreword by Flemming Friborg of the Ny Carlsberg Glyptotek

The cultural heritage of Italy provides almost unlimited possibilities to address the cultural and historical factors which have shaped the present Italian and Western European culture.

The exhibition 'Crustumerium. Death and Afterlife at the Gates of Rome' has been conceived and curated in close collaboration between museum staff, specialists, and researchers from Italy, Denmark and the Netherlands. For the part of the Ny Carlsberg Glyptotek, Jan Kindberg Jacobsen, Julie Lejsgaard Christensen and Katja Elsabeth Vinther have collaborated with Paola Filippini and Barbara Belelli Marchesini from the Soprintendenza Speciale per il Colosseo e l'area archeologica centrale (SS-Col) as well as the research team of the Groningen Institute of Archaeology, led by Peter Attema.

Since 2006 Dutch and Italian archaeologists and specialists have joined knowledge in the project 'The People and the State. Material culture, social structure and political centralisation in Central Italy (800 - 450 BC)' following on earlier research carried out at the site by international teams. The focus point of the project was the vast Monte Del Bufalo necropolis at Crustumerium where the Italian-Dutch collaboration applied a multidisciplinary approach to enhance the knowledge of ancient burial customs and – as reflected in the exhibition catalogue – much more.

The process which leads from an initial archeological discovery to a curated account of the past, as exemplified in the current exhibition, is usually long and involves a number of specialists engaged in conservation and analytical and interpretative practices that are normally beyond reach of the public eye. However, in the current exhibition the process from archaeological discovery to exhibited artefact is treated as an important subject, and the public is invited to witness the various steps in the scientific process, thus gaining a unique insight in the scientific and scholarly considerations.

From the Italian-Dutch collaboration comes a valuable supply of material connoisseurship and scientific instinct which can only be acquired through longtime and determined research. We feel it is only natural to view museums

as a firm and broad platform for communicating the results of archaeological research on this high international level.

The exhibition has been realised within the frame work of the European research and museum network COBBRA, and the Crustumerium material will later be travelling to the Allard Pierson Museum in Amsterdam where it will be integrated in the exhibition "Crustumerium. Between Myth and Reality".

Our most sincere gratitude goes to Francesco Prosperetti (Soprintendente per il Colosseo e l'Area Archeologica Centrale), Paola Filippini, Barbara Belelli Marchesini and Peter Attema for the fruitful collaboration in realising this exhibition. It is hoped that this collaboration will be the model for future European exhibitions and mutual cultural collaborations.

The realisation of the exhibition would not have been possible without the generous support of The Louis-Hansen Foundation, The Beckett Foundation and Knud Højgaard's Foundation.

Why Crustumerium in the Ny Carlsberg Glyptotek?
Curatorial remarks

For the Ny Carlsberg Glyptotek, the exhibition 'Crustumerium. Death and Afterlife at the Gates of Rome', together with the international collaboration surrounding it, marks a new way of culturally sustainable curatorial and museum practice, which is fuelled by knowledge-generating cooperation across nations and institutions.

On several levels, the exhibition constitutes an opportunity to set new standards in presenting the cultural heritage of the ancient world. The recently excavated tombs that form the framework for the exhibition provide a rare chance to display newly discovered archaeological material and exhibit this material in a scientifically documented contextual entity, which is not limited by traditional selection or acquisition policies. In addition, the exhibition of material from an archaeological site with ongoing excavations offers a unique chance to integrate current archaeological research into the museum and to present the archaeological process and method to a wider audience. Thus, the visitors get a first-hand insight into the process from discovery to research and interpretation of the archaeological artefacts and their contribution to the understanding of the wider societal and socio-political context in which they were created. This aspect is further supported by the incorporation of a working archaeological laboratory into the exhibition, the realisation of which is one of the results of the international and cross-institutional collaboration that has characterised the exhibition's development.

The cooperation between Soprintendenza Speciale per il Colosseo, il Museo Nazionale e l'Area Archeologica Centrale (SS-Col), Groningen Institute of Archaeology (GIA) and Ny Carlsberg Glyptotek has been essential not only in relation to the practical realisation of the exhibition, but furthermore in regard to the joint definition of the central scientific contents and mediational dispositions of the exhibition, catalysed by the high level of knowledge about ancient Crustumerium, generated by current research conducted by SS-Col and GIA. In this manner, the exhibition has been curated in close collaboration between the three institutions involved, drawing on a combination of archaeological,

conservational, museal and mediation expertise. This collaboration contributes to a current debate in museology about museum selection, curation and presentation of cultural heritage. Continuing the process with this collaboration and exhibition the Glyptotek seeks to contribute to the ongoing definition of an alternative to the traditional historically orientated presentation of antiquity and of the Mediterranean cultural heritage by North European museums, where Mediterranean artefacts have often been selected due to their archival significance or as a consolidation of already carefully constructed and selected narratives of Mediterranean cultural heritage and history. To realise this aim, the idea of a culturally sustainable museum practice is a valuable approach.

According to Danish museum law, museums should strive for relevance, presence and sustainability. Today, there exists a consensus on the idea that culture and cultural heritage in collaboration with economic, environmental and social matters constitute a prerequisite for a sustainable development of society. However, in relation to museums and cultural heritage, the concept of sustainability is not easily defined and it is therefore used in a range of different contexts. With the present collaboration and exhibition, it is the Glyptotek's objective to define and test a model of the culturally sustainable museum. This model relies on a definition of sustainability in a museum context, where the museum consciously reflects on its decisions when working with and administering cultural heritage, and assumes responsibility for the consequences these decisions have for the countries from which the artefacts originally came, for the museum visitors, and for future collaborations within the field of research and communication related to cultural heritage. In other words, cultural sustainability in a museum context implies a recognition of the effect that the choices and actions of the museum have on the outside world, in a local as well as in a global perspective. In concrete terms, this framework for cultural sustainability is tested on several levels in the current collaboration. First and foremost, this includes the testing of principles on a global level, focusing on the international collaboration with the artefacts' country of origin. Within this collaboration, the partners enter into a knowledge-generating cooperation, which challenges the right of priority traditionally held by the museum on the curation of cultural

heritage and on the construction of the narratives within the exhibitions. In addition, the framework for a future sustainable acquisition practice is investigated, in which the museum and its exhibitions are not developed on the basis of new acquisitions, but rather on the basis of loans of artefacts that are curated in collaboration with cultural and research institutions in the lending countries as well as in the artefacts' countries of origin.

An equally important aspect of a culturally sustainable museum practice is the aim to integrate the research of the museum and its collaborators directly into the museum exhibitions. In this matter, the present exhibition collaboration contributes significantly to the shaping of a future model for museums' communication of research activities, in which the research is not regarded as being of interest to museum visitors only when the final results are available, but where research processes in themselves are also considered interesting for people other than researchers and professionals. With the present exhibition, it is the Glyptotek's goal to test the principles for a dynamic and visionary approach, which aims to present to exhibition visitors the relevant research and knowledge processes, as well as to offer them an insight into the artefacts' journey from archaeological research to exhibition. For this purpose, several communication concepts have been implemented in the exhibition, illustrating the archaeological method and the interpretation process. What is more, elements of the material in the exhibition have been selected with particular emphasis on bringing the entire archaeological and conservational scientific repertoire into play, thus illustrating the many aspects of treating and handling the artefacts. This contextually based exhibition seeks to give the visitors a greater understanding of archaeological artefacts beyond that of being isolated objects of aesthetic or art historical value, but as elements of contexts with great communicative power in relation to a larger social and historical context.

Furthermore, the exhibition also serves to add new meanings and interpretations to the Glyptotek's permanent exhibition of 'The Ancient Mediterranean', which, focusing on trade, contact and exchange, is in line with the theme of the present temporary exhibition. The current arrangement of the display treats Mediterranean cultural heritage through a combination of two levels of

understanding: a thematic level where objects from various contexts and locations are placed together in order to illustrate an overall theme, and a contextual level where the objects from an archaeological context are exhibited together. This temporary exhibition clearly illustrates that archaeological material is always part of a larger, complex archaeological, historical and social context, which entails the necessity of having the material interpreted and analysed as constituent parts of these overall contextual narratives, which should embrace both the material itself as well as its coherence with micro contexts in the form of e.g. the individual graves and with macro contexts in form of the larger social and historical context. This aspect of the temporary exhibition will thus shed new light on the permanent exhibition of 'The Ancient Mediterranean' which will raise the permanent exhibition to a third and higher level of understanding.

The communication of the exhibition also seeks to put the ancient cultural heritage into play as a relevant and useful framework, not only for our collective historical consciousness and identity, but also for the actual lives of a contemporary global audience. Funerals and the rituals surrounding bidding farewell to the deceased are – and always have been – a window not only into the world of the dead, but also into that of the living. Despite the differences in how beliefs and practices are implemented, death, the parting with loved ones and the idea of an afterlife are concerns which affect all people throughout the millennia. With its focus on this particular subject, the exhibition is a unique opportunity to establish a common ground for ancient and present day humans, giving the visitors an experience of historical cohesion and thus showing the continued relevance of antiquity, right up to our own era. The exhibition seeks to convey the intimate and personal stories, which illustrate that the archaeological artefacts and objects relate directly to actual individuals, with whom we today still share essential, universal human predicaments and emotional situations, despite a distance of more than 2000 years of history and development. With this, the exhibition offers a space for reflection on death and the afterlife, in which the past becomes the prism through which visitors can reconsider their own relationship with and thoughts on death. In addition, the understanding of how the past has dealt with death, loss and grief can perhaps contribute to a greater awareness of how we handle these subjects in contemporary society. Thus, the past and the archaeological material are made available to a relevant contemporary discussion through an insight into the cultural history that has shaped the present.

In this way and with this exhibition collaboration, the Glyptotek not only seeks to present to its visitors a meaningful and innovative image of antiquity, which will add further levels of understanding to large sections of the museum's own collection. The Glyptotek also aims to lead the shaping and implementation of a future and visionary curatorial and museal practice, which constitutes a culturally sustainable alternative to the traditional North European practices of acquisition, research and communication. Through synergies between research and communication, as well as through learning- and knowledge-generating collaborations across nations and institutions, this future curatorial and museal practice will be able to propel both research and communication in new directions. This will create the best conditions for co-creation of new knowledge among the participating institutions, which will provide us with a renewed potential to thrill, move and enrich the museum's visitors through new stories and original exhibitions.

Jan Kindberg Jacobsen; Julie Lejsgaard Christensen; Sine Grove Saxkjær

1 | A HISTORICAL INTRODUCTION TO CRUSTUMERIUM

"Quinque adeo magnae positis incudibus urbes tela novant, Atina potens Tiburque superbum, Ardea Crustumerique et turrigerae Antemnae"

"Five major cities, hands to anvils make new weapons: powerful Atina and superb Tibur, Ardea and Crustumerium and the towered Antemnae"

(Vergilius, Aeneid, book VII, 629-631)

An introduction to Crustumerium

The remains of ancient Crustumerium are located on the Marcigliana Vecchia hill, only 15 km from the centre of Rome and 10 km east of Veii (map 1.1). This hill complex is situated in the Tiber Valley in the southeastern part of the volcanic district of the Monti Sabatini. The local geology is characterised by the overall presence of compacted non-lithified igneous rock composed of pyroclastic material expelled from the volcanic complex, a bedrock which is generically called *tufa*. The generally soft volcanic deposits erode easily and have become deeply incised by rivers and small streams, creating a terrain of rolling hills and serrated edges that rise about 30 to 100 m above the Tiber plain. The influence of erosion has resulted in the presence of distinct geomorphological units in the landscape, of which the hill complex of Crustumerium is a typical example. The use of such naturally defended settlement locations is known from many contemporary sites, like nearby Veii, Fidenae and Rome. The soft volcanic bedrock permits the landscape and subsurface to be easily modified for human needs, such as irrigation works, roads, quarries, tombs and caves, traces of which are often still visible today. Unfortunately, the soft soils have also been subject to intensive agricultural exploitation, causing a massive acceleration of erosion that threatens the archaeological record.

The urban cycle of Crustumerium spans the 9th to 5th centuries BC. This means that before and after these time limits there are no phases of occupation. As for the 'after', we know that Crustumerium no longer exists in the 4th century BC because the city is mentioned in the narrative of the battle of the nearby river Allia, fought, according to Livy, between Rome and the Gallic invaders in 388 BC. Both

Map 1.1
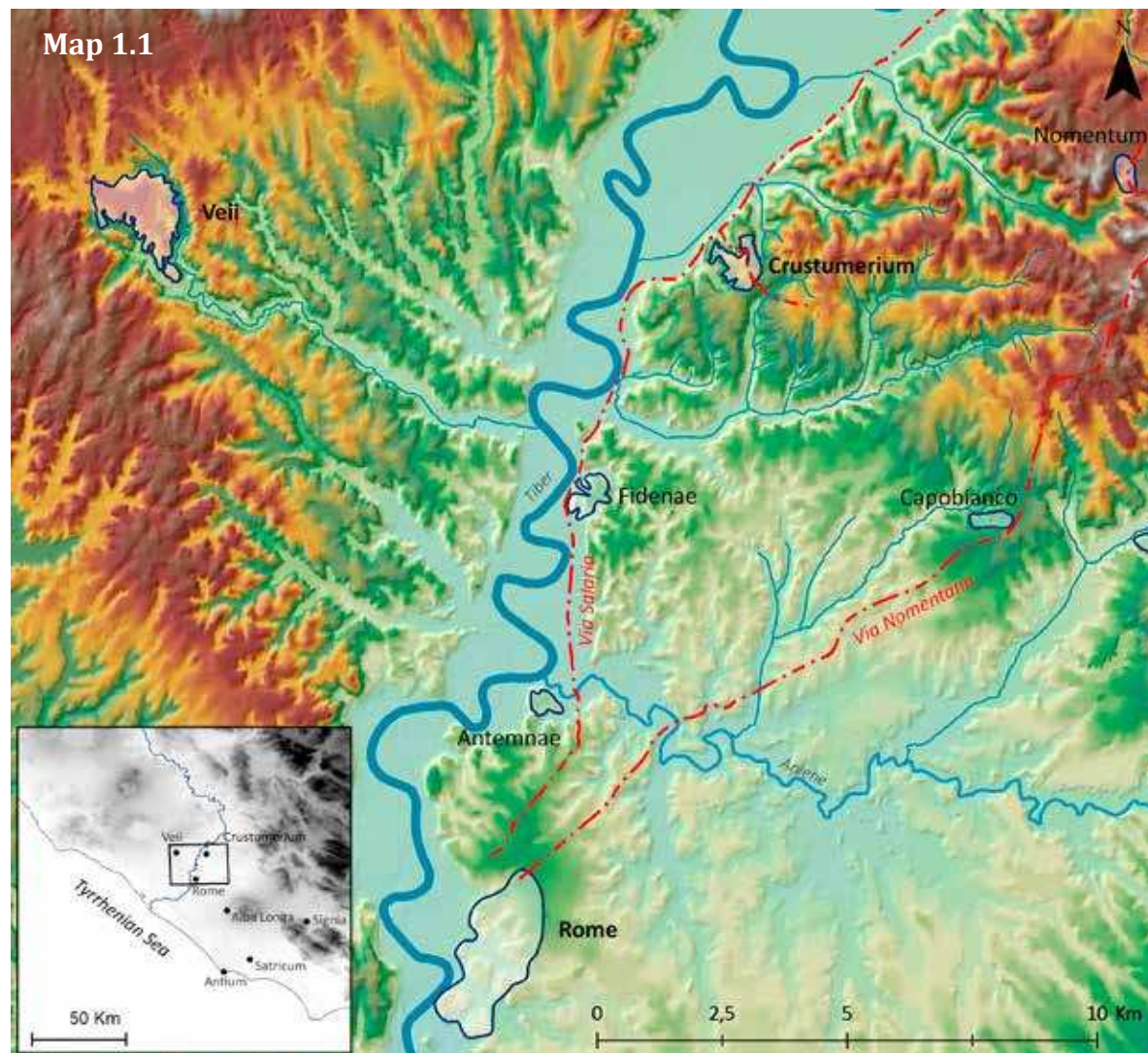
from the literary and the archaeological sources, we know that the city has by then been abandoned and possibly even destroyed.

In regard to this, the recent discovery of a huge dump of crumbled ancient remains found in the ancient road bed of the Republican Via Salaria

Table 1: The table provides a comparative overview of the chronology and terminology of cultural phases of Latium, Etruria and Greece. Column one gives the traditional chronology, accepted by most Etruscologists and Classical scholars; column 2 gives the chronology based on dendrochronological dates (tree-ring dating).

Traditional Chronology	Dendrochronology	Conventional Periods	Latium	Etruria	Greece
1200-1000	Final Bronze Age 3 1050-950			Tolfa	Proto-Geometric
1000-900	Early Iron Age I 950-850	Final Bronze Age Protovillanovian Culture	Latial period I 1000-900	Allumiere	
900-770	Early Iron Age II 850-750	Early Iron Age Villanovian I 900-820	Latial period II 900-770	Tarquinia I 900-800	Early Geometric 900-850
		Intermediate Villanovian			Middle Geometric 850-750
770-720		Late Iron Age Villanovian II 770-720	Latial period III 770-725/720	Tarquinia II 800-700	Late Geometric Early Protocorinthian 750-700
720-670			Latial period IVA1 720-680	Early Orientalising 730/20-670	Middle and Late Protocorinthian 700-640
670-630			Latial period IVA2 680-625	Middle Orientalising 670-630	Early Corinthian 640-600
630-580			Latial period IVB 625-580	Late Orientalising 630-580	
580-480			Regal period 580-509	Archaic	Archaic 610-450
480-320			Early Republican	Classical	Classical

that ran through the Tiber plain at the foot of the hills on which Crustumerium is located, is telling. The archaeological materials date from the Early Iron Age down to the Late Archaic period, and it is conceivable that these materials were collected in large quantities on the settlement plateau of the city of Crustumerium to be transported into the valley by cart: without doubt, this would have been a communal effort that, while serving the construction of a level and well-drained roadbed for the building of the Via Salaria in the plain, would, at the same time, have led to the clearance of the remains of the former settlement area of Crustumerium, which, by Republican times, was in the process of being transformed from an abandoned city into cultivated land.

However, it is more difficult to describe what was happening 'before'. It is certain that at Crustumerium there is no prior settlement dating from the Final Bronze Age and, based on the finds so far, we neither dispose of evidence for a settlement on this spot during the Early Iron Age phases (Latial phases IIA and early IIB: see table 1). This means that the site's location was specifically chosen in these surroundings during the later IIB period and planned *ex nuovo*. The nearest site with earlier habitation is that of Radicicoli Del Bene at 4 km distance of Crustumerium.

As already mentioned the landscape in which Crustumerium was founded consists of low hills, shaped like plateaus, moulded by the incisions of the rivers that over time cut into the bedrock of the thick, stratified volcanic tufa deposits. The landscape had been frequented since the Palaeolithic period and had known permanent settlement from the Neolithic period and the early metal ages onwards, generally without much continuity. For example, we know of a human group that in the Ancient Bronze Age had settled at a short distance from the summit of what is now conventionally known as the 'acropolis' of Crustumerium.

In spite of this, the formation of Crustumerium does not seem to have been the result of the gradual progressive growth of a well-located previous settlement. Even if on the articulation of hill tops

Map 1.2
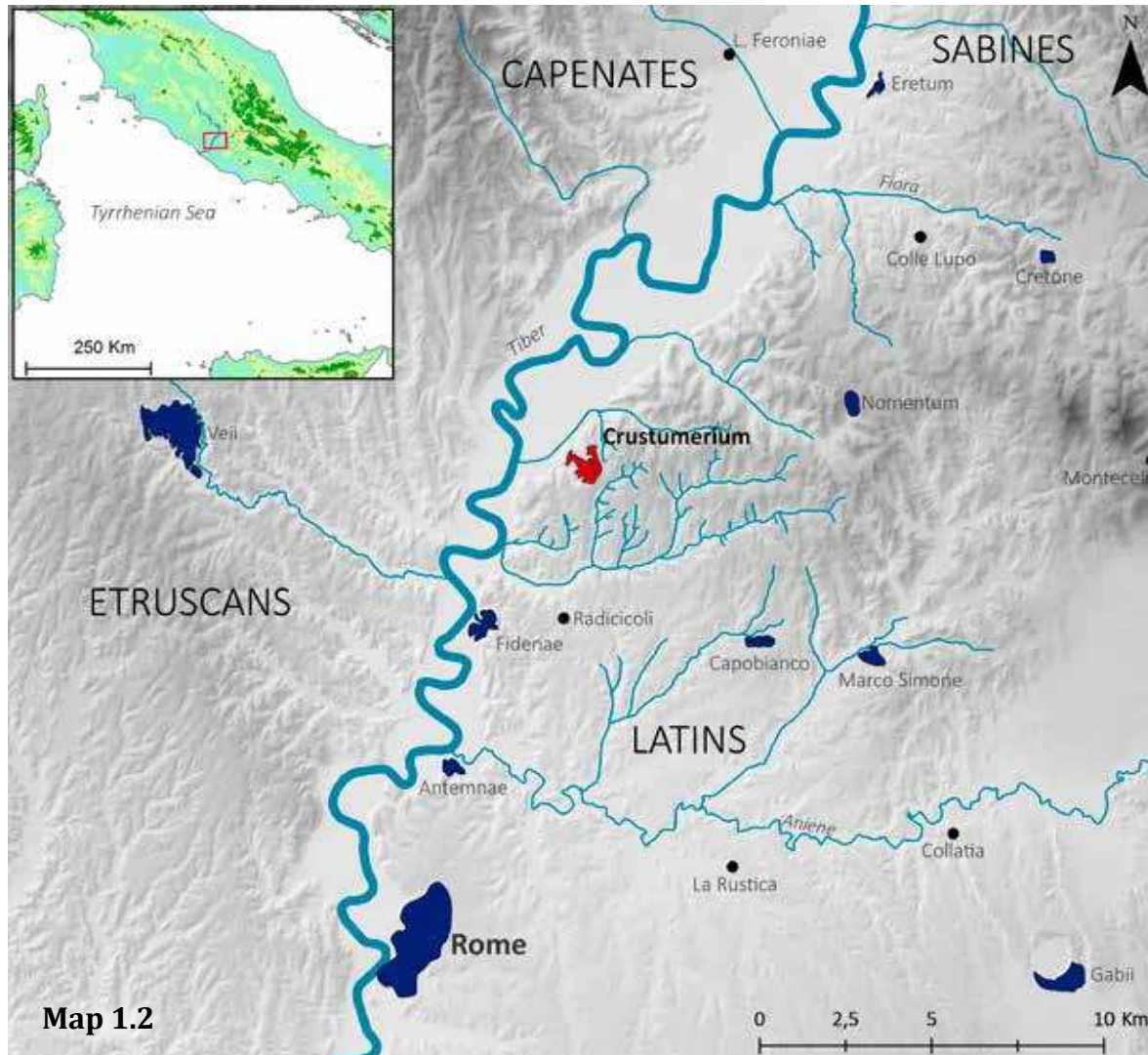
overlooking the Tiber, known as the acropolis of Crustumerium (an area in fact not significantly higher that the surrounding settlement), there

may have existed a Bronze Age village yet to be brought to light, the absence of data from the surrounding area would rule out any possibility that

it would have been so important as to have determined Crustumerium's extraordinary growth during the Early Iron Age.

Therefore we may conclude that before the Crustumerium of the Early Iron Age, it was a settlement like any other, albeit situated in the historically eventful valley of the Tiber.

Crustumerium probably started to acquire strategic importance around the 10th century BC with the birth of Veii, located on the other side of the Tiber, as its location is on the natural route heading for Campania through the valley of the Sacco.

It is therefore likely that the people living on the left bank of the Tiber Valley, in those days characterised by material aspects and cultural traits corresponding to those well-attested in Latial territory, organised themselves in order to take an active controlling role in the transportation of trading goods through their lands. But which well-organised group could at the time have brought about an urban foundation on this scale?

Apart from Fidenae, founded earlier than Crustumerium, there are no neighbouring centres that could have acted as protagonist. Fidenae is much smaller than Crustumerium while, according to the sources, during this period, it seems to have been preoccupied with problems of its own. The founding of Crustumerium may therefore have been the work of some kind of federation, of which the Latin League is an echo, and in that case Rome would either have been involved or was the protagonist, as in Latial period II Rome is already large and geared towards expansion.

Fidenae appears to have had a similar story as Crustumerium, probably starting earlier, and its acropolis was the site of a Bronze Age centre. Perhaps the Etruscan route through Fidenae

preceded the one passing through Crustumerium and it is possible that with this alternative road Veii tried to maintain autonomy in trading goods.

It is indeed in the field of traded goods that we have proof of how important it was that Crustumerium be situated between Veii, the Etruscan bank of the Tiber, and Gabii, which was the gateway to the road running below Praeneste and Signia towards Capua (map 1.2). Indeed, Crustumerium was founded and flourished to guard this transversal interregional road to the Tiber. Free access to the waterway of the Tiber was already under the control of Rome, and therefore Veii could not unconditionally use it to reach the Tyrrhenian Sea.

Apart from historical and economic factors inherent in the territorial politics of the various protohistoric populations, which determine zones of greater and lesser interest, the two practical elements that represent the original and formative characteristics of Crustumerium are the presence, adaptation and subsequent control of a route of primary importance and the choice of a unique and defensible area to use as a settlement.

The road that passes through the centre of the settlement area of Crustumerium through a monumental road cutting is a man-made work that dictated passage mid-through the settlement at a higher altitude than the two already existing natural valleys on either side of the settlement; the maximum difference in level between the road trench and the natural valley routes can be calculated as 16 m for the western route and 22 m for the eastern route. In this way all passing traffic could be effectively controlled.

Although there is not yet enough archaeological evidence for the road cutting already being in use during the Early Iron Age, it is now certain that it was locked in from the moment the settlement of Crustumerium was firmly established on both sides of the plateau.

F.d.G.

Key literature
Attema et al. 2014; di Gennaro 2013; Jarva et al. 2013; Quilici & Quilici Gigli 1980.

Crustumerium: historical reflections

The narrative account

Crustumerium is scarcely referred to in the sources, even for the early period, and this can be taken as an indication that its fate was so early bound up with that of Rome that it had no time to be identified by means of an independent history. Livy 1.9 mentions that people from Crustumerium, along with those of Antemnae and Caenina, had come to Rome for the festival where the Sabine women were seised, but he clearly saw them as Latins, as do other sources. In Dionysius of Halicarnassus 2.36 Crustumerium, again with Antemnae and Caenina, is seen as a Latin town which is very early on brought under Roman control, and the three towns take advantage of the disputes between Rome and the Sabines. Plutarch's *Life of Romulus* 17 seems to make Crustumerium Sabine but this is almost certainly a mistake on his part rather than a firm part of the tradition. Livy 1.38 and Dionysius of Halicarnassus 3.49, who may depend on the same source, both relate the town of Crustumerium to the *prisci Latini* or the colonies of the Latins, which presumably means the colonies of Alba Longa. This identification of the earliest Latins is not especially reliable, but is of a piece with the emphasis on the non-Sabine nature of this area. Similar statements can be found at Diodorus Siculus 7.5, Silius Italicus 8.366 and the late source *Origo Gentis Romae* 17.6-9.

Livy and Dionysius both indicate that Tarquinius Priscus subjugated the town, and this is part of a narrative duplication of which we see a good deal during the Regal Period, when the conquest of a specific town is attributed to more than one king. Livy's version places Crustumerium in a lengthy list of towns including Corniculum, Ficulea Vetus, Cameria, Ameriola, Medullia and Nomentum. These sites, some of which also appear in Pliny the Elder's list (*Historia naturalis* 3.68) of cities which by his time had disappeared, were all in the sector running up the Tiber and into the hills. Ogilvie suggested that rather than having a specific narrative, the ancient sources extracted this from the list of peoples who participated in the general festival of the Latins, the *Feriae Latinae*, and who were in this sector of Roman territory.

Crustumerium is once again taken by the Romans around 500 BC during the consulship of Titus Aebutius and Gaius Vetusius, and this is an opening shot in the war against the Latins. This is not mentioned in Dionysius. The Battle of the Allia against the Gauls must have taken place near here in the early 4th century (Livy 5.37.7). The town then more or less disappears from the record. It was the location of one of the plebeian secessions (Varro *de Lingua Latina* 5.81 is the only source for this) and is mentioned in passing in Livy 2.64, 3.42, and Dionysius of Halicarnassus 6.34, 10.26 and 11.23. It was one of the towns which Pliny mentioned as having disappeared, and it is notable how different we have to assume the landscape was in Pliny's time from what he imagined it to have been previously.

The area had a reputation for fertility, for instance Cicero refers to it alongside Capena in *pro*

Flacco 29.71. Dionysius of Halicarnassus 2.53 tells us that Crustumerium sent provisions to Rome during a shortage, which the people of Fidenae intercepted. Varro *Res Rusticae* 1.14.3 notes bank and trench formations in the area dug to protect the fields from the Tiber. The pears of Crustumerium are often mentioned (Vergil *Georgics* 2.87-8; Celsus 2.24.2; Columella 5.10.18; Pliny *Historia naturalis* 23.115). Pliny has an odd story (*Historia naturalis* 2.11) that hay from Crustumerium was noxious there but healthy when transported, whilst Isidore of Seville knew of a type of large olive grown there (Isidore *Etymologiae* 17.7.67).

The tendency of the Romans in the later Republic to invent fanciful foundation stories can be seen in the account by Cassius Hemina (*FRHist* 6 F5), and reported by Servius Danielis in his commentary on *The Aeneid* 7.631 which links Crustumerium to Clytemnestra. However, we do not know how he made the story work in its totality, because the rest of the passage is lost. Servius Danielis reports another variant deriving the name from the *crustula* or crusts of bread which the hungry Trojans were reduced to eating – again it is not clear how this story was developed in the ancient sources.

The final significant references to Crustumerium are of prodigies which took place there, and both interestingly come from the same book of Livy. Livy 41.9.4 mentions a stone which fell into the Grove of Mars from the sky, and 41.13.1-3 features a bird which cut a sacred stone, with its beak, leading to a day of prayer. According to Briscoe in his commentary, the bird (*sanqualis*) was the bearded vulture or *lammergeier*.

The Tribus Clustumina

Early in the 5th century the Tribus Clustumina was formed, and this must relate to land taken in the subjugation of Crustumerium. It is the first tribe with a geographical rather than a family name. The location of the tribe ought to give no difficulties, but there are two passages which suggest that it extended across the other side of the Tiber. Festus (p48L) says that the tribe was named after a Tuscan town Crustumeria, and Pliny's *Historia naturalis* 2.52 speaks of *ager Crustuminus* in Etruria. There is no certain resolution to this problem. It may be that Crustumerium had at some point been subjected to Etruscan dominance, or else that it had territory on the other side of the Tiber at some stage, or it may simply be an error, possibly even a conflation with a town of a similar name. Crustumerium was variously spelt in antiquity and there are some similar names such as Crustudius in Etruria.

Making sense of Rome and the suburbium

It will be clear that relatively little was known about the early history of Crustumerium and the earliest sources were operating largely through speculation although based on common sense. Some elements however are certainly historical – the creation of the Tribus Clustumina by 495 BC (Livy 2.21.7) is likely to come from an official source. The prodigies will have been on a list of such events. For the rest, the strategic position of Crustumerium was perhaps sufficient to assist the historians.

From a historical point of view therefore, Crustumerium is both important and frustrating. The concentration on ethnicity in the legendary period is unhelpful, given that the area was probably quite mixed, and the stories associated with King Romulus do not bear much scrutiny, but it is clear enough that the area was of some tactical significance. The relative absence of reference in the Republic, except to the agricultural fertility of the area, suggests that it had ceased to have any significant civic life.

The epigraphic record, relatively poor as it is, offers some corrective. Scattered around the countryside we find sculpture, bath buildings and funerary monuments. Some inscriptions in a collective tomb are in Greek; and there is a funerary inscription from the second half of the first century AD for someone who was in the third cohort of the *vigiles* and then the thirteenth urban cohort. There are also inscriptions on weights, pipes, milestones and inscriptions marking the boundaries between properties.

Crustumerium appears therefore to be an excellent example of what we expect to find in the suburbs of Rome – a productive area, and one heavily dominated by the nearby city. We rely on archaeology to fill out the rest of the picture.

C.S.

Key literature

Muzzioli 1984; Ogilvie 1965; Quilici & Quilici Gigli 1980.

2 An eye for the landscape of Crustumerium

"When it comes to landscape archaeology we have to bear in mind that the past and present landscape are almost always very different due to natural processes and human activity. After all, archaeological traces are by definition incomplete representations of a past reality"

The landscape of Crustumerium

Figure 2.1 gives an overview of the landscape of Crustumerium from the air. On the image we have outlined the plateau on which the settlement is located and in grey have indicated the location of its burial grounds. The plateau of Crustumerium is part of the Marcigliana Vecchia hill complex that belongs to the volcanic district of the Monti Sabatini. The local bedrock is characterised by volcanic rock, locally called 'tufa' or tuff stone, formed of volcanic ash ejected from vents during volcanic eruptions. Consecutive volcanic events, in remote geological times, resulted in a series of superimposed layers of bedrock that vary in hardness, colour, type of volcanic inclusions and porosity. A well-known local type is the *Tufa di Sacrofano*, but numerous other types can be encountered during excavation. Figure 2.2 shows a tufa outcrop where the modern road cross-cuts the settlement exposing the tuff bedrock. An aspect common to many tuff types is that they constitute soft and friable rock and are therefore prone to erosion by water. This is also why in this landscape deep, almost uncrossable valleys occur and it is these valleys that provided the plateau of Crustumerium with its steep natural lines of defence. On the topographical map in figure 2.3, the steep sides of the valleys are clear from the contour lines that appear contracted at these places. On the aerial photo in figure 2.1, the valleys can be recognised by the winding forested strips. Natural lines of defence formed by the valleys occur on all sides excepting the southwestern part, and, as we will see further below, the inhabitants of the plateau of Crustumerium constructed a deep, broad ditch to defend the southwestern part of their settlement. The soils that formed in the tuffs, after volcanic activity had ceased at a certain point in the Mid-Pleistocene, are typically reddish brown clays that, on account of the porous, easily eroded bedrock, could develop quickly. At spots where the underlying tuffs are dense, water stagnation may occur and drainage would be needed for habitation and cultivation. In fact we know of the presence of ancient V-shaped ditches on the settlement plateau that may have served this purpose.

Going back to the aerial photo in figure 2.1 and looking in a north-western direction we see how the plateau of Crustumerium borders on the Tiber Valley with the Tiber meandering through it at a distance of around 2 km. From corings (geological prospection research) carried out in the Tiber Valley archaeologists have learnt that over time the river has deposited thick layers of river clay onto the ancient surface that can be described as (sub)recent floodplain sediments. These were deposited during recurring seasonal floods. The impact of these is shown by the flooding of 1902, which inundated all of the Tiber floodplain near Crustumerium (fig 2.4). Such inundations have been described in the ancient sources as well. In fact thirty, undoubtedly major flooding events, are mentioned in the written sources to have occurred between 414 BC and 398 AD. This also means that the ancient surface of the floodplain

Figure 2.1: *In the centre of this Google Earth satellite image we can see the settlement area of ancient Crustumerium (white outline) surrounded by its burial grounds (grey patches). In the background the River Tiber meanders through the valley.*

Figure 2.2: *Outcrop of local tufa bedrock at Crustumerium.*

dating from the time of Crustumerium is buried deeply below the present one and therefore is largely *terra incognita* from an archaeological perspective. In fact only Roman remains are known to us from the river valley, such as roads, some funerary structures and the odd Roman villa, which were built on man-made elevations to protect them from flooding.

In the past, just as today, the Tiber Valley constituted an important corridor between the Tyrrhenian coast and inland areas but will have been marshy due to seasonal flooding. For this reason, all land-based traffic will have been confined to the foot of the slopes lining the valley. In fact it is here that the Romans constructed the famous Via Salaria, the salt road, leading inland from Rome's port Ostia. On the aerial photo in figure 2.5, the Roman Via Salaria, nearly parallel to its modern namesake, is clearly visible as a straight line running along the foot of Crustumerium's slopes. On the other side of the Tiber lay Etruria with the important settlement of Veii at a distance of only 12 km.

Given the thick layers of recent sediment in the Tiber Valley, we do not know at present if

Figure 2.3: *Topographic map showing the settlement plateau and its immediate surroundings. Contour lines close to one another indicate steep gradient/incline (C.T.R. 2005, element 365152 and 365153).*

Figure 2.4: *Water flooding the railway at Monterotondo Scalo (6 km northeast of Crustumerium) during the inundation of the Tiber in 1902.*

Figure 2.5: *Google Earth satellite image showing the Tiber Valley. In dry seasons the ancient Via Salaria is distinguishable from the air as a long, straight cropmark parallel to the modern Via Salaria.*

Crustumerium was furnished with a river port, but it seems likely that the Crustumini would have found a way of cross-cutting the valley to reach the shores of the Tiber to engage in river-borne trade and travel, southwards towards Rome and the coast, into Etruria, and northwards into the territories of the Faliscans and Sabines. In fact, from the burial ground of Capena, terracotta boat models are known that may represent the type of small wooden boats that were used by the Crustumini to reach the opposite shore or to cover the modest distances between the settlements aligned along the Tiber, including Rome (fig 2.6)

Ancient written sources report on river-borne trade, as early as the 5th century BC. Dionysios of Halicarnassus, for example, tells us that food supplies were brought from Crustumerium's landing stage to Rome (only to be seised along the way by the inhabitants of nearby Fidenae). Such boats, known as 'linter' (plural: lintres) are depicted on coins and marble reliefs. The Tiber therefore may be viewed as

a geographical border between Etruria and Latium just as much as serving as a connection between communities of various cultural backgrounds.

Approaching the landscape of the past

The history of the Tiber floodplain discussed above clearly illustrates that archaeologists have to be aware of the difference between the modern and the ancient landscape. However, from the aerial photo in figure 2.5 we can also appreciate how well the present landscape can preserve traces of the past. In this case we can discern the route of the

Roman Via Salaria as differences in the growth and colour of vegetation.

The study of air photography focused on the discovery of such cropmarks, with Google Earth as an effective and publicly accessible tool, is very important. It helps to determine via 'remote sensing' where structural features, such as ancient roads, canals, ditches and house plans, may be located. For instance, at Crustumerium and in its surroundings, various plans of Roman farms and villae have been discovered on aerial photographs (fig 2.7). But also at Crustumerium itself interesting features

Figure 2.6: *A ceramic boat model found in the burial ground of the settlement of Capena 13 km directly north of Crustumerium (National Museum Denmark).*

pertaining to the settlement of the town have been revealed this way, such as the defensive ditch protecting the settlement on its southeastern side (fig 2.8). Glimpses of the past landscape may, however, also be preserved in historical maps, and archaeologists will have recourse to these to understand how the landscape was understood and represented by past cartographers.

An especially interesting image of the 17th century AD landscape is offered by the maps of the Catasto Alessandrino (1660), showing the part of the Tiber Valley that is adjacent to Crustumerium to be an extended swamp in those days (fig 2.9). It also shows how in the 17th century AD the plateau of Crustumerium and the surrounding landscape to the southeast was not forested but dedicated to arable farming and pasture. Combining archaeological, geological and cartographical information, landscape archaeologists build up images of the past landscape that they can constantly complement with new data from fresh research. To this end they use a range of other methods besides aerial photography and historical maps, as will be explained in Chapter 3. Such methods comprise various procedures of geophysical prospection, coring, archaeological survey and excavation to learn more about the archaeology preserved in the landscape. Such data, together with all kinds of basic cartographic

Figure 2.7: *Cropmarks as seen from the air revealing the plan of a large Roman villa north of Settebagni, just 1200 m west of Crustumerium.*

information (geology, soils, topography, etc.), is conveniently brought together in a Geographical Information System or GIS, a software that is devised to capture, store, manipulate, analyse, manage, and present all types of spatial or geographical data and make it possible to explore how they interrelate. Figure 2.10 shows how various spatial types of data for Crustumerium can be superimposed.

As the situation is now, all data acquired for Crustumerium and its surrounding landscape have been inserted in the Crustumerium GIS and have been used to great effect for this catalogue in order to produce images of its landscape and the archaeology preserved in it. One of the first questions landscape archaeologists will ask when starting their research is what processes have shaped the
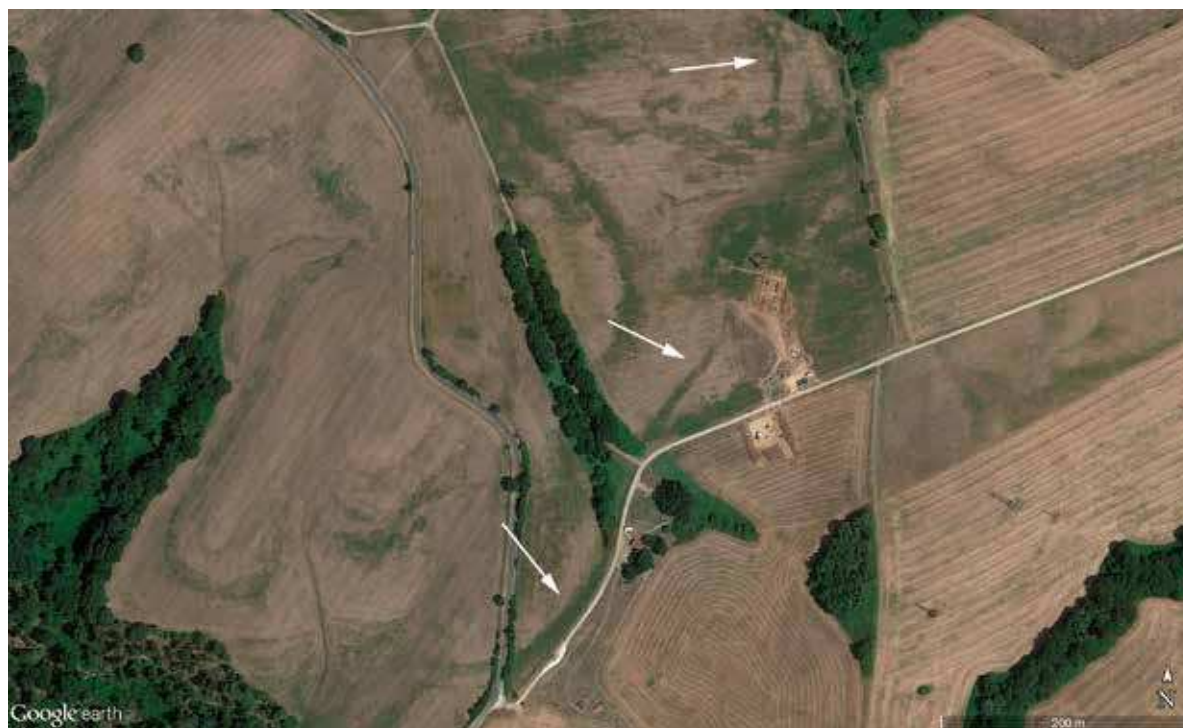
Figure 2.8: *Google Earth satellite image showing cropmarks indicating the course of the defensive moat.*

Figure 2.9: *Map sheet from the 'Catasto Alessandrino' map of 1660 with the contours of Crustumerium outlined in black.*

present landscape over time and how these processes, both natural and caused by mankind, may have affected the archaeological remains preserved below ground.

Landscape archaeology and the study of taphonomy

Even though archaeologists study the past, they work in the present. When it comes to landscape archaeology we have to bear in mind that the past and present landscape are almost always very different due to natural processes and human activity.

Archaeologists have to estimate what the impact of these factors has been to be able to reconstruct not only the ancient natural landscape, but also the past human landscape. After all, archaeological traces are by definition incomplete representations of a past reality. Broken pots were once whole, buried foundations once belonged to complete houses, and the bones of deceased individuals were once fully fleshed and dressed bodies adorned with many (perishable) ornaments. Archaeologists have to know about the processes that made the archaeological record what it is today to reconstruct what

their finds originally represented. The formative processes that occur after the deposition of an archaeological context – for example the collapse of buildings, the breaking of pottery, the movement of soil, the corrosion of metal and the decay of organic materials – are collectively called *taphonomy*. An in-depth knowledge of local taphonomical processes is of vital importance for every archaeologist.

In the case of Crustumerium the process with the biggest impact on the archaeological record is without question that of erosion (fig 2.11 and 2.12). Natural weathering of the tuff bedrock has been ongoing since the local geology was formed and the incisions in the volcanic deposit made by currents and streams have, over thousands of years, shaped the landscape. However, the introduction of intensive agriculture and mechanical ploughing from the
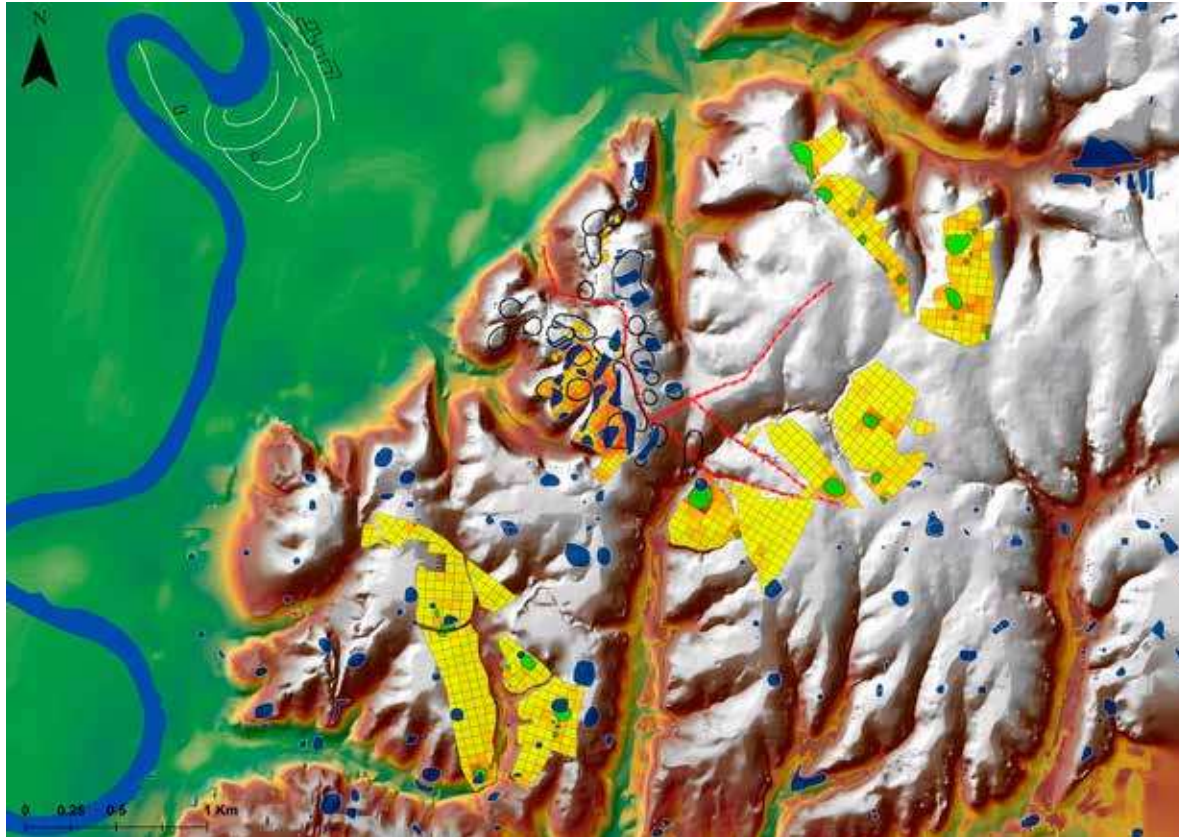
Figure 2.10: *Map created in the Crustumerium project GIS showing the digital elevation model on which survey results and observations of specific landscape features are mapped.*

Figure 2.11: *Gulley erosion after heavy rain in the north-eastern territory of ancient Crustumerium.*

by undertaking corings (fig 2.15). By using a manual coring device of only 7 cm in diameter the layers of the subsurface, or the so-called stratigraphy (from the Latin *stratum*, meaning layer), can be recorded. By coring at regular intervals a map can be created showing where soil was eroded and where it was deposited. By studying the, especially recent processes that have disturbed the natural soil, archaeologists learn what they may expect from the preservation of local archaeology in a given landscape.

Land use history
It is clear that after the abandonment of Crustumerium around 500 BC its former territory was incorporated into the *Agro Romano* and from that moment on its rich soils were exploited for

1920s onward (fig 2.13 and 2.14) started a wholly new chapter in the formation of the landscape and would have an enormous impact on the local archaeological record.

To know how to read such a disjointed archaeological record archaeologists have to gather information about past and current land use. To do so they rely on several different sources. First of all the history of land use has to be researched. Old maps, local archives of land ownership and historical sources can be of great help. However, interviewing local landowners may reveal important facts that cannot be found on paper. In addition to this, a geological survey can be performed to investigate the composition of surface and subsurface soils in relation to possibly preserved archaeology. Such a survey must be done

Figure 2.12: *Rill erosion after heavy rain in the southern territory of ancient Crustumerium exposes the underlying bedrock. Only several cm of the topsoil remain before the plough passes again.*

Figure 2.13: *Steam ploughing using the Fowler system. The plough was developed by John Fowler (UK) around 1850 and was widely used in the Italian bonifica in the 1920s and 1930s (the picture shows a reenactment of steam ploughing in 1984).*

Figure 2.14: *Plough marks in the surface of the tufa bedrock at the burial grounds of Crustumerium indicate the damage that agricultural work has done over the years.*

Figure 2.15: *Coring by hand on the plateau of Crustumerium. The picture shows how coring data is acquired systematically, in straight rows at equal distance intervals.*

Figure 2.16: *A statuette of the 'Aratore di Arezzo' illustrating the ancient use of a simple scratch plough (bronze, 6th century BC, Museo Nazionale Etrusco di Villa Giulia).*
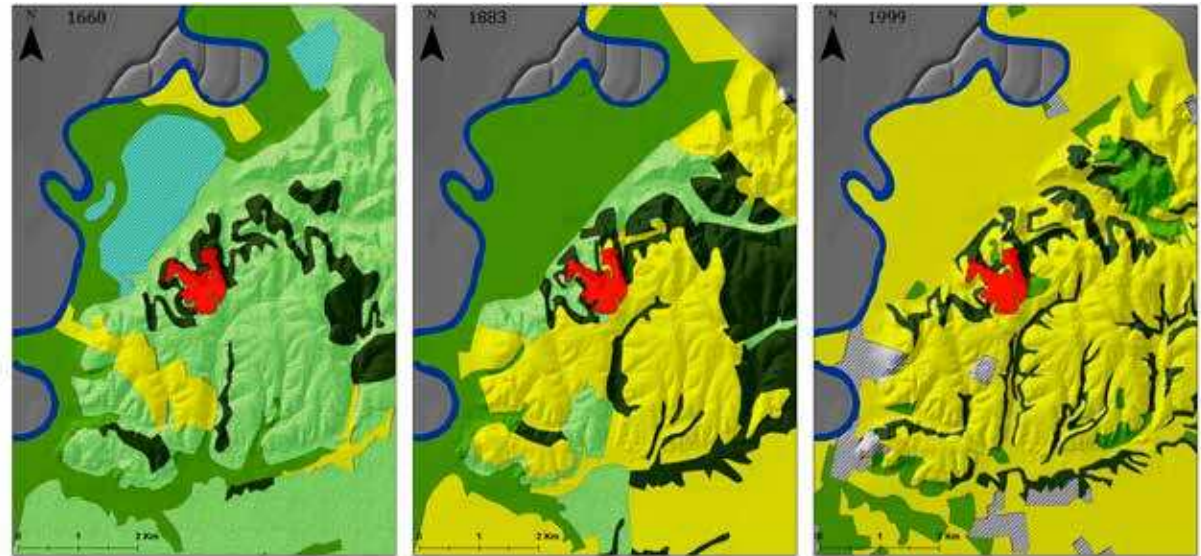

Figure 2.17: *Hut dwellings as still found in the Campagna Romana at the beginning of the 20th century.*

Figure 2.18: *The rural ensemble of the casale near the settlement of Crustumerium, now property of the Archaeological Superintendency. It is the only inhabited building in a 1 km radius. Many of the 20th century bonifica farms have now again been abandoned.*

Legend:
- Crustumerium
- Tiber river
- Marsh
- Uncultivated
- Forested
- Pasture
- Cultivated
- Urbanised

Figure 2.19: *Changing land use derived from maps dated 1660, 1883, and 1999. 1660: The territory consists mostly of pasture, with some forested parts. The part of the land used for agriculture is very restricted. Large areas remain uncultivated, especially in the Tiber Valley, where the marshy areas were probably covered with reeds. 1883: About 200 years later the area seems to be intensively used for agriculture. The areas now still in use as pasture have been reduced considerably. On the other hand, the area covered by forest has increased. 1999: Closer to the current day the slow urbanisation of the area becomes evident in the south. Luckily this trend is halted by the creation of the Marcigliana Natural Park. However, nearly the entire area is in use for agriculture now and cultivated intensively. There is no pasture left and forested areas are only found alongside the valleys of streams. Even the Tiber Valley, which was unsuitable for agriculture for centuries, has now been reclaimed.*

agriculture for over a thousand years thereafter. The landscape in this period in time is characterised by the presence of farms and villae scattered over the landscape that were centres of habitation and agricultural production. Though Roman land use was intensive and long lasting, it probably did not endanger the archaeological remains of Crustumerium to a great extent. Little is known of the Roman plough, but it was certainly of the *ard* type that was used throughout the Mediterranean in pre-modern times (fig 2.16). The ard is known as a breaking or scratching plough, indicating that it did not turn the soil, but only loosened it by creating shallow furrows. The ard would probably have lacked the weight to penetrate volcanic bedrock and to reach great depths, even when used frequently and repetitively.

The intensive use of the area surrounding Crustumerium for agricultural purposes was

discontinued probably around the 5th century AD, with the fall of the Western Roman Empire. From the subsequent Medieval periods we know very little, apart from the fact that the memory of Crustumerium itself was lost in time. From the 17th to the beginning of the 20th century at least, we know that the area was desolate and probably largely uncultivated.

From the end of the 19th century onward the young government of unified Italy called for 'bonifica'; a general term used to specify a wide range of

land improvements that were deemed necessary to reclaim neglected and uncultivated land for agriculture. At this time the countryside north of Rome had become impoverished and depopulated. Stagnant water and swampy wetlands, especially in the Tiber Valley, were breeding grounds for mosquitos spreading malaria. The few people that lived in the countryside dwelled in caves, so-called *case rupestre*, and huts, under very poor conditions (fig 2.17). Another problem was that the land was owned mostly by the Roman aristocracy that, with their

extensively exploited large estates, stood in the way of agricultural reform. In combination with a lack of government capital and labour it took several decades before the situation could be improved.

The poor condition of the depopulated *Agro Romano* only began to be resolved when a new government came to power, issuing harsh rules for the redistribution of capital, specifically at the cost of large land owners. In 1922 the expropriation of different properties around Settebagni and Marcigliana, which must have included the settlement area of Crustumerium, was decreed. The expropriated land was to be sold to farmers or farming companies in plots of 15 hectares maximum, causing a huge intensification of land use in comparison to the old estates that comprised many hundreds of hectares. Buyers were required to submit a five year plan for land improvement within one month of signing the contract. Each buyer was also obliged to construct an inhabitable house on their land with proper access to the infrastructure and to see to the supply of water and electricity. Any failure to comply could result in a one-sided cancellation of the contract by the government.

Even the agricultural activities themselves became strictly regulated, with rules governing the precise use of certain tracts of land for certain crops. The rules also stated that 70 to 75 cm of mechanical tillage was required to make the soil suitable for cultivation. As a consequence deep ploughing, initially with the use of a steam engine, became common practice at the end of the 1920s (see fig 2.13).

It is abundantly clear that the bonifica in the 1920s initiated a long period of intensive land use which has had serious consequences for the preservation of archaeology, not only because of repeated ploughing, but also because of terrain modifications made for infrastructural works. The desolate Campagna Romana was now again a busy region dotted with farms. Or in the words of the famous British writer D.H. Lawrence, visiting Rome in April of 1927: "*The Campagna, with its great green spread of growing wheat, is almost human again.*" In fact the current excavation house is one of these bonifica farms from which the surrounding lands were cultivated (fig 2.18).

The progressive influence of agriculture and urbanisation on the landscape can be seen clearly if we examine the cartographic information on land use from 1660 to the present day (fig 2.19). By now archaeologists are certain that agricultural work has seriously disturbed the archaeological record of Crustumerium and its surroundings over many decades and that interpretations of the field data are not straightforward. Luckily, now that Crustumerium and its surroundings have become protected as a natural reserve, the Riserva Naturale Marcigliana, strict rules prevent deep ploughing in the archaeological zone around Crustumerium. This has once again changed the types of land use in the area and has caused many of the cultivated fields to revert to pasture (fig 2.22).

P.A.J.A.; J.F.S.

Key literature

Attema et al. 2013; Attema et al. 2014; Attema et al. 2016; Becchetti 1983; Capanna & Carafa 2009; di Gennaro 2014; Eramo 2008; Seubers 2016; Seubers & Trienen 2015; Togninelli 2006.

A guided photographic tour of Crustumerium today

Figure 2.20 - The route of the tour

The modern visitor to Crustumerium will of course have a visual experience of the site different to that of the ancient visitor. However, outside the settlement plateau, where we have to envision the presence of the ancient bustling city, we still find a landscape which is fairly quiet and primarily used for agriculture, much as it was 2600 years ago. In the current landscape the land has been divided into large plots, creating an area of open countryside with very few (abandoned) buildings and an infrastructure consisting of only a few dirt roads. Consequently the best way to properly explore the ancient territory of Crustumerium is on foot.

Taking a virtual walk across the Marcigliana hill from the southeast, up to the edge of the Tiber Valley, we can highlight some of the specific features of the past and present landscape. In the tour described here we will approach the settlement from viewpoint A and explore the site from afar and up close (fig 2.20). The aerial photo used in this map was taken on the 17th of July 2015 and one can clearly see the excavations taking place to the right of viewpoint D.

Figure 2.20: *The route of the tour (source: Google Earth).*

Figure 2.21

Viewpoint A – 700 m southeast of Crustumerium looking east

The traveller approaching Crustumerium from the southeast would have had a broad view of the east flank of the settlement, as seen in the panorama picture 2.21. On the horizon just left of the centre of the image a single tree marks the highest point of the ancient settlement area on the Marcigliana hill, lying at about 100 m above sea level. To the direct left and right of this tree the ancient road trench that connected the southern inland areas and the Tiber Valley is flanked by lines of trees. In antiquity the defensive system of Crustumerium, with its deep moat, would also have been visible from afar. A careful observer may note a small patch of bare land on the lower left slope of the hill. This spot, just outside where the defences of the ancient settlement would have been, is where the excavations of the Monte Del Bufalo cemetery have taken place during the last few years. On the right of the settlement of Crustumerium lies the 'casale', which provides accommodation and hospitality for the fieldwork crew and the laboratory in the excavation season.

Figure 2.22

Viewpoint B – 500 m southeast of Crustumerium looking east

Walking to the northwest from point A, one crosses the deep Formicola stream at point B where remnants of an ancient water management system, a so-called *cuniculus* (a tunnel) can still be found. Looking east towards the settlement from across the stream brings a flock of sheep into the picture (fig 2.22). Because ploughing is not permitted in large parts of the area that is now protected for its archaeology, much of the land is not cultivated intensively and only in use as pasture for grazing and hay. On the horizon we can again discern the tree line which marks the southern part of the ancient road trench and the top of the Marcigliana hill marked by the single tree. In front of the road trench, in the centre of our view, we find the bare patch of land which marks the refilled excavation. Directly to the right of this we can clearly distinguish the outcrop of the artificial hill (referred to as Quilici O) that was constructed during the life of Crustumerium. The excavation of a small part of this hill began in 2014. On the horizon to the left we can see the skyline of Rome, where on a clear day one can distinguish the dome of St. Peter's Basilica.

Figure 2.23

Viewpoint C – 500 m east of Crustumerium looking northeast

From viewpoint B we can walk uphill to the excavation house. From viewpoint C we get an even better view of the east settlement and the land that lies beyond (fig 2.23). On the horizon of the panoramic image we can look far into what was once Etruscan country on the opposite bank of the Tiber. We are looking roughly in the direction of ancient Veii. The tree line in the centre marks the east cliff of the settlement plateau of Crustumerium. On the small hill in the centre of the image, just in front of the trees, the foundations of a large Roman villa still lie buried in the soil. In front of us, to the far right, a wide linear trench marks the route of a Roman road that leads to the hills in the west, where more Roman villae were located.

Figure 2.24

Viewpoint D – In the southern part of the ancient road trench of Crustumerium looking north

Walking downslope for about one kilometre from the 'casale', we pass the location of the excavations of 2015 on the lower slopes of the southeast settlement and on the artificial hill Quilici O. Walking a bit further we can take a right turn into the ancient road trench, which will lead us to the top of the Marcigliana hill (fig 2.24). In antiquity traffic from inland Latium to Etruria would probably have used the road trench to pass through Crustumerium towards a fordable place in the Tiber. The inhabitants of Crustumerium would have had control over this traffic, possibly also involving taxation of traders passing through. The image shows that the road trench is slightly overgrown nowadays, but still in use. Excavations by the University of Oulu (Finland) have shown that the ancient road lies buried deep beneath the current ground level, meaning that the road trench would have been much deeper and more impressive in antiquity.

Figure 2.25

Viewpoint E – Top of the Marcigliana hill, the centre of Crustumerium looking east

Following the southern part of the road trench to the north we reach the central summit of the Marcigliana Hills, at the centre of Crustumerium (fig 2.25). The road passing through the settlement continues to the south, descending towards the Tiber Valley. Looking to the east from this point we can see our point of departure at viewpoint A, location B, where the treeline on the right marks the valley of the Formicola stream, and viewpoint C in front of the farm house. The picture was taken in the spring, when all pastures are well watered and overgrown with grass of vibrant green colour. On the horizon we can see mountain ranges of the ancient Sabine country, still with some snowy peaks just after the winter season.
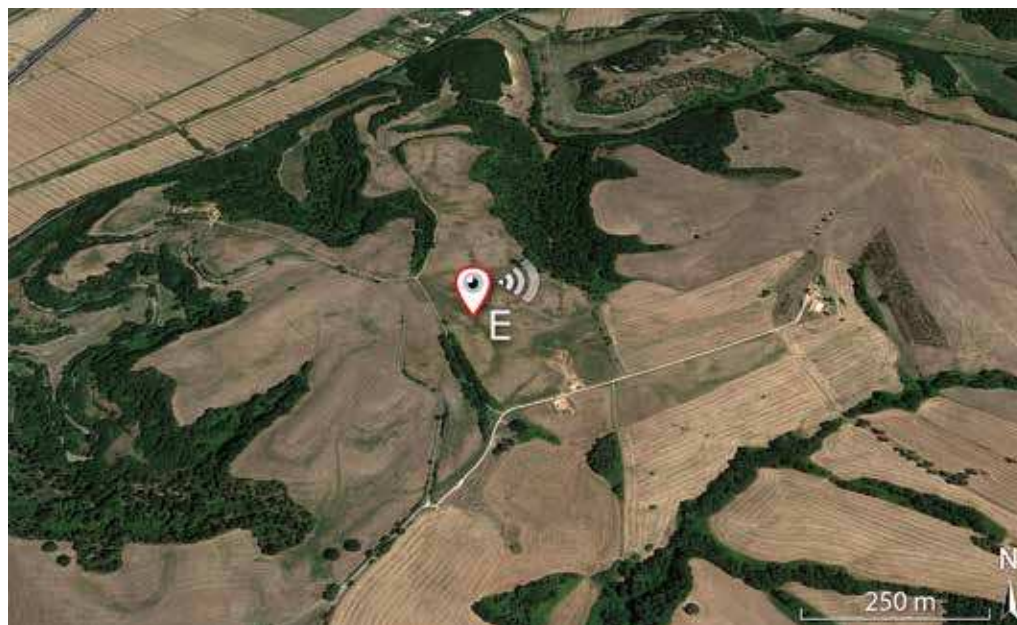
Figure 2.26

Viewpoint F – Southwest Crustumerium looking north

In Figure 2.26 we are looking at west Crustumerium from south to north during the archaeological surveys of October 2011. Just after the harvest of sunflowers, the field had been ploughed, offering ideal circumstances for the study of archaeological remains on the surface. The picture is taken from the western part of the Monte Del Bufalo burial grounds. The southwest edge of the settlement is located in the valley just beyond the two isolated trees in the foreground. Just to the left of the centre of the picture we can distinguish a small gulley where rainwater is flowing downslope. The same gulley can be seen on the aerial photo taken 4 years later (fig 2.20). In unfavourable weather these small streams turn into torrents, which carry soil and archaeological materials downslope (fig 2.11).

Figure 2.27

Viewpoint G – Northwest Crustumerium looking west

Crossing the modern Marcigliana road to the west of viewpoint E gives us a clear view of the undulating hills that characterise the entire settlement area (fig 2.27). The elevation differences in the terrain were created when the River Tiber came into existence just after the prehistoric volcanic eruptions. Many thousands of years of geological processes have formed the gently sloping hills that we see today. The western part of the settlement is the only part that is still, occasionally, cultivated. In this case sunflowers have been sown which flourish in the bright summer sunlight. On the horizon we can see the Tiber Valley and the ancient Etruscan lands beyond.
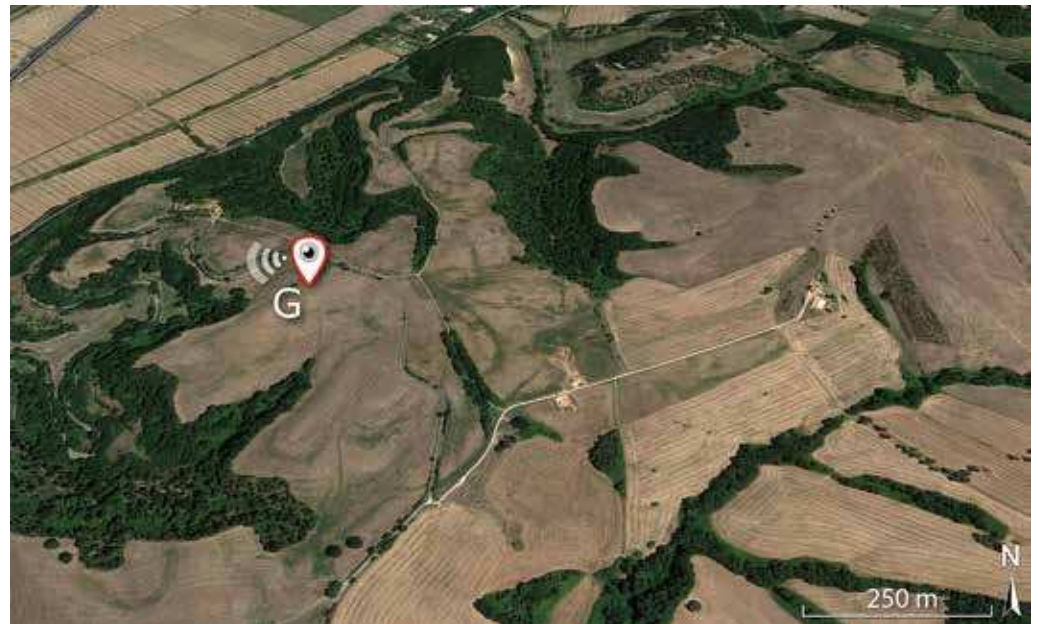
Figure 2.28

Viewpoint H - Northwest Crustumerium looking north

Following the dirt road further to the northwest, we can climb up a small hilltop from which there is another good view of the Tiber Valley (fig 2.28). Looking over the roof of another 1930s farmhouse, known as the Casale Marcigliana, we can see the A1 highway, which runs from Rome to Florence in an almost straight line. On the horizon we can distinguish several hilltops in modern Tuscany. To the left we can see the small peak of the Monte Musino at 12 km distance and to the far right it is possible to make out the higher peak of the Monte Soratte 25 km away.

Figure 2.29

Viewpoint I – East Crustumerium looking north

On the other side of the hill, a panoramic viewpoint from the edge of the settlement inward covers the entire northeastern flank of the ancient settlement area (fig 2.29). In the centre we can distinguish an extensive plateau, now marked by an electricity pole, where a lot of archaeological surface finds have been collected over the years. The plateau borders on a cliff, which constitutes the northeast limit of Crustumerium. Further north the burial grounds of Sasso Bianco are situated.

J.F.S.; R.B.
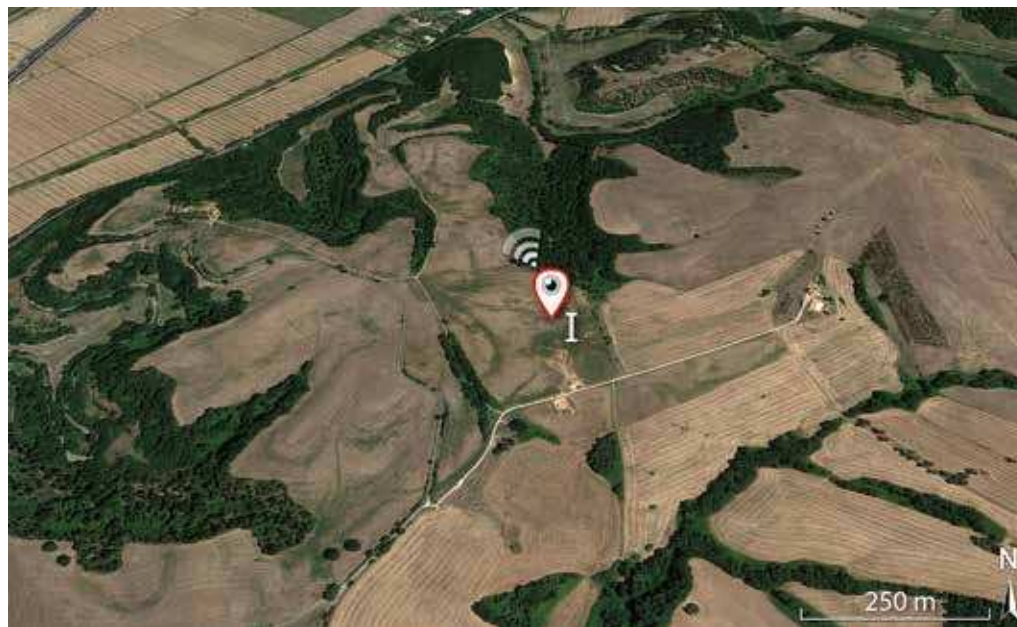
3 Past and present field research at ancient Crustumerium

"Apart from traditional methods, the archaeologist's toolkit is constantly being expanded with new techniques. Digital methods for discovering andrecording archaeology are becoming increasingly important"

The discovery and study of Crustumerium through archaeological survey

Already before the fall of the Roman Empire, Crustumerium had been forgotten and its location lost for centuries. And although the hills on the left bank of the Tiber had been pointed at as the probable location of Crustumerium, based on assumptions of the ancient authors and traditions in the topographical reconstruction of the ancient landscape from the Renaissance onwards, it was not until the 20th century that a correct relationship between the territory and the material remains was established. Antiquarians did indeed attempt to find the old city but they were bound to be unsuccessful working from descriptions of the ancient cities of Latium in ancient Roman writings, without supporting archaeological evidence from the field (fig 3.1). On the whole, the information on Crustumerium was not too bad as regards its distance from Rome, its position with respect to the river and to other centres. Among the antiquarians Philipp Klüver (17th century AD) came closest, but only by chance, as he mistook Crustumerium for Fidenae. The first correct hypothesis based on a modern concept of archaeology, in which literary sources are taken into account but combined with data collected in the field, happened to appear in a publication by scholars working in the British School at Rome in 1968, and they were right: Crustumerium is located in the Marcigliana Vecchia estate; we realised this only years later, thanks to the systematic work of Lorenzo Quilici and Stefania Quilici Gigli.

The Quilicis researched a large part of Latium using a straightforward technique aimed at exploring the landscape on foot in a systematic way: a technique we would now call 'archaeological survey'. Based on their extensive archaeological survey in the

1970s the correct location of many ancient settlements could be confirmed. Departing from the methods of previous scholars, the Quilicis focused almost entirely on recording archaeological traces, for example ruins of ancient architecture, but also surface scatters of ancient ceramics indicating past human activity. In their survey all locations of archaeological interest were recorded on maps and described with as much detail as possible.

Archaeological survey is a useful technique because buried remains often become visible on the surface of a field in the form of fragments of pottery and buildings, especially when a field is ploughed. Just as in excavations, archaeologists will collect materials from surface find locations (observation units, so-called sites). By studying the surface finds, the function and chronology of a specific place in the landscape can often be established (fig 3.2), without the need for time-consuming excavations. Surveys help archaeologists to develop an idea of the long-term settlement history of a large research area with relatively little time investment. The registration of data is important also because the characteristics of the surface evidence change over time due to modern land use, and, in some cases, evidence of past occupation may totally disappear.

The work of Lorenzo Quilici and Stefania Quilici Gigli at Crustumerium constitutes the first archaeological survey of the settlement area, the cemeteries and a large part of its territory, almost 25 square km in total. Within this vast area 128 archaeological sites were recorded around the settlement and 25 find concentrations on and near the settlement itself (fig 3.3). Follow-up archaeological research in the area has confirmed the initial observations but has furnished more detail (see below). As to the general topography of Crustumerium

Figure 3.1: *The location of Crustumerium could be estimated on the basis of historical sources, as we can see on this map of 1926, but the exact location of the site remained unknown until the surveys by Quilici and Quilici Gigli in the 1970s.*

two significant additions to the discoveries of the Quilicis stand out.

The first is that the town was considerably larger than previously thought since what seemed to be a defensive perimeter trench proved instead to be a road trench cross-cutting the settlement area; consequently the alleged 'external' area northeast

Figure 3.2: *An archaeologist counting, weighing and selecting ceramic fragments that were collected from the topsoil in the ancient settlement area of Crustumerium.*

of the trench, already considered suburban, is now considered part of the urban area of Crustumerium. Corroborating evidence for this reconstruction of the urban area is the discovery, with excavations (2005), then with explorative trenches (2010) and then with geophysical survey (2011), of the buried ancient moat that enclosed the southern perimeter of the urban area.

The other is the discovery of what at first seemed to be a peripheral settlement in the Tiber Valley thought to serve the city's various needs (e.g. supplying food or labour) (see site number 1, directly west of Crustumerium in the map). The observation of surface materials along the Via Salaria and following the foot of the hills of Crustumerium should however not be interpreted as traces of an autonomous settlement, but instead as an extensive dump of old materials transported down into the plain to form the roadbed of the Via Salaria constructed in the Republican age. As already stated in the introduction,
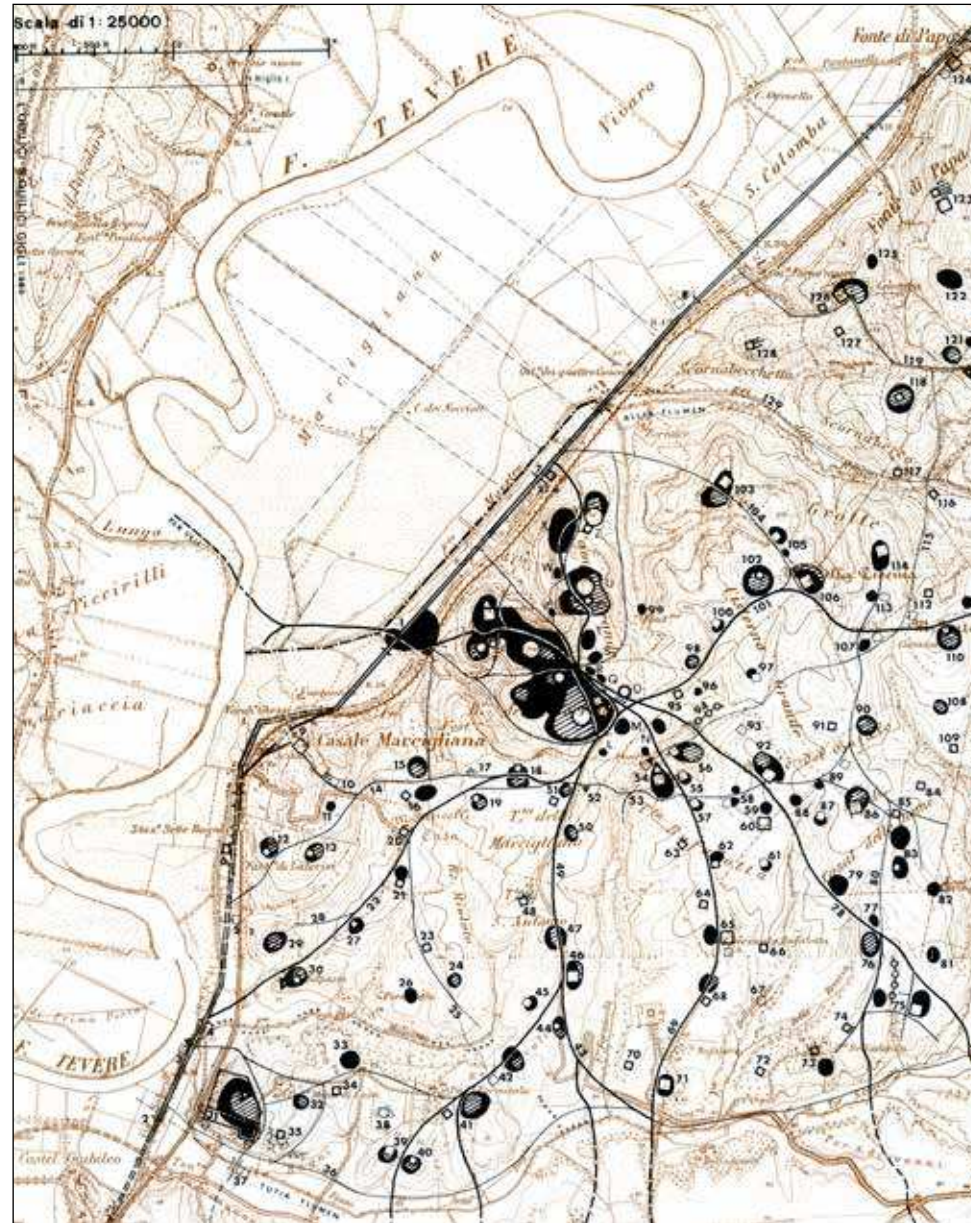
Figure 3.3: *The map of Quilici and Quilici Gigli (1980) summarising the results of their surveys on and around Crustumerium. Find locations are marked in black and refer to descriptions and images in their book.*
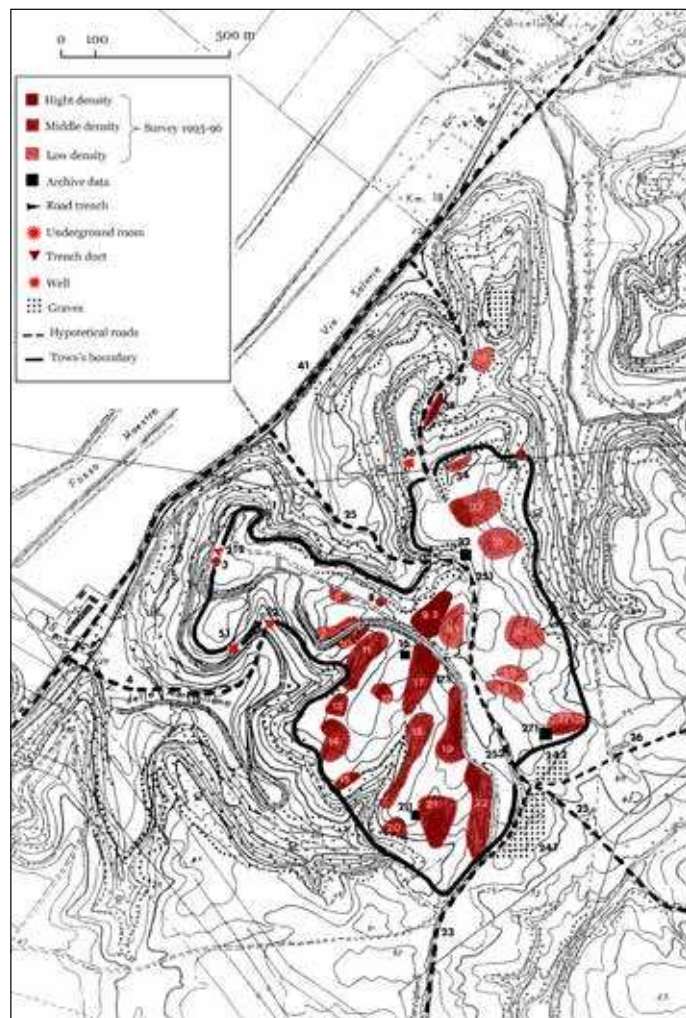
Figure 3.4: *The 1995-1996 survey. Map of ceramic scatters of different densities on the settlement area as recorded in the 1990s.*

the sheer amount of archaeological material, with a duration range covering the life cycle of the town of Crustumerium, presupposes the removal of thousands of tons of tufa building stone and ceramic materials from the former settlement of Crustumerium that by Republican times was in ruins. The debris was transported over 60 m downhill, probably by militia, over linear distances of 300-500 m and more, which would be equivalent to triple this distance as it had to be transported by carts.

F.d.G.

Key literature
Attema et al. 2014; di Gennaro 2013; Jarva et al. 2013; Quilici & Quilici Gigli 1980.

Field surveys of the 1990s
As part of the Suburbium Project of the La Sapienza University of Rome, the area of Crustumerium and part of its surroundings were surveyed again in 1995-1996. This time the survey was primarily focused on the settlement plateau of Crustumerium, and find locations of ceramic materials were studied more intensively to collect more detailed data (fig 3.4). An innovation was that the research area was divided into topographical units defined by natural features like ridges, heavy vegetation, valleys and easily distinguishable roads and paths. Within these units find accumulations from which all finds were collected were recorded. Ceramic fragments with a recognisable shape were selected for further study to establish their function and chronology. The survey was carried out taking account of surface visibility (fig 3.5). This means that during these new surveys
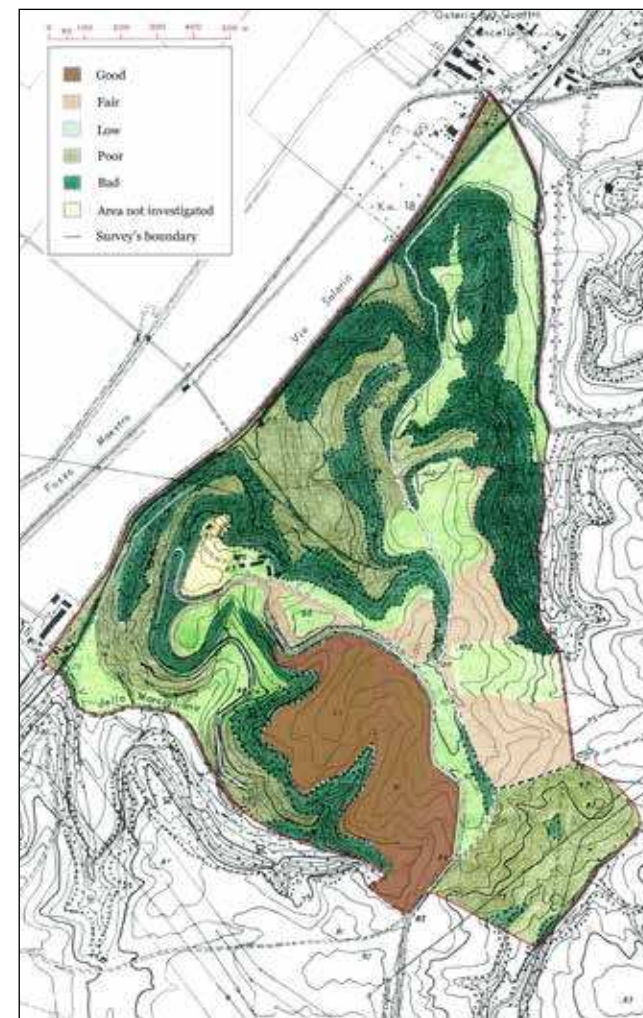
Figure 3.5: *The 1995-1996 survey. Map of ground visibility factors influencing the results of the surveys in the 1990s.*

Find densities (N/ha)

Crustumerium	1001 - 2000
Urban_density_areas	2001 - 4000
0 - 100	4001 - 8000
101 - 250	8001 - 14000
251 - 500	14001 - 20000
501 - 1000	20001 - 30400
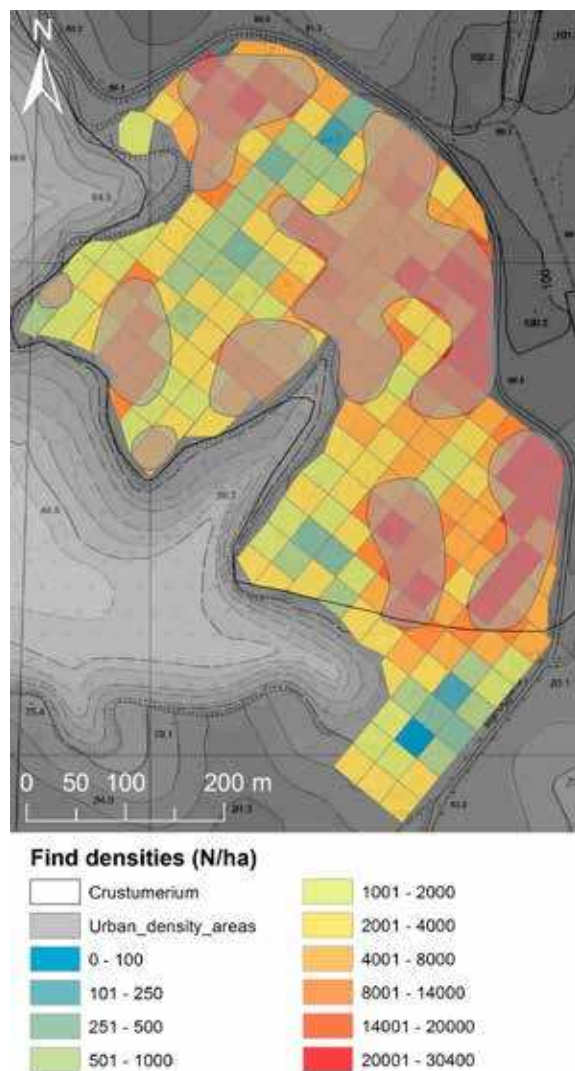
Figure 3.6: *A map summarising the survey results of the GIA block survey of 2011 on the western part of Crustumerium. For each unit the density of the surface finds was recorded, resulting in patterns of surface find distributions with low to high densities.*

researchers recognised that the ability to record the presence or absence of ceramic material on the surface is determined by the degree of surface visibility. Many factors that limit surface visibility, most prominently of course the growth of vegetation, may therefore influence the survey results in a negative way.

In terms of other factors that influence our perception of the archaeological landscape the survey results also indicated that many potsherds were no longer found in their original location (where they had initially been ploughed to the surface) but had moved downslope on account of erosion and soil wash caused by natural agents (rainfall), and interventions by man (intensive cultivation)

Considering this observation in tandem with the morphology of the settlement the observations of the survey allow the following hypotheses:

a) The ceramic concentrations present in the eastern part of the settlement plateau, as already assumed by Francesco di Gennaro, are to be interpreted not as traces of a suburban quarter or a cluster of tombs of the ancient city (as proposed by the Quilicis), but as an integral part of the settlement. This meant that the settlement was not confined by the two distinct artificial trenches that were excavated in the tufa bedrock in antiquity. This would give the settlement a total inhabitable area of nearly 60 hectares.

b) The scarce but continuous presence of fragments dating to the advanced phase of the early Iron Age, found all over the settlement area are proof of a unified settlement area already from that period onwards. The chronology of ceramics from this early phase is consistent with that found in the earliest tombs so far identified in Crustumerium (see also Chapter 6).

c) The increase of the number of ceramic

scatters and their density (in particular ceramic fragments pertaining to household pottery (eating, cooking, storage of foodstuffs), cooking stoves, roof tiles and also architectonic friezes used to decorate the roofs of ancient buildings), all datable to the 7th and 6th centuries BC are proof of a progressive occupation of the available space for houses, with a peak in the 6th century BC.

d) The remarkable decrease in the number of artefacts recorded for the 4th and 3rd centuries BC, in accordance with the ancient written sources, is proof of the progressive abandonment of the ancient city following its definitive defeat in 499 BC by Rome. From that period on the area once occupied by the ancient Latin city would become an integral part of the *suburbium* of Rome.

A.A.

Key literature
Amoroso 2002, 2002a; Amoroso & Barbina 2003; di Gennaro 1988, 1990; di Gennaro et al. 2004; Jarva et al. 2013; Quilici & Quilici Gigli 1980.

The GIA resurveys and archaeological data from the territory of Crustumerium
In 2011 a resurvey of part of the urban area of ancient Crustumerium was carried out by the GIA with the objective of monitoring the current state of the surface evidence and creating a detailed record of find densities using yet another approach. The chosen method was a gridded survey, meaning that the research area was divided into units of 30 x 30 m in a Geographical Information System (GIS) and field computers with GPS (fig 3.6). Ceramics were found in 200 out of 220 units, amounting to a total of 30,000 sherds, weighing nearly 1000 kg. For all survey units
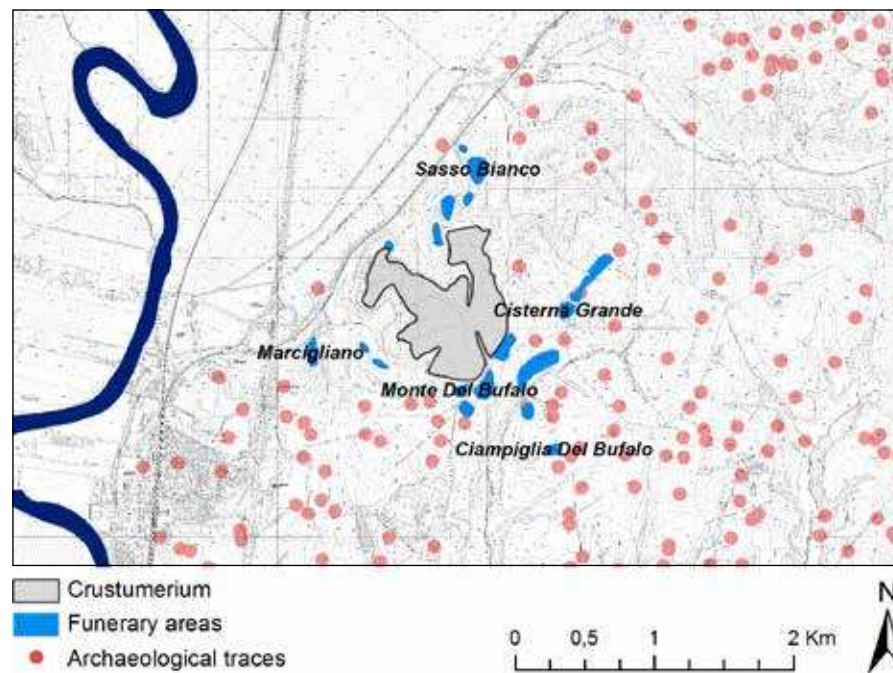
Figure 3.7: *A systematic survey; visually scanning the surface while walking back and forth in parallel lines is the basic survey technique to achieve good coverage of an area and not overlook any archaeological remains. This picture was taken on a large Roman site near the Torretta della Bufalotta, east of Crustumerium.*

Crustumerium
Funerary areas
Archaeological traces

0   0,5   1   2 Km

N

Figure 3.8: *The map shows how Crustumerium is surrounded by different burial grounds, outside of which a very crowded archaeological landscape can be found. All of the red dots represent ceramic remains that can be seen as evidence for human activity or habitation in the past.*

the exact density of the surface finds was recorded, adding a new layer of information to the known surface record.

In terms of the overall chronology for the urban phases of Crustumerium the GIA survey confirmed the developments that were suggested on the basis of the previous surveys. Given the time interval of some 20 years between the three systematic surveys of the settlement the GIA survey contributes not only to our study of material culture, but to our understanding of the effects of post-depositional processes. The new map of surface find densities used in relation to information from corings, geophysical research (see below) and digital elevation data allowed us to quantify the relations between surface and subsurface archaeology. In this sense the new survey data and its incorporation in a GIS makes possible new ways of exploring the dynamics of the past and present archaeological landscape and the further investigation of the downslope movement of archaeological materials in the plough soil that was already observed by Amoroso and di Gennaro.

To take these new explorations a step further the GIA surveys were extended into the ancient territory of Crustumerium (fig 3.7). In the countryside around Crustumerium the evidence from the archaeological surface record is less dense than in the urban area, but still conveys a great deal of information about how the ancient city was organised. First of all we know of several burial grounds that have a clear spatial and chronological relation to Crustumerium. The extent of these burial grounds was largely established by mapping the activity of *tombaroli* (tomb robbers) during the past few decades. At least a thousand tombs, but presumably many more, can be found in large and small groups around the settlement area. Archaeologists have conducted excavations in the north and south-east necropoleis of Sasso Bianco, Cisterna Grande and Monte Del Bufalo since 1987, and present almost 400 tombs have been excavated (see Chapter 6).

Further away from the settlement we can still find the traces of the rural territory of Crustumerium and the farms that once supplied the city with food and other important resources (fig 3.8). As in the case of the settlement itself the buildings of the ancient agricultural landscape have now been reduced to scatters of building materials and pottery in the plough zone. Consecutive surveys, like the explorations by
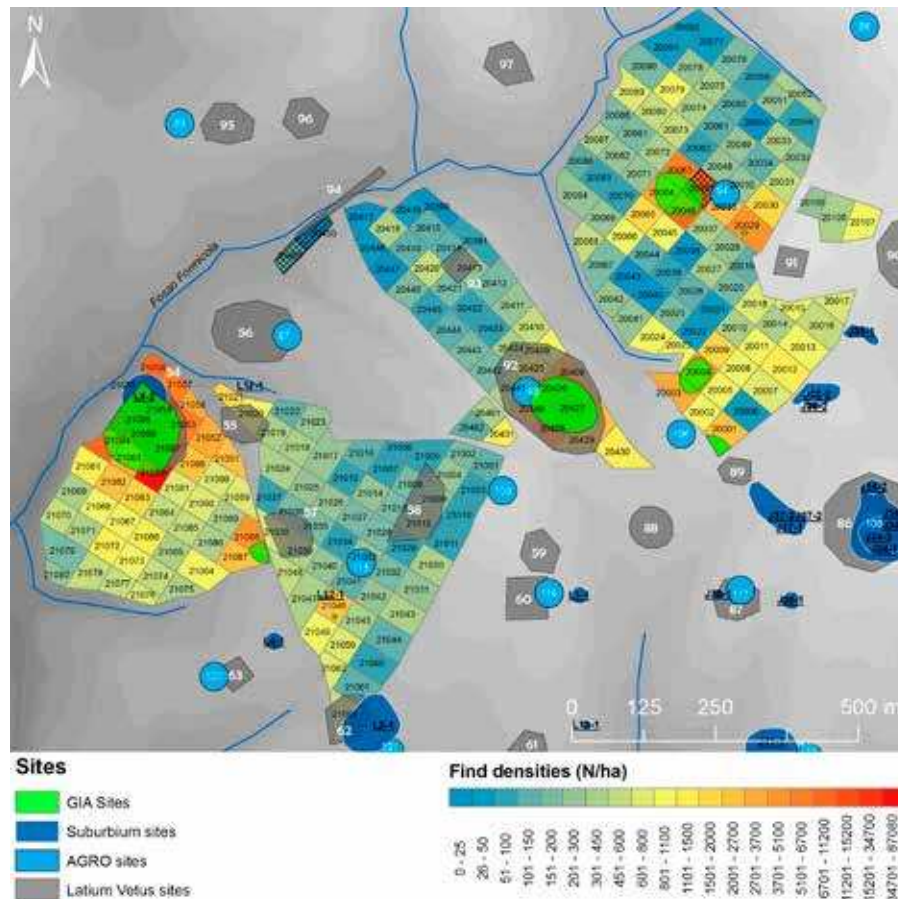
Figure 3.9: *The same 'block survey' technique applied to the urban area of Crustumerium was also used during surveys in the territory of Crustumerium between 2011 and 2013.*
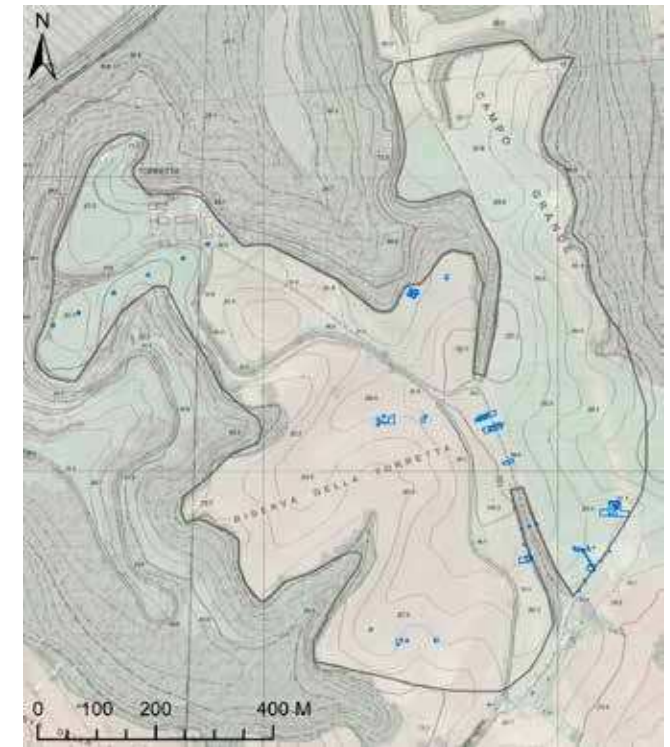
Figure 3.10: *The settlement area of ancient Crustumerium with all past excavations marked in blue. The map clearly shows the difference between the large scale of the settlement and the small scale of excavations.*

the Quilicis, data from governmental maps and the Suburbium Project, have created a somewhat complex picture of overlapping results (fig 3.9) and the GIA resurveys were undertaken to better understand the actual archaeology behind these data. In short the GIA has attempted to unravel over 40 years of archaeological evidence by actually going back to observations in the field.

The data from the countryside shows how the territory of Crustumerium was strategically exploited, especially in the 6th century BC and how it gradually turned into Roman farmland after the abandonment of the city in the 5th century BC. On the basis of the archaeological record the historical Roman conquest of Crustumerium appears to have been a somewhat peaceful event, which did not affect the growth of the rural settlement system. Many of the villae and farms that were built in the countryside under the successive Roman rule remained in use for close on a millennium.

J.F.S.

Key literature
Attema et al. 2014; Capanna & Carafa 2009.

Figure 3.11: *A typical impasto rosso roof tile that would have covered the roofs of many buildings in the city of Crustumerium during the 7ᵗʰ and 6ᵗʰ century BC. This particular tile was re-used in a chamber tomb.*

Evidence for the material culture of Crustumerium from excavations

While archaeological surveys are of fundamental importance for our understanding of Crustumerium, the method is especially useful for studying long term processes on a relatively large geographical scale. Excavation is the primary archaeological method to answer complex research questions about small-scale events or individual lives and to gain a better understanding of structural remains like infrastructure, houses and monuments. Since the discovery of Crustumerium, many small excavations have been conducted in and around the settlement area under the aegis of the Archaeological Superintendency of Rome (fig 3.10). The map makes clear how small excavations really are in comparison to the vast size of the settlement area. However, by combining the results of excavations with many other sources of information, we now have sufficient archaeological evidence to reconstruct many of the key features and operational aspects of ancient Crustumerium.

The burial grounds

The burial grounds of Crustumerium were arranged into several independent cemeteries that lay stretched out along the slopes of the elevated urban area and extended into the adjacent hills (fig 3.8 and Chapter 4). The distribution of the cemeteries and tombs depended greatly on the morphological characteristics of the landscape. As a matter of fact, the major concentration of tombs is to be found along the main roads that departed from the settlement area in antiquity. We can observe that not all areas suitable for burial purposes were in use in the early phases of habitation, whereas in the Late Orientalising and Archaic periods the burial grounds occupied a wide area that more or less circumscribed the settlement.

The extent of the 'funerary belt' around Crustumerium has been largely established by mapping the pits of *tombaroli*, tomb robbers who have pillaged hundreds of tombs during the past few decades (as discussed in Chapter 4). Formal archaeological excavation has been conducted since 1987 on the north and southeast sides of the settlement (Sasso Bianco, Campo Grande, Cisterna Grande, Monte Del Bufalo) and is still on-going.

B.B.M.

Domestic buildings

Most of the evidence we have for habitation at Crustumerium is circumstantial. Because houses in the Iron Age were often built with perishable materials, with only shallow foundations in the natural bedrock, they leave few archaeological traces. Most

Figure 3.12: *A grave marker carved in the image of an Iron Age hut. The sculpture in tufa stone was found in the plough zone of Quilici O.*

of the evidence for habitation is again derived from surveys and consists of fragmented ceramic building materials in the plough zone, such as pieces of roof tiles (fig 3.11), burnt loam used for walls, or (at a later stage) bricks. These materials are found in combination with fragments of domestic ceramic sets, such as small furnaces for cooking, vessels for storage, and bowls and plates for eating and drinking.

A second source of information on what the houses of the inhabitants of Crustumerium looked like is actually not found on the settlement but in the cemeteries. In Central Italy it is common to find miniature depictions of houses in tombs. At the beginning of the Early Iron Age cremated remains of deceased individuals were occasionally placed in urns in the shape of huts, especially in Etruria. In this case the house is seen as a symbol which stresses the importance of the family as a central element of society. The craftsmen of Crustumerium used similar symbolism in grave markers made out of

Figure 3.13: *A reconstruction of an Iron Age hut based on excavations at Fidenae in the 1990s. The huts at Crustumerium must have been very similar.*

locally mined tuff bedrock. These marking stones, or *cippi*, in the shape of houses, therefore, convey information on what a real family dwelling may have looked like (fig 3.12 and 6.9). On the basis of such indicators reconstructions of Iron Age huts have been made, like the one at Fidenae, which was once an ancient settlement similar to Crustumerium, lying only 5 km to the south (fig 3.13).

In 2007 important new evidence concerning the habitation of Crustumerium came to light when Early Iron Age settlement remains were found in the trenches of rescue excavations. The excavators found a floor level of tuff fragments, clay and pottery, and a collapsed wall with fragments of fired clay, pottery, traces of charcoal and burnt grains. The small excavation does not permit a full reconstruction of the function of the dwelling, but the presence of burnt cereal grains and fragments of large containers support the hypothesis that the

Figure 3.14: *An overview of the many different pottery shapes found in tombs.*

area was used to store foodstuffs. As such it may be part of a larger structure that was used for habitation.

Domestic ceramics: types and shapes

The surveys and excavations at Crustumerium have shown that the greater proportion of the ceramic material used in the settlement consisted of the common coarse ware known as *impasto* (simply meaning 'dough' in Italian). These pots of a red-firing clay were used for everyday activities, such as cooking and storage. The most common shapes are jars and bowls. In the early phases of the settlement *impasto* vessels were produced within the family household and moulded by hand (see Chapter 6). At a later stage pottery production became more centralised and specialised. A turntable was introduced to rotate the pot while shaping it and with larger kilns production

Figure 3.15: *An archaeological field drawing of part of a road structure uncovered during the first excavations in the settlement area of Crustumerium in 1982.*

not frequently found on the settlement, indicating that the decorated and high-quality ceramics were probably produced especially for burial rituals and not used in everyday life (fig 3.14).

One of the most distinctive Italian pottery types from the 7th and 6th century BC is a ware called *bucchero*. Bucchero is a thin-walled ware made of pure clay and fired in an atmosphere with reduced oxygen, making the pots completely black. The ware also has a glossy finish and was probably intended to imitate metal. Bucchero has a very specific repertoire of shapes that are associated entirely with banqueting.

Apart from building materials and kitchen wares, storage vessels and other utensils were also made out of clay. The use of the large permanent container known as a *dolium* goes back a very long way into Italian prehistory. But the use of ceramic cooking utensils and weaving tools such as spindle whorls or loom weights is also well-documented in settlements like Crustumerium.

Infrastructure

In 1982 the Archaeological Superintendency of Rome conducted the first excavations at Crustumerium. Multiple trenches of 25 square metre were opened up in different places on the west side of the settlement area. In several trenches evidence for roads was found in association with worked tuff blocks, tiles, cups, *dolium* fragments and limestone. The finds offer proof for the existence of a formal internal infrastructure within the urban area of Crustumerium (fig 3.15).

The most noticeable infrastructural work is the artificial trench that divides the settlement's eastern and western parts. Between 2004 and 2009 the University of Oulu (Finland) carried out an investigation of the large artificial trench and found that it

Figure 3.16: *Part of a road structure with a gravel bed (right) aligned with rectangular tufa blocks. The road was excavated in 2007 by the university of Oulu (Finland) in the centre of the settlement area and can be connected to the 'road trench'.*

could be increased. In specialised kilns the clay could also be fired at higher temperatures than in an open fire, increasing the quality of the ceramics. In the Iron Age vessels were often decorated with incisions in geometric shapes, but this tradition died out in the 7th century BC. At this time it became customary to provide luxury pottery with a glossy red or brown finish, known by the name *impasto rosso* and *impasto bruno* respectively. Many of the pottery shapes and types that were placed in the tombs are

contained a deepened road, facilitating the passage of traffic through the settlement. Seven trenches intersecting this *trincea viaria* (road trench) revealed a series of superimposed road levels which indicates the constant re-use of the road in antiquity (fig 3.16).
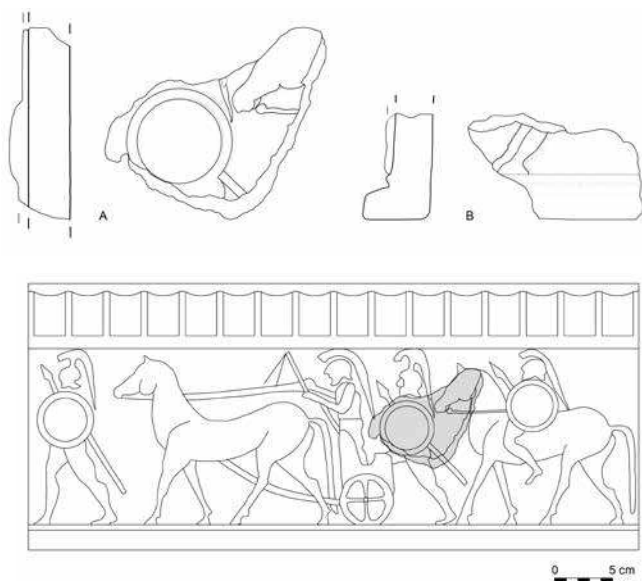
Figure 3.17: *Pieces of architectural decoration found during surveys just outside of Crustumerium. The pieces can easily be fitted into well known iconographical scenes, in this case a procession of warriors, and be dated to the end of the 6th century BC. Terracotta roof decorations are often found on temples or other buildings of special significance.*

Figure 3.18: *A picture of site 'Quilici O', the artificial hill that lies on the southwest edge of the settlement area and rises above the Monte Del Bufalo burial ground as a peculiar kind of monument. The picture was taken in March 2013.*

The first paved road should probably be dated back to 650 BC. It appears to have been in continuous use since then, at least until the 3rd or 2nd century BC and again during the Roman Empire. During the latest excavations by the Groningen Institute of Archaeology and the Archaeological Superintendency additional evidence was found of Crustumerium's road network. This was revealed through geophysical prospections. Using this non-invasive prospection method, roads leading out of town and through the cemetery of Monte Del Bufalo could be followed over long stretches. Trenches and augerings revealed that these roads are at times buried deep below the surface and in one case a Roman road was found to superimpose the older Archaic roadbed by more than 1 metre of soil.

The GIA has now started exploring an even larger network of roads that connect the settlement to its hinterland. Much of the new evidence has been revealed by geophysical prospections (see below).

Defensive works

The maps in this catalogue show how Crustumerium was defended naturally on almost all sides, but that it was easily accessible from the south/southeast. Indeed the site is largely surrounded by steep cliffs with an inclination of about 30 to 40 degrees, but artificial defences would have been needed to protect the southeast flank. An actual moat (or *fossato*) with exactly this purpose was first recognised in trenches dug in 2000, and investigated in more detail in 2007. Additional information about the dimensions and course of the fossato was acquired through a number of small trenches dug in 2010. The moat appears to have been ca. 10 m wide and was excavated to a depth of 3 m. At other places corings to the bottom of the fossato have reached similar depths. It can be assumed that the original structure was even deeper, as the upper parts of have at places been partially removed and/or were destroyed by erosion and agriculture. Geomagnetic surveys and systematic augering by the GIA have now revealed the entire course of the moat outside of the excavated areas.

grosse scaglie di tufo⟶
humus di riporto⟶
scaglie di tufo⟶
humus⟶
banco di tufo⟶

|0 |1 |10 m

L.Q.–S.Q.G. 1974
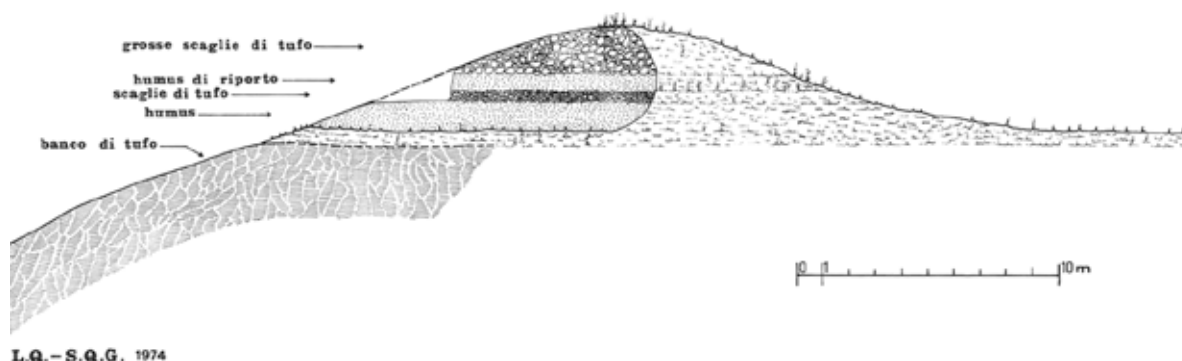
Figure 3.19: *A reconstruction of the 'tumulus' that was spotted in the earliest surveys of the area surrounding Crustumerium. On the basis of the stratigraphy that was visible in a cross-section of the artificial mound the precise construction of the hill could be analysed. The hill of 'Quilici O' was believed to have a similar structure.*

Figure 3.20: *A photo of a cross section of the partially excavated walls to the northwest of the hill of 'Quilici O'.*

Monumental architecture

While settlements such as Crustumerium can be expected to have had ceremonial buildings, such as temples and elite housing, no such structures have been found yet. That they existed at Crustumerium is clear from several, albeit very small and worn, pieces of terracotta belonging to roof decorations found at several spots in the settlement area. Such decorations were introduced in the Orientalising period and widely used to adorn monumental buildings during the Archaic period. Since roof terracottas are made in moulds, only small fragments are needed for one to understand what type of decoration one is dealing with (fig 3.17). One such fragment was found in the southeastern part of the settlement area, where there is also evidence of monumental architecture. The area is marked by a conspicuous hill; commonly referred to as Quilici O (fig 3.18) During the first investigations of the site the hill was interpreted as an artificial *tumulus,* a mound of earth and stone measuring about 5 to 6 m in height and 15-18 m in diameter (fig 3.19). Initially the surface finds noted

by Quilici at this location appeared to be of a regular domestic nature, including *cooking stands*, *dolium* fragments, *ollae* and tiles.

However, in 1989 the then archaeological inspector of the site, Francesco di Gennaro, noted a heap of building material, which had been ploughed out of the top soil of the hill. Among these were many rectangular tuff blocks and fragments of smoothened tuff columns and a hut-shaped cap stone (fig 3.12). In 1996 Amoroso found a tuff block and two fragments of a semi-cylindrical column among the debris. He also reported finding large quantities of more luxurious wares like *impasto rosso* and *bucchero* and a miniature *tazza*. This is therefore an area where we may expect that some kind of ceremonial structure was in place. Subsequent excavation of part of the hill revealed four, more-or-less parallel walls of roughly-hewn dry masonry, oriented southwest/northeast (fig 3.21 and 3.22). The surface of the structure was only partially excavated, but its stratigraphy was investigated in a small cross section where the walls seemed closest to intact. The

ceramics from the trench suggest a date between 650 and 550 BC. Geophysical prospections, a non-invasive method that we will discuss in more detail below, indicated that the walls continue well beyond the excavation limits and are at least 50 m long. The geophysical map also showed the possible remains of stone structures buried by the mound. In 2014 and 2015 the Groningen Institute of Archaeology and the Archaeological Superintendency proceeded with further investigations in the area and found that, to the south of the monumental walls, the mound was composed of a cover of reused tufa stones on top of thick layers of soil mixed with lumps of mudbrick. Here the mound appears to cover parts of the Monte Del Bufalo cemetery. Beneath the metre-thick layers of soil the archaeologists found evidence of Iron Age burials. This particular area needs years of further excavation and detailed study before we will be able to reconstruct the sequence of burial practices and

Figure 3.21: *A ground plan of the parallel walls found to the northwest of 'Quilici O'. The function of the walls, which were probably intentionally buried back in antiquity, is not clear.*

building activities at this particular spot, and understand their context in time and space.

P.A.J.A.; J.F.S.; A.A.; F.d.G.

Key literature
Attema et al. 2014; Barbaro et al. 2013; Jarva et al. 2013.

Figure 3.22: *Technicians from Eastern Atlas performing magnetometric measurements with their custom built cart in the settlement area of Crustumerium.*

Remote sensing and non-invasive prospection

Apart from traditional methods like surveys and excavations, the archaeologist's toolkit is constantly being expanded with new techniques. Nowadays digital methods in particular for discovering and recording archaeology are becoming increasingly important. The most important characteristic of these methods is that, unlike surveys and excavations, they are often non-invasive. This means that when using these techniques no archaeological evidence has to be disturbed to collect research data. Some of the methods even allow the archaeologist to make observations remotely, for example by using aerial (satellite) imagery or laser scans of the Earth's surface (so-called LiDAR data).

The geophysical survey of Crustumerium
Many of the latest discoveries at Crustumerium are due to the introduction of archaeogeophysical survey techniques at the site. Because of the large extension of the original inhabited area magnetometry was chosen as the most appropriate geophysical survey method to start out with. With magnetometry, a magnetometer measures the vertical component of the Earth's magnetic field in nanotesla. In this case undisturbed soil gives a neutral signal, but negative or positive signals are seen as so-called anomalies.

Profilo di resistività 2
distanza (m)

Figure 3.24: *Resistivity profile carried out in the Campo Grande area near Sasso Bianco; the anomaly (rectangle) marks the difference between the tuff bedrock and the loose filling of an area where digging has taken place. As such the anomaly can be interpreted as a tomb.*

Figure 3.23: *The magnometric map of the subsurface of 'Quilici O' clearly shows structural remains buried below the surface. The exact nature and chronology of these obviously human constructions can only be revealed by excavations.*

In these cases the layout of the magnetic particles in the natural geology has been disturbed. This can be caused by natural events like lightning or fire, but it can also be an indication of past digging activities or buried remains. To acquire data, a cart mounted with sensors that are connected to a computer is pulled over the site, measuring the magnetic properties of the subsurface (fig 3.22). The resulting magnetic map shows the differences in geomagnetic properties in great detail in a grayscale image with a dynamic of ±25 nT (nanotesla) with a resolution of 0.25 m x 0.25 m. Detected magnetic anomalies at Crustumerium can be classified into three main classes: anomalies induced by buried archaeology (anthropogenic), geomorphological features (like erosion) or recent debris and disturbances.

As mentioned, at Quilici O three linear magnetic anomalies were detected that appear to form a large rectangular feature of around 40 x 60 m (fig 3.23). The short north-western side of this feature is oriented exactly parallel to and in line with the walls excavated earlier, which in turn have the same orientation as the fossato. The magnetic anomalies

indicate that the walls in question continue about 27 m further to the northeast of the original excavation, matching the width of the whole feature. The long sides of the rectangular feature lie at right angles to the walls and the fossato.

Apart from proving to be an invaluable tool in planning future excavations, the geophysical surveys have proved useful in mapping the geological dynamics of the subsurface within the settlement area. Unfortunately they support hypotheses about heavy erosion and confirm that we should expect post-depositional displacement and destruction of archaeology on large parts of the site.
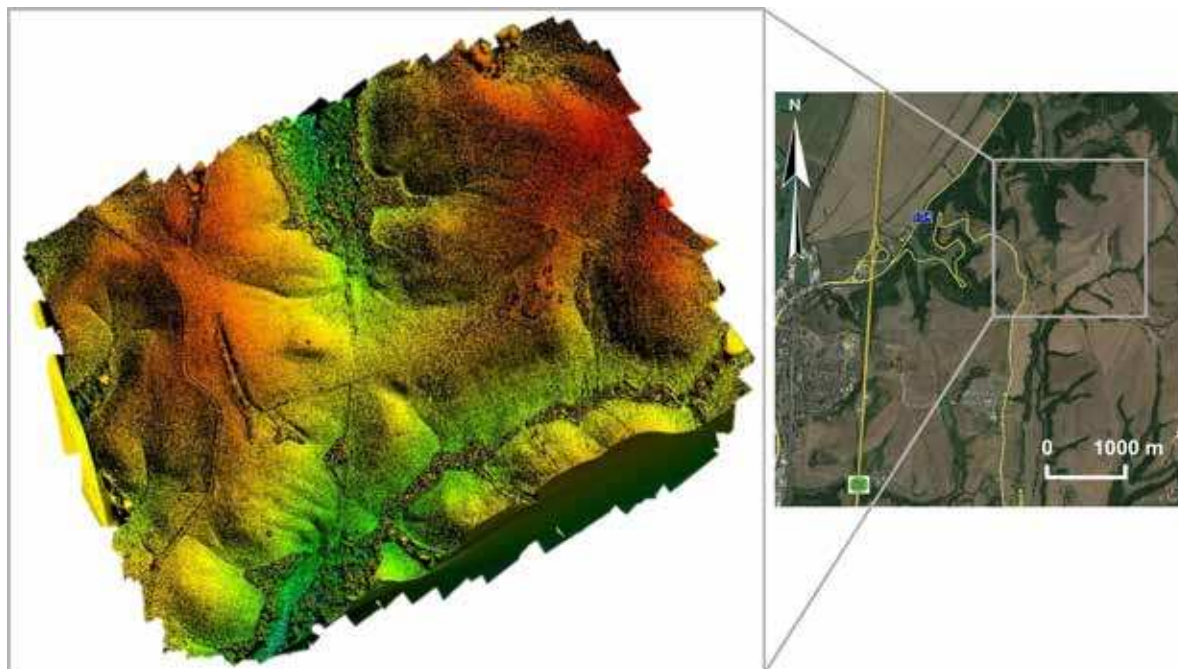
Ground truthing geophysical anomalies

Interesting features appearing in geomagnetic maps, such as linear features (possible roads, ditches, walls) or roundish features (indicative of pits, wells, kilns) may be examined in more detail through additional geophysical techniques, such as ground penetrating georadar or GPR, methods that allow archaeologists to probe deeper into the soil than geomagnetic prospection is able to do (fig 3.24). These are also

Figure 3.25: *The flight equipment used at Crustumerium for landscape coverage is a SenseFly Ebee Parrot UAV with fixed wings. To carry out flights to monitor the archaeological excavations a hexacopter drone (Aibotix X6) was used.*

Figure 3.26: *The drone flights allow archaeologists to create digital elevation models of their study area.*

non-invasive techniques. The problem, however, is that these techniques, while yielding important information, do not provide archaeologists with the means to date the structures that are detected, nor can they give information on structural details, exact form, stratigraphical complexity and so forth. To this end archaeologists remain dependent on invasive techniques such as coring and excavations. Only the latter technique can yield the detail needed to fully understand and interpret a subsurface feature. The great advantage of non-invasive research is, however, that if one detects a number of similar anomalies,

in theory, only one of these has to be excavated for the archaeologists to understand their importance. From the point of heritage management and protection this is a major advantage.

P.A.J.A.; B.U.

Remote sensing using drones

In the previous paragraphs we have already discussed how 'remote sensing' on the basis of aerial photography can help archaeologists to detect archaeology. It is the combination of different remote sensing methods that allows us to distinguish areas with a high probability of finding buried archaeological remains and to obtain information on their probable nature, shape

and depth. By using UAVs (Unmanned Aerial Vehicles) or drones, mounted with a camera, archaeologists are free to choose when and where remote sensing techniques are useful, independently of third party satellite imagery or expensive airplane or helicopter flights. Drones can not only be used to acquire detailed 2D and 3D data from the landscape, but they can also be used to record excavations in 3D. The use of UAV's in archaeology is therefore quite revolutionary.

Drone surveys in Crustumerium are done at the scale of the landscape and at the scale of excavations. While both types of surveys use similar processing techniques the equipment used in both cases is different. In order to carry out an aerial 'photogrammetric' survey of large areas semi-gliding

Figure 3.27: *The photographic data derived from the drone flights can be used to make realistic and life-size 3D models of archaeological excavations. Here we see an excavation of a large cluster of chamber tombs in the Campo Grande burial ground in 3D.*

During the excavation of the tombs at Sasso Bianco photogrammetric surveys with hexacopter drones were also carried out to monitor and document the excavation process. These are devices that are mounted with high resolution cameras, the shots of which can again be used to create 3D data. For excavations 3D data are not only useful for visualisation, but they also allow the archaeologist to carry out real distance measurements of archaeological structures and to obtain information on their shape, dimensions and integrity after the fieldwork is complete. The 3D models can also be used in support of preservation and restoration strategies (fig 3.27). The use of remote sensing enables quick mapping of large areas where archaeological excavations will be carried out, allowing archaeologists to predict the presence of archaeological deposits, as such reducing unexpected 'surprises'. As such, drone flights contribute to the multidisciplinary approach that is much needed to further our knowledge of the conservation status of the often endangered archaeological record of sites such as Crustumerium, in order to protect them.

C.V.; E.F.; N.V.

drones are used (fig 3.25). For monitoring excavations in specific areas a hexacopter drone is used. We briefly discuss the two methods and the devices involved. The semi-gliding drone flies at a height of about 70-80 m and produces data with a 4-5 cm resolution. Prior to the actual flight of the semi-gliding drone a flight plan is elaborated in the computer, so that the chosen area is covered effectively. The flight and the photography are fully automated ensuring the complete coverage of the area of interest. The photos taken by the drone overlap for 70%. This allows them to be fed into specific software, which uses complex algorithms to convert the 2D images into a 3D ground model. In the process reference points of each photograph are placed in 3D space, forming a so-called point cloud, which in turn can be used to compile a 'Digital Elevation Model' (DEM). This procedure has been used to cover the entire area relevant to the research project and to determine the site's morphology in detail (fig 3.26). The orthophoto that can be derived from the 3D-model can be used to measure real distances with high accuracy, while it can also be used for remote sensing, data that can then be compared with existing technical cartography. As a base map for the archaeological spatial information system it is also very useful in order to plan the location and suitable methods of future investigations, for example geophysical surveys, ceramic surveys or excavation.

4 STEALING OR STUDYING THE PAST?

"Cultural heritage is not owned by anyone and it doesn't consist of goods. Cultural heritage is the object of scientific research"

(G.C. Argan, 1973)

Introduction

An archaeological context is like the page of a book about human history that is constantly being re-written. Every time more information becomes available, and as archaeological knowledge increases, parts of the page can be updated and elaborated. The aim of the book as a whole is to describe the life style of our ancestors within the framework of the different cultural and historical periods. The information provided by the stratification of the soil, the structural remains and any kinds of objects collected during the fieldwork mainly reflect actions performed by more or less ordinary people in their daily life, but they fit into the main sequence of events recorded by ancient authors.

The excavation of an archaeological context is always a destructive activity, and therefore needs to be performed according to specific rules. An extremely careful and interdisciplinary approach is necessary in the case of funerary contexts, each of which is unique and provides a precious and fundamental source of information: they make possible the reconstruction not only of the biography of a single individual but also narrate the story of social or family groups. And this is in addition to revealing the cultural and ideological background and development of the communities of which they were part.

At Crustumerium, as in many other archaeological sites, hundreds of tombs have unfortunately been the victims of illegal excavation because of the beautiful grave goods with which they are associated and which are much appreciated by collectors around the world (fig 4.1).

In this chapter we will explain how the activity of tomb robbers has affected our perception of the burial grounds at Crustumerium and describe the scientific approach to the excavation of tombs.
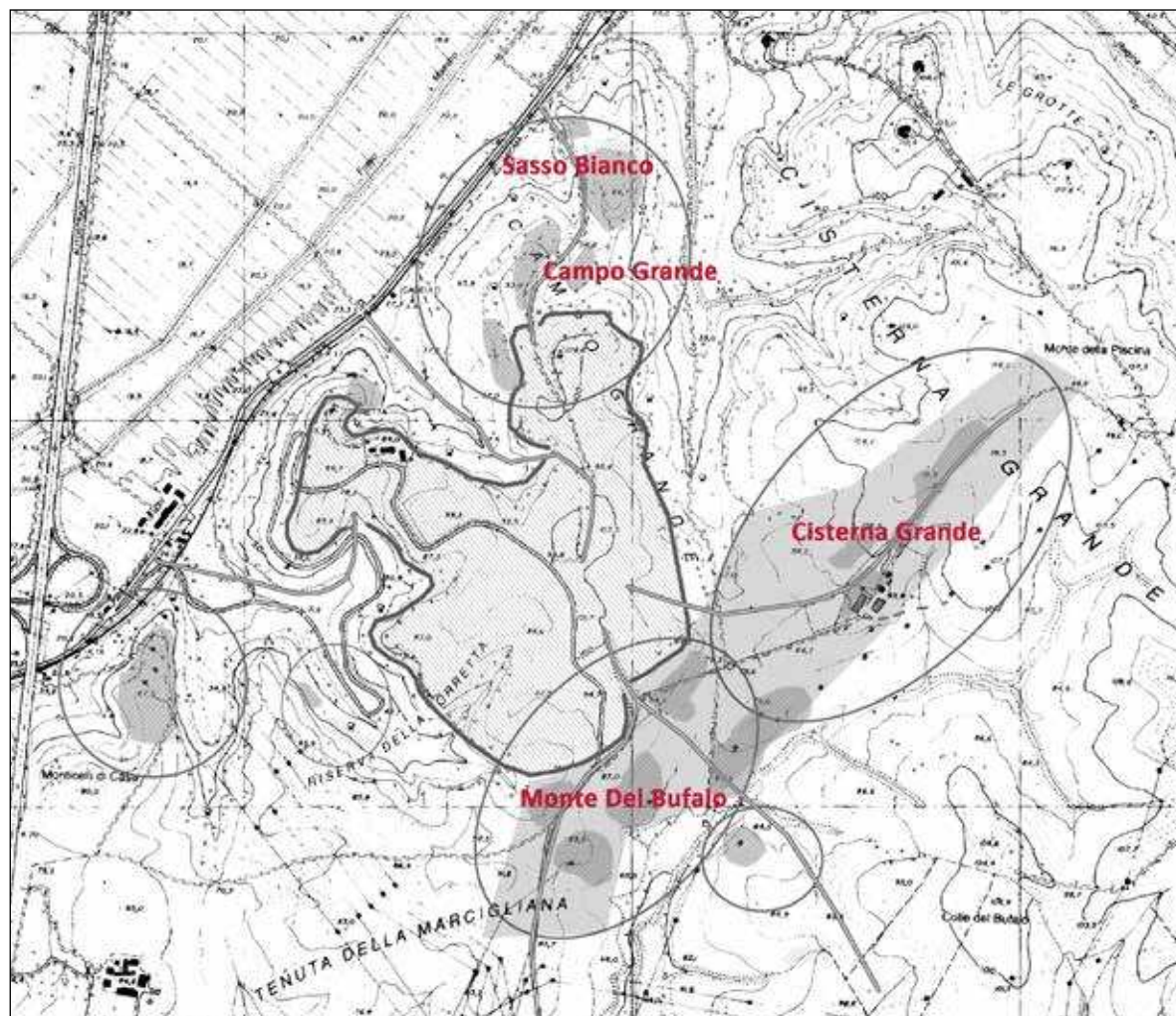
Figure 4.1: *Map of the looted funerary areas around the settlement area of Crustumerium.*

As we will demonstrate in the followings chapters, excavation is just the preliminary step towards the full study of a necropolis, its publication and presentation to the public; the correct and full collection of information, therefore, makes the real difference between stealing and studying the past.

B.B.M.

Looting history and illicit trade in archaeological goods

Art is obviously an important vehicle for financial investments and also useful when recycling the income from other types of trafficking (drugs, weapons) within a closed circuit of fraudulent art dealers and merchants. Italy is a country with a rich cultural heritage and for this reason is the object of thefts of precious materials which benefit countries less gifted with antiquities.

But how does the illicit market work? Individual clandestine diggers who from time to time rob tombs will sell their looted objects to middlemen who are part of well-organised circles that resell the objects to Italian or foreign dealers. There are veritable criminal organisations composed of experts on the market with good knowledge of the archaeological objects. The stolen objects pass from grave robbers through couriers to art dealers and auction houses, up to online sales markets. Such transactions are facilitated by counterfeiters who provide fake certificates of origin and provenance.

The archaeological items of medium to high value are sent to the more profitable international markets, i.e. they leave Italy to be imported into Switzerland, Germany and Austria, from where they are distributed all over the world. There the objects are easier to sell and harder to identify, and will be brought onto the market through auction houses and antique shops, or be offered to collectors and even renowned foreign museums.

Numerous conventions have been signed to combat illicit trade in cultural goods, from the UNESCO Convention of 1954 – for the protection of cultural goods in case of armed conflict – to the UNIDROIT Convention on stolen or illegally exported cultural objects of 1995, but these are international agreements that define the standards and they must be ratified and converted into national legislation to have the force of law.

In Italy there is a strict procedure to be followed concerning the movement of cultural objects, regulated by the Code of the Cultural Heritage and Landscape of 2004, but other countries, such as the United Kingdom, Switzerland, China, the US, Japan and Russia, have less stringent laws.

Italy has signed international relations and bilateral agreements in order to prevent the illegal export and encourage the return of any stolen works, but it is an arduous struggle, also because the illegal market is subject to rapid fluctuation: with the increasing use of the internet we are witnessing a genuine transformation of traditional commercial dynamics also in the illicit trade in cultural goods: e-commerce, for example, is a market that is likely to remain beyond control since the handler of an online marketplace does not mediate between sellers and buyers, but simply provides facilities for meeting supply and demand in a global market.

Even the European Commission is facing various aspects of trafficking in cultural goods such as lack of terminological consistency and legal definitions among the range of EU languages and of a coherent legislation among member states; the Commission also works to strengthen the legislative framework in collaboration with UNESCO, Interpol, Icom (International Council of Museums) and the World Customs Organisation, even considering that article 6 of the TFUE (Treaty on the Functioning of the European Union) provides for the repatriation of illegally obtained cultural artefacts.

Just to give an idea of the vastness of the problem we present two examples of recent seizures carried out by the Italian Police. Firstly, in *Operation Andromeda* in Geneva, in 2010, 337 archaeological artefacts, with a total value of 15 million euro, which had been stolen between the years 1970 and 1990 were found ready to be placed on the Japanese market. In the second case, the *Teseo Investigation* 2015 –in collaboration with the FBI- 5,361 archaeological objects worth 50 million euro were seised on the premises of the art dealer Becchina in Basel.

This illegal trade has devastated and continues to despoil the necropoleis and sanctuaries of Lazio, Campania, Calabria and Puglia. What about Crustumerium?

In the publication on Crustumerium by Lorenzo Quilici and Stefania Quilici Gigli, which appeared in 1980 but reported on fieldwork carried out a few years earlier, illicit excavation by *tombaroli* (tomb robbers) was only mentioned in passing. Indeed it seems that illegal excavation was rare until the end of the 1970s. Farmers recall only small-scale excavations and we know of occasional finds in the possession of landowners from tombs with metal weapons which had been disturbed by ploughing. There are no funerary monuments documented in the publication of Quilici and Quilici Gigli and neither does their work contain explicit testimonies of illegal excavation, not even briefly mentioned.

The relative immunity from looting was partly due to the strict control the landowner Duke Massimiliano Grazioli exercised over his estate until the moment of his kidnapping (1977), sadly followed by his assassination despite the fact that a ransom had been paid. The hypothesis that the burial grounds of Crustumerium were still more or less intact in the 1970s is consistent with the absence of archaeological objects typical of Crustumerium on the antiquities market before the 1980s. However, shortly after the publication of the volume by Quilici

A

B

C
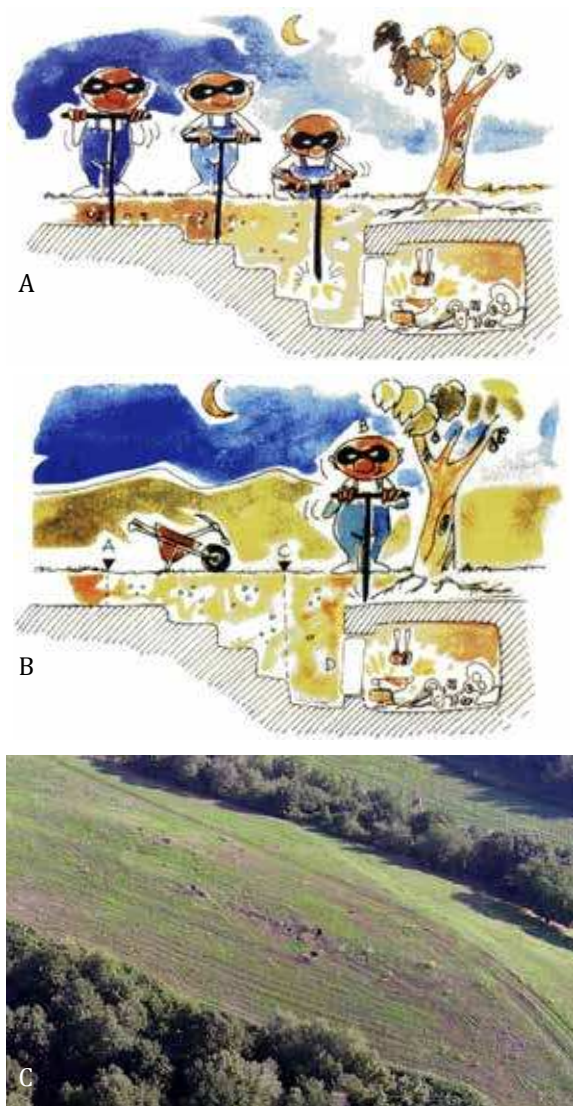
Figure 4.2: *A-B: An illustration showing how tomb robbers detect subsurface tombs and know exactly where to dig. 4.2C: Tombaroli pits on the burial grounds of Crustumerium as visible from the sky.*

and Quilici Gigli, though in no respect the cause of the lamentable development, the illegal excavations by *tombaroli* increased, especially in the Sasso Bianco area and in the strip of land called Campo Grande that is located in between a still visible landslide and the hill of Sasso Bianco.

Tombaroli work mainly at night, or during the winter when digging is easier due to the damp soil. They use a special iron tool, a so-called *spiedo* or *spillo*, a very long metal rod provided with a handle that allows them to pierce through the top-soil, down to bedrock level. Probing the bedrock, they manage to detect the outlines of a tomb, its perimeter, orientation and sometimes depth. They know that any tomb treasures are placed on the north side of the tombs as past ritual prescribed, and this is the key to their success. Going by the orientation of the tomb, they dig a hole on the northern side, down to the bottom of the tomb, break the stones which close it and steal the pottery (fig 4.2A-C).

In 1987, the Superintendency of Rome started excavating the necropolis in two areas with remarkable success; in the Sasso Bianco area the initiative led to the temporary interruption of the looting of tombs and in the burial ground of Monte Del Bufalo it led to the discovery and excavation of a number of intact tombs. These appeared to be part of a large, well-preserved burial ground. Until 1987, this area had yielded only a few occasional finds (as reported by the British School at Rome in 1968) and had remained free from professional *tombaroli*. Most unfortunately no new excavations could be funded by the Superintendency between 1987 and the mid-1990s and the excavations, begun with a modest number of circa 10 tombs, were now continued on a much larger and truly disrupting scale by *tombaroli*, not only from towns on the other bank of the Tiber

(Fiano, Trevignano Romano and others) but also from Rome itself and from nearby Monterotondo.

The looting of the vast burial ground of Marcigliano on the western perimeter of Crustumerium was not disturbed, since it was located in an uninhabited area only accessible by means of narrow paths coming from various directions and therefore impossible to monitor using cars. So far regular excavations have not been carried out in this area and the exact damage to the burial ground is not known. It must be realised that despite the information we can still obtain from the burial grounds, the intense activity of *tombaroli* at Crustumerium has not only led to the loss of objects but also affects our interpretation of the burial record. At Monte Del Bufalo, up to 50% of the tombs of each group of tombs have been robbed while the percentage of the damaged tombs is even higher on the northern side of the settlement, at Campo Grande and Sasso Bianco, where the burial areas are surrounded by woods and can easily be reached on foot from the modern via Salaria.

And indeed, in the 1980s archaeological objects from Crustumerium started to appear in antique shops in the United States. An important confiscation by the Carabinieri concerned a group of vases put up for sale by antiquities dealers in New York, which on the basis of typological characteristics could be retraced to the burial grounds of Crustumerium. In Switzerland, a private collector published his collection of objects looted in Italy, among which were objects typologically traceable to Crustumerium, which he entrusted for study to academic researchers. But countermeasures were taken; in 2005, operations conducted in Italy and abroad by a special police force resulted in the confiscation of large stocks of artefacts brought together by dealers in Geneva and London. These interventions reduced the looting carried out

Figure 4.3: *Offer of a tazza that is very likely to be from Crustumerium (because of the characteristic spiked handles) for 'self restauration'.*

by bands of professional criminals and proved them vulnerable once serious institutional action was taken.

At the same time the operations brought to light an unprecedented specialisation on the foreign market: certain buyers would acquire fragmented materials at low cost in order to teach their clientele how to restore the object, which they then would buy (Operation Mozart at Linz in Austria, fig 4.3). In this way, from about 1980, materials stolen from Crustumerium ended up on the antiquities market all over the world. The vases are easy to identify thanks to the typical configuration of the handles of amphorae and cups (furnished with particularly protruding spikes, fig 4.4) and the unique character of a number of vase types, such as the bowl decorated with incisions on the exterior of its base (the so-called "scodella crustumina").

The acquisition in 1998 by the Ministry of Culture of a large farm house with outbuildings (the

Figure 4.4: *Catalogue of a private collection. A page with an anforetta laziale attributed to "CRUSTERIUM", with only erroneous information.*

fattoria of Cisterna Grande) in the area of one of the burial grounds, now facilitates close, permanent surveillance of the area, although achieving definite success in preventing illicit excavation is unlikely since the looting activities predominantly take place at night and, because of the isolation of certain areas of the necropolis, even in broad daylight. In recent years, the control over the territory has improved, now that a guard authorised by the Soprintendenza is permanently housed in the Cisterna Grande farm, while the resumption of annual excavations, in collaboration with the Groningen Institute of Archaeology of the University of Groningen, appears to have 'disturbed' the clandestine diggers. Probably the scientific collaboration and joint activities of international research along with a policy

Figure 4.5: *An anforetta from Crustumerium with "legal" status traded by a major auction house from Florence.*
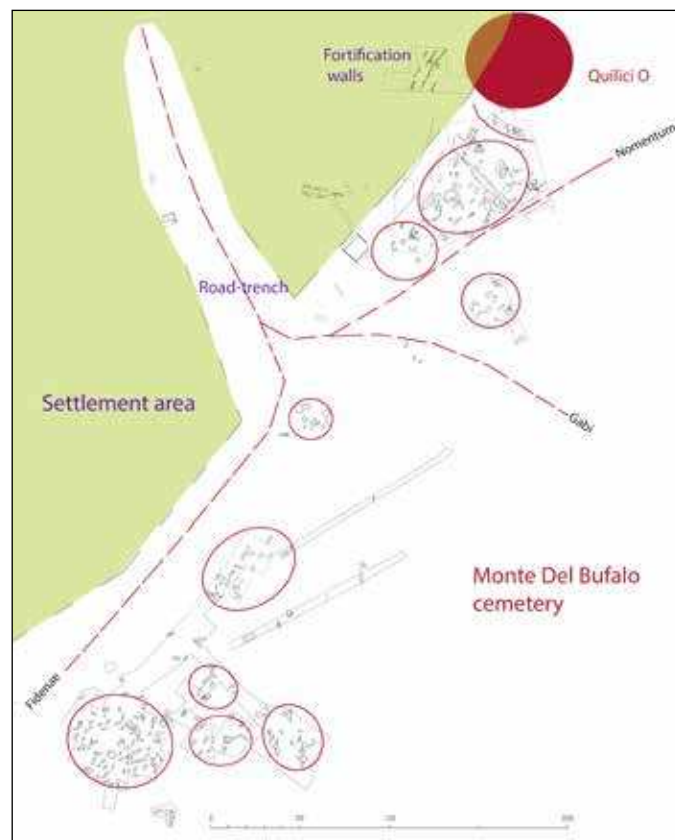
of long-term loans to foreign museums will prove a useful way of containing the problem.

F.d.G.; P.F.

Key literature
Aichmeir 1998; Conforti 2001; di Gennaro 1988, 2001, 2001a; Guglielmino 1997; Isman 2009.

Figure 4.6: *Map of the excavated areas of the Monte Del Bufalo cemetery.*

The monitoring of private collections by law

The constant monitoring of international auctions of archaeological works of fine and applied art is one of the institutional duties of the Ministry of Cultural Heritage. It is aimed at preventing or at least hindering the illegal trade in archaeological goods, which is stimulated by the considerable demands of collectors around the world. For this purpose

in November 2012 the Special Superintendency of Rome checked an amphora auctioned by a major Italian auction house in Florence (fig 4.5).

As properly indicated on the catalogue, the artefact belongs to the well-known class of "Latial-amphoras"; the spiked handles, though, are typical of exemplars which are mostly documented at Crustumerium and are also attested in the nearby sites of Nomentum and Fidenae. The auction house provided documents that attested the legitimated property of the object, origin and compliance with current Italian legislation. In spite of this, the object may be part of the dispersed material from the illegal excavations conducted at Crustumerium.

The Superintendency used the only possible available procedure: "a notification of meaningful archaeological interest". The notification, imposed according to article 10 of the Legislative Decree 42/2004, obliges any subsequent owner to preserve the artefact in a safe environment, to inform the Superintendency of any possible change of ownership and to request authorisation for any action regarding the object such as change of address, even temporarily, including display in exhibitions or temporary absence from the country for cultural events.

Current legislation also prescribes that objects that are under a decree of constraint, are excluded from inheritance taxes, can benefit from the contributions for the restoration and be handed over to the State as direct or inheritance tax.

A.Ma.

Multidisciplinary scientific approach to funerary archaeology

In contrast to illicit excavation which illegally removes objects from their context, archaeologists aim at full documentation of their excavations to allow for an interpretation of the objects in the context of the tomb in which they were found, of the buried individual(s) in it and of the funerary ritual in which these objects played a role. As we will see, full documentation requires a multidisciplinary approach involving many specialists. Moreover the study of the spatial distribution of tombs over time within a burial ground and the changes in tomb architecture and tomb content may furnish important information on changes in social structure. In this section we will present the burial grounds of Crustumerium and their development through time. Also we will provide information on the methods of excavation and documentation of the tombs and their contents, and the way the skeletal remains are excavated and studied. Then we will go into the specific method of the so-called block-lift that involves the cutting loose and transport of complex and delicate funerary contexts to the laboratory for further investigation.

The best information we have on the characteristics and the diachronic development of the burial grounds derives from the studies of the Monte Del Bufalo cemetery (fig 4.6). This burial ground has been extensively investigated during the last two decades by archaeologists of international research institutes. It extends along the southern slope of the urban plateau immediately outside the defensive *fossato* and was exploited from the earliest phase of habitation up to the abandonment of Crustumerium. Here we find hundreds of tombs arranged in large clusters separated by empty strips of land. However, not all the zones were equally densely exploited and not all show a comparable development. By studying the changing spatial distribution of the tombs over time, the changes in tomb architecture, the

Figure 4.7: *Schematic map of the northeastern district of Monte Del Bufalo. In yellow one can see the chamber tombs inserted into pre-existing burial areas.*

grave inventories and the skeletal remains we may acquire insight into aspects of social development in the settlement. At first, individual tombs with identical orientation were distributed in rows, but during the 7th century BC we can distinguish the clustering of individual tombs in small groups that appear to stress kinship relations and possibly the emergence of *gentes* (family groups). This process

Figure 4.8: *Example of tombs which have been constructed very close to each other. During excavation we can note that the conservation of the tombs is very poor due to erosion (often only the lowest part of the originally deep tomb remains).*

culminates in the adoption of chamber tombs around 630-620 BC in which several generations may be buried. We find these tombs often 'inserted' into pre-existing groups (fig 4.7).

The close packing of tombs in small familiar groups suggests that a cadastral division of the burial ground into lots was adopted at an early stage in order to exploit the available space in an efficient way. Our view of the burial ground is however influenced by the uneven effects of erosion and ploughing which have levelled the original surface of the ground and badly affected the preservation of those tombs closest to the surface and may even have destroyed them (fig 4.8).

Fortunately, the on-going investigation of the northeastern district of Monte Del Bufalo (so-called

Figure 4.9: *Removal of top soil by a shovel. In the background, the Casale of Cisterna Grande.*

site Quilici O) will provide extraordinary information about the original funerary landscape: here, at the end of the 6th century BC, a huge artificial hill of clay and mudbricks in the shape of a monumental tumulus, covered with tufa stone debris, was erected, sealing and protecting a substantial sector of the cemetery. Whatever the possible secondary function of this tumulus, which extends next to the fortification walls, it is conceivable that the original reason for its creation was ritual and meant to safeguard the memory of the family groups buried in this part of the Monte Del Bufalo burial ground (fig 3.18 and 3.19).

The evidence provided by the Monte Del Bufalo cemetery is not comparable with the patterns of other burial grounds at Crustumerium. On the northern side of the settlement, the burial grounds of Sasso Bianco and Campo Grande show a much

Figure 4.10: *The images show the successive steps of the excavation of Tomb MDB 365 (from left to right).*

higher concentration and intersection of family chamber tombs, which are featured by peculiar architectural details such as the extremely long dromoi (see below). On the basis of current information, the burial ground that developed along the *trincea viaria* only contained infant burials.

The choice for specific tomb models and rituals that we encounter in the various burial grounds, briefly described in Chapter 6, reflects different habits and differences in social status of the family groups to which they belong. Therefore, the cemeteries constitute a precious source of information for the reconstruction of social characteristics and development of the community living in the settlement. However, each tomb is unique and endowed with an extraordinary information potential, which needs to be harvested through proper excavation procedures.

In contrast to illicit excavations by *tombaroli*, an archaeological excavation takes the whole context into account, and excavates it according to a strict methodology. An excavation will start with removing the top soil with shovels, bringing the bedrock to light (fig 4.9). Once cleaned, the outlines of the tombs will be visible to the trained eye and the documentation of the distribution of tombs over the cleaned area can start. First of all, the tombs will be mapped with a Total Station (a digital measuring instrument). In some cases the position of the tombs is already known, thanks to preliminary geophysical investigation (see Chapter 3). The excavation of each tomb needs to be carefully conducted in order to collect reliable information and to be able to provide a correct interpretation of the context. Because of this, specialists in different disciplines (archaeologists, anthropologists, geo-scientists, restorers and draftsmen) are involved in the fieldwork and operate side by side.

Figure 4.11: *Evidence of a tombaroli pit (the darker spot with loose soil) as seen from the top when revealing a tomb.*

The excavation is aimed at reconstructing the sequence of actions that were performed in ancient times (the digging of the tomb, the deposition of the body and the performance of related ritual actions, the closing up of the depositional space and finally the progressive filling) as well as all the post-depositional events that may have occurred and affected the preservation of the context (fig 4.10). First of all, the decay of the body, the coffin and any other perishable materials leads to an alteration of the original spatial configuration of the deposition, a change that needs to be correctly interpreted by the anthropologist in the field. In hollow spaces (such as *loculi*, niches and chambers) the poor quality of the local bedrock may have caused a collapse of the ceiling, the fall of stones covering it and a consequent flooding of the tomb, leading to shifting and decay of grave contents and of human remains. The disturbance by *tombaroli* would of course be the most recent event

that affects archaeology, but it is also the first one to be noticed during excavation (fig 4.11).

How much of its story a specific tomb can tell us depends on the quantity of information collected in the field. The compilation of a pit diary, which includes a description and sketches of archaeological evidence during the consecutive steps of the excavation, the daily activity of the team and the weather conditions, constitute an "old-fashioned" but still effective way of keeping track of field work. Printed forms are used to draw lists of the documentation (drawings, photographs) and the finds, but also to register specific information about the stratigraphical sequence, the skeletal remains and the architectural features of every funerary context.

Every step of the excavation is fully documented in 2D and 3D, integrating different methods (pencil drawings; hand and Total Station measurements; laser-scanning and photo modelling) in order to meet the demands of what we today call funerary or mortuary studies in archaeology. These include the full study and publication of the context and ideally should allow for its virtual reconstruction.

B.B.M.

Activities by the SS-Col in areas under threat of clandestine excavation (2014-2015)

The territory of ancient Crustumerium is monitored continuously for clandestine activity by the Superintendency. In 2013 signs of a renewed increase in illegal excavations were noted, particularly in the northeastern burial ground in Campo Grande. In this area, characterised by woodland alternating with strips of agricultural land, pits and disturbances caused by illicit excavations were recognised. Supported by a special fund the Superintendency
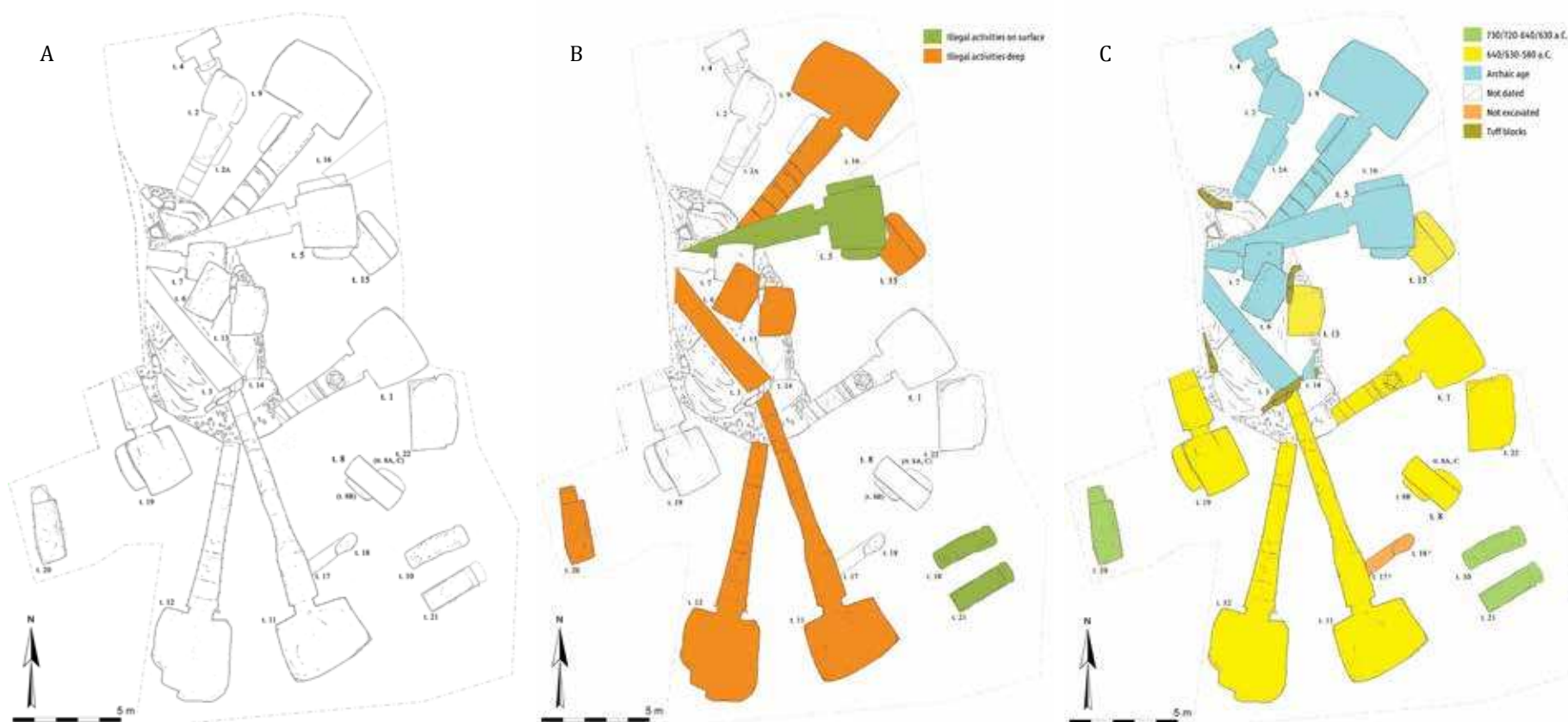
could start excavating untouched burials from 2014 onwards and, especially during the summer of 2015, many tombs could be saved from looting. The tombs and their ceramic and metal grave goods add important data to our knowledge of the burial grounds of Crustumerium.

The damage that illegal activities cause is considerable, not only in terms of the depletion and dispersal of Italian archaeological heritage but also because the theft of (part of) the funerary contents from tombs prevents archaeologists from fully understanding the mortuary context. The original associations between different types of objects serve as precise chronological indicators and are directly connected with the gender and social status of the individual buried. The damage thus also consists of the loss of data we need for the reconstruction of the development of the burial ground and the social development of the Crustumina population.

The area explored in Campo Grande near Sasso Bianco has an extension of about 480 square metres, which became gradually but fully occupied with an arrangement of tombs between the late 8th century BC and the mid-6h century BC. Because the pattern of burials becomes denser over time, the space was probably divided into planned and spatially delimited burial plots (fig 4.12A).

Of the twenty-five graves identified, eleven had been desecrated (fig 4.12B). Fortunately most of the tomb robber's work was left unfinished, because of the difficulty in working at great depths, especially when time was limited. The oldest tomb is a simple pit grave of a warrior which contained a volute sword, a scabbard covered in bronze and a *balteo* (girdle) decorated with discs. This tomb suggests a starting date for the burial ground in the late 8th century BC. Another deposition in an open *loculus*,

A

B

Illegal activities on surface
Illegal activities deep

C

730/720-645/630 a.C.
645/630-580 a.C.
Archaic age
Not dated
Not excavated
Tuff blocks

N

N

N

5 m

5 m

5 m

Figure 4.12A-C: *Images showing a topographic map, with relevant archaeological information, created from digital measurements during excavations on the Campo Grande burial ground.*

dating to the mid-7th - early 6th century BC, yielded funerary equipment which included two imported objects (box). In the burial ground both pit graves with a head niche as well as tombs with lateral niches are attested. In the mid-7th century BC the chamber tomb was introduced. In the tombs of the Archaic period secondary depositions are placed either inside *loculi*, frequently closed off by tiles, or in the *dromos* (the entrance way to the burial chamber)(fig 4.12C).

The spread of sumptuary laws, as is well-known, caused a reduction in the number of objects deposited in tombs, a phenomenon well-attested in this burial ground from the late 7th century BC onwards until the middle of the 6th century BC.

For now the formal excavation of this specific area has been backfilled, but the investigations continue as we write. New excavations have allowed us to document and rescue the grave goods from Tomb CG 19, from which so far over seventy objects have

been retrieved. The quality and quantity of the valuable objects that have thus been safeguarded from looting, emphasise the importance of the widespread, intensive archaeological protection of the ancient territory of Crustumerium and the collaboration of the police, patrolling and overflying the area. In this way clandestine digging can be monitored and mapped in its entirety, hopefully aiding its future prevention.

A.D.N.; P.F.

The excavation carried out by the SS-Col in the area of the Campo Grande/Sasso Bianco burial ground has led to the discovery of some intact contexts, including Tomb 19. Among the grave goods found, dated between the late 7ᵗʰ century and Early Archaic period, two decorated objects stand out. The first is an *alabastron* from Corinth, decorated with a winged panther and the second is a trilobate *oinochoe* decorated with three bands of processions of animals. We can assume that vessels imported from elsewhere were of considerable value in antiquity and that they reflect the status of the deceased. The *oinochoe* from this context is of special note because it was probably made on commission in the Etruscan town of Vulci in imitation of Corinthian pottery.

A.D.N.

Digital documentation techniques

Acquiring georeferenced maps

The sciences of topography and cartography have undergone an important development in recent years, and the constantly increasing possibilities of modern geomatics offer many new surveying applications. Specifically in the field of archeology we must operate in a broad territorial context, adopting a multidisciplinary and multi-scale approach, starting from the scale of the landscape, for example considering the characteristics of the terrain, and bringing the focus down to individual archaeological contexts as small as a tomb. To perform this task various instruments must be used and different frames of reference have to coexist and be integrated in a final cartographical product. The first step is usually the definition of landmarks or a framing grid in the area of interest in order to achieve the absolute geo-referencing of the site. This means that the measurements have to be placed in a real-world coordinate system, also ensuring that the data can be easily shared between different researchers. Accurate GPS (Global Positioning System) measurements are of course of vital importance for modern fieldwork and allow us to create a morphological description of the area and the spatial properties of the structures. This becomes especially powerful in combination with other techniques, such as classical topographic surveys with Total Station and photogrammetry at low altitude. In Crustumerium, after establishing points with known coordinates we normally proceed with recording excavated areas using Total Station, subsequently catching a detailed traditional graphic relief in real and very precise 3D measurements. The data consists of points that can be processed with a variety

Figure 4.13: *A digital photogrammetric image of an excavated tomb.*

of programs or in geographical information systems (GIS), allowing visualisations and exported imagery in many different file formats with the addition of relevant archaeological information (fig 4.12).

P.F.; M.S.

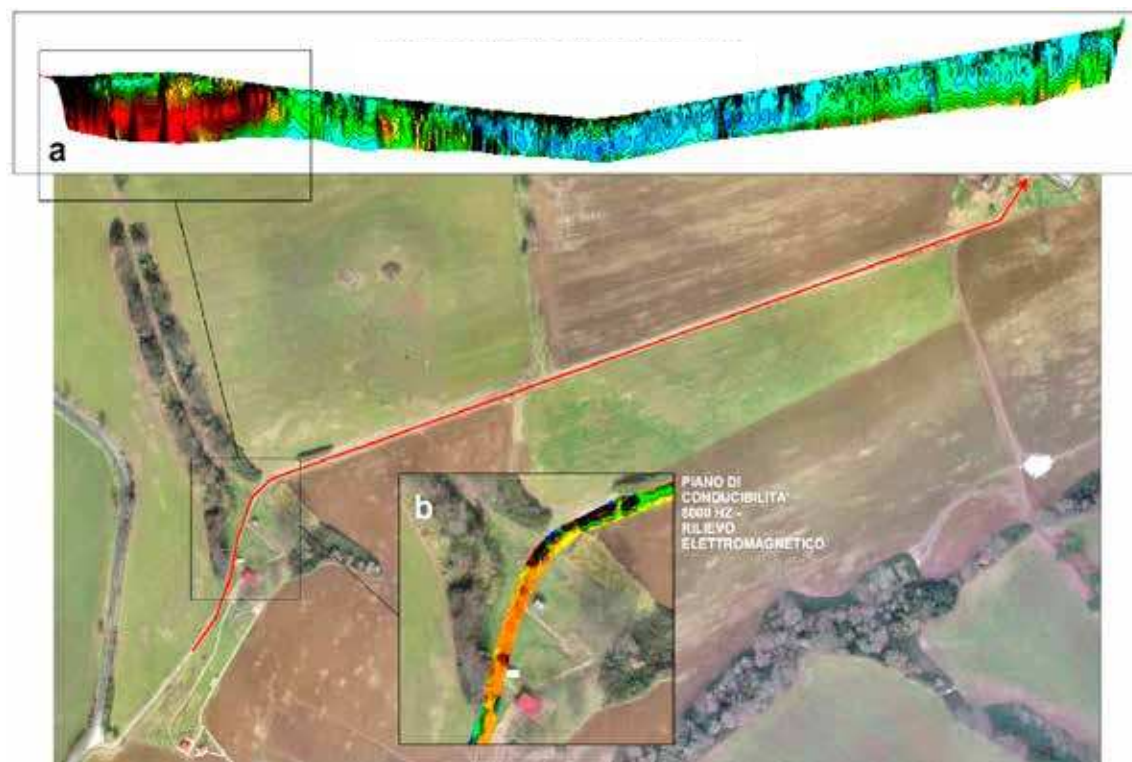### Examples of non-invasive prospection in Crustumerium

The future of the detailed and live documentation in the field of cultural heritage lies in a multidisciplinary approach. Using the combination of data acquired with different techniques (photogrammetry, laser scanning, GPS, remote sensing) in a single reference system, allows us to record and understand each object of interest in itself and in its original context.

Figure 4.14: *A high resolution orthophoto of the Monte Del Bufalo area acquired with a drone.*

Figure 4.15: *A resistivity profile measured alongside the gravel road on the site of Crustumerium.*

The technique of photogrammetry, explained at the end of Chapter 3, alone or used in combination with laser scanning, is an important tool for the study and structural analysis of archaeology post-excavation. Its products, such as orthophotos, three-dimensional vector restitution and Digital Surface Models, combine accurate metric information with a photographic coverage of high quality (fig 4.13). Other techniques like terrestrial laser scanning are also emerging and create spatial data with a very high density of three-dimensional information.

Starting from metric data like this, 3D modelling can be used for the further creation and elaboration of a virtual model in three dimensions, which can be used on a computer interactively. It is used for archaeological reconstructions with high precision, with a faithful reproduction of details in order to be of value for researchers and for cultural heritage management, up to its application in virtual museums and tourism.

As part of the program of non-invasive research of Crustumerium high-resolution aerial photos were obtained from drone flights in 2015, aimed at the mapping of the entire study area and providing terrain elevation data of high detail. The flights, carried out at an average altitude of 130 m over an area of about 200 hectares, allowed the realisation of an orthophoto, particularly helpful for identifying areas in which to focus subsequent indirect (geophysical) and direct (archaeological excavations) investigations (fig 4.14).

This work was useful, for example in identifying the extent of the southern area of the necropolis of
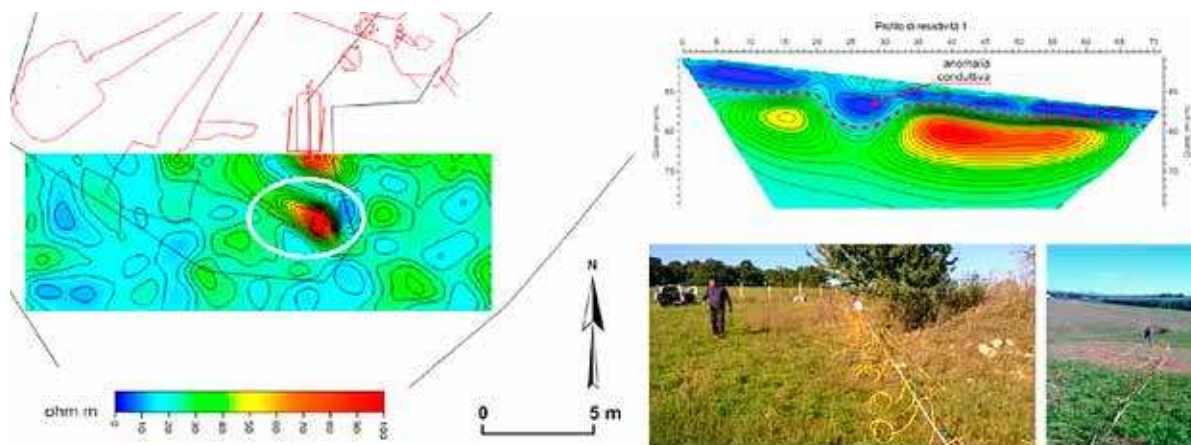
Figure 4.16: *Resistivity measurements of the subsurface of Sasso Bianco (left) and Quilici O (right).*

Figure 4.17: *The excavation of Tomb MDB 365.*

Monte Del Bufalo – as you may notice, the tombs of the burial ground are perfectly discernible as pale soil marks – and to choose where to position archaeological excavations.

Another example of the successful application of non-invasive techniques is the electromagnetic measuring conducted along the road leading to Casale di Cisterna Grande for a length of about 820 m (fig 4.15). In this case the work was done in preparation for the excavation of a long trench that had to be dug to construct a drinking water pipeline to the casale. The vertical profile was elaborated with a 2D electrical imaging survey, which helped to confirm the results of the electromagnetic relief and to acquire more detail.

The two surveys have enabled us identify several anomalies in the subsurface, which could be recognised as tombs and a probable deepened road. Having this knowledge allowed us to proceed safely with the excavation of the trench.

Similarly in the area of Campo Grande near Sasso Bianco, the tomographic survey has allowed us to identify many tombs (fig 4.16) and has enabled us to conduct an excavation of part of the necropolis while already knowing the exact location, dimensions and depth of the features. Here too, aerial surveys were performed to document the progress of the excavation and the recovery of artefacts (here a hexacopter drone model Aibotix X6 was used).

This airborne system has proven to be immensely valuable for the speed and accuracy of the documentation and the 3D models generated from it, which are navigable and measurable. Also, during analysis and interpretation the data allows a large range of products to be derived from it, for example a wide variety of 2D photographic perspectives, orthophotos, sections of profiles, textured patterns, vector surveys and so on.

P.F.; C.V.

Osteological analysis

Bioarchaeological studies are fundamental for the reconstruction of the lifestyle and health conditions of ancient populations and they represent a valuable approach to comprehending the interactions that have taken place between humans and their environment over time. At Crustumerium, the Servizio di Antropologia della Soprintendenza Archeologica has systematically collected a large quantity of data. Integrated with the data deriving from the subsequent in-depth investigations in the lab, it permits the delineation of the biological panorama represented by the sample of the population that has been recovered, yielding useful elements for understanding the bio-demographical and social processes taking place in the period between the 8th and the 6th century BC. In addition, the anthropological

Figure 4.18: *Crustumerium, Tomb MDB 349. Evidence of a tree-trunk housing the deposition.*

Figure 4.19: *Crustumerium, Tomb MDB 358. The skeleton shows a transversal compression, probably due to a sudarium (shroud) wrapping the body.*

analysis provides a worthwhile contribution to the understanding of the funerary rituals.

The anthropological analysis of a burial must begin "in the field", during excavation (fig 4.17). The discipline of taphonomy is often used in bio-archaeological analysis in order to reconstruct the natural processes (such as sediment pressure, soil chemistry, and bioturbation) and human-induced actions (such as ritual selection or movement of bones) that have affected human remains from the time of burial to the moment of excavation. It is crucial to examine accurately the position of each element of the skeleton and to carefully register the state of articulation in each joint. By doing so, it is possible to determine whether one is dealing with a primary deposition (the inhumation of a corpse, immediately after death, which happened at the location of the ultimate deposition), or with a secondary deposition (the burial took place at two or more moments: the discovery of the skeleton, which represents its ultimate deposition happened at a different location from the one where the decomposition of the body took place). It is also possible to establish the prospective presence of perishable funerary structures, and to determine whether the decomposition happened in an empty or occupied space (fig 4.18 and 4.19).

Besides the collection of taphonomic data, it is also important to estimate the demographic information of the interred individuals. Determination of the sex, estimation of age at death, stature and pathological conditions should be conducted in the field as well as in the lab in order to maximise data collection (fig 4.20). The fragility of the human remains can lead to a loss of information if the physical anthropologist only makes observations after the actual recovery. Unfortunately, at

Figure 4.20: *Analysis of human remains in the laboratory.*

Crustumerium the generally poor state of preservation of the anthropological remains limits the research possibilities. However, some interesting results have been obtained by applying the methodology briefly illustrated here.

Determination of sex

The skeletal elements used for determination of sex are the pelvis and cranium. Typically, males exhibit more robust cranial traits, while females exhibit more gracile characteristics. The pelvis of the female is morphologically different from the male in order to facilitate pregnancy and childbirth. Therefore, each skeletal trait associated with sexual dimorphism is recorded and an overall determination of an individual's sex is achieved. However, for some individuals, it proved impossible to determine sex, because of the fragmented and incomplete state of the human remains.

Estimation of the age at death

Estimating adult age at death is a difficult task since after humans reach skeletal adulthood their skeletons do not undergo major changes. Therefore, the methodology for estimating adult age at death focuses on skeletal changes based on the deterioration of the skeletal elements and teeth over time. At Crustumerium, age at death was estimated by studying the degree of dental wear, a method which is based on the fact that the teeth wear down with advancing age. The estimation of the age at death for sub-adult individuals (people who died at an age of less than approximately 20 years old), is determined by means of the state of the fusion in the growth plates (epiphyseal closure) of the bones. As children grow, their bones are not fully formed to allow for the rapid growth and the fusion of the growth plates occurs at specific times in a child's life. The timing of these fusions allows physical anthropologists to estimate age at death based on the degree of closure of the growth plates at death. Likewise, dental eruption rates, or the moment that baby (milk) teeth erupt through the gums and are eventually replaced with adult (permanent) teeth occurs at specific times in the child's life and estimating the development of the teeth in sub-adults is a fairly accurate method for estimating age at death.

Osteometry

The estimation of the stature is calculated by obtaining measurements of the skeletal remains according to codified criteria. This information is useful for the reconstruction of the physical constitution of an individual. This parameter can be influenced by many different factors: environmental, hereditary, geographical, social and economic.

Where possible, we have used regression equations that allow for the estimation of the stature of an individual based on the length of the limb bones.

Dental pathology

The study of dental pathologies is very important in the anthropological field because it allows physical anthropologists to reconstruct and understand health and foodways of earlier peoples. At Crustumerium, anthropologists have documented the presence of caries, periodontal disease, calculus, *intra vitam* tooth loss (during one's lifetime), and general wear.

P.C.; W.B.P.

Key literature

Acsádi & Nemeskéri 1970; Brothwell 1965; Bruzek 2002; Duday et al. 2009; Ferembach et al. 1977-79; Krogman & Iscan 1986; Lovejoy 1985; Minozzi & Canci 2015; Martin & Saller 1957-1966; Stloukal & Hanakova 1978; Ubelaker 1989; Sjøvold 1990; Trotter & Gloser 1952, 1977.

The biological features of a pre-Roman population and its demographic trends

Many of the skeletal remains from the tombs of Crustumerium have suffered from poor conservation conditions, as a result of which the structural integrity of the bones has been compromised. Even so, it has proved possible to obtain interesting data about the population of Crustumerium through the study of the skeletal remains. For example, we can observe that the burial grounds investigated up until now contain mostly graves of adult individuals and consequently non-adults seem underrepresented. The population, consisting of 259 individuals so
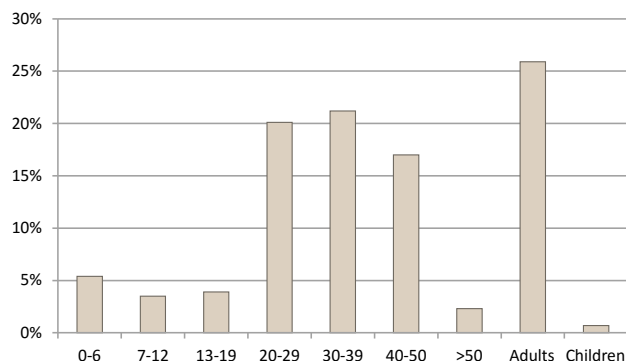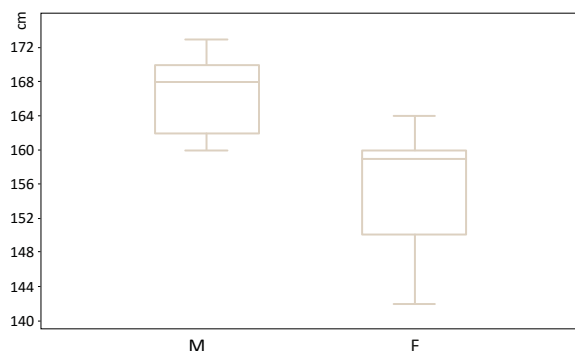
Figure 4.21: *Distribution graph of age at death.*
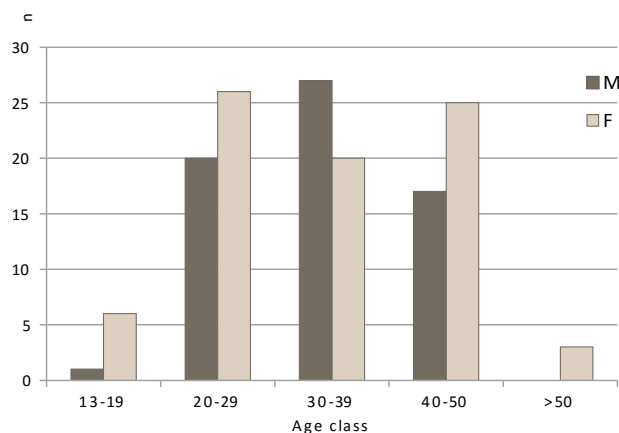
Figure 4.22: *Distribution graph of age class per gender.*

Figure 4.23: *Median and standard deviation of stature per gender.*

Figure 4.24: *Distribution of stature of women (light brown dots) and men (dark brown dots) according to age class.*

far, has been grouped into 7 age classes. For 69 individuals the details of their age and so-called "demographic parameters" were impossible to determine, and they have therefore been grouped into two cumulated classes (Adults and Children, fig 4.21). The overrepresentation of the mature individuals in the archaeological record is reflected in the estimated life expectancy at birth. Because of the small number of children among the deceased the average

age at death is relatively high and lies around 30 years old. The ratio between immature individuals in respect of the total number of deceased individuals could normally be used as an indication of population growth, where many children suggest demographic pressure. At Crustumerium this ratio suggests low demographic pressure. For differences between men and women we can study the mortality pattern. This pattern appears to be uniform between individuals of the female and male sex. Even though the individual female inhumations and their grave goods suggest that especially older women were well respected and often of high status, the statistical calculation does not show significant gender-based age differences (fig 4.22).

Mortality pattern according to gender

The biological profile of a population can be calculated based on the measurements on many samples of human skeletal material. The estimation of stature can be a valid indicator for how well a population was adapted to its environment. Apart from being related to the genetic composition of the population, the ability to keep people well-fed is

reflected in specific characteristics of the skeletons. At Crustumerium the stature of 63 individuals (32 males and 31 females) has been estimated based on metric calculations. As it turns out, the median stature of the men is larger than that of the women (166 versus 156 cm) and in line with diachronic data of later populations, such as those from the Roman Imperial period (fig 4.23).

The available data also suggest that the stature of women was more variable, even if shorter than the male one. Furthermore, it is also evident that our information about the stature of both genders is not affected by different age of decease (fig 4.24).

Paleopathology

Paleopathology is the study of the history of diseases. In this case, the study of oral pathologies (mouth diseases) of specific individuals can yield important information for the reconstruction of the lifestyle and the nutrition models of the population

Figure 4.25: *Crustumerium, Tomb MDB 377. Shifted and fragmented pottery.*

of Crustumerium. In particular, dental caries are the result of a pathological process that is characterised by the demineralisation of dental tissue due to acids deriving from the fermentation of food products, such as carbohydrates, and especially sugars. The presence of dental caries can thus be used as an indicator of diets rich in carbohydrates. The assessment of the oral health condition has been performed on 76 inhumed individuals from Crustumerium, but the study was limited to an average of 13 analysable dental elements per individual. Only 4% of the teeth studied showed caries damage, suggesting that the population had a balanced diet with a moderate amount of proteins and with limited access to sugars. Another possibility when studying skeletal remains is to take a look at the chemical composition of the bone material on the level of individual molecules. More specifically, one could analyse the collagen, one of the most important proteins of the

human body, in order to increase our knowledge of the biological framework of a community.

At Crustumerium we have analysed the stable isotopes of carbon and nitrogen of the human bones. The remains of 39 individuals have been submitted for extraction of the collagen component of the bone, which unfortunately turns out to have suffered from the adverse physical-chemical conditions of the local soils. In general, the concentrations of carbon and nitrogen seem to have been relatively low, suggesting that the adverse preservation conditions may have resulted in a modification of the organic component of the bone itself. However, the isotopic analysis emphasises the fact that the isotopic values of the population of Crustumerium were very similar to those of contemporaneous populations. In general, the community appears to have depended on terrestrial resources with a wide variety of nutrition sources, not only of animal origin, but also vegetal sources with lower nutrition value that were easier to come by. This observation could be a point of departure for future studies of the local diet and for comparisons with other populations.

In conclusion, the analysis of the anthropological data suggests that the community of Crustumerium was relatively well adapted to the environment in which it lived. The population enjoyed a reasonable health situation with a fairly balanced diet, which enabled it to face possible hygienic-sanitary problems easily, permitting a moderate life expectancy at birth. Certainly, an integral assessment of the burial grounds would allow for a more precise characterisation of the community of Crustumerium, also in light of the possible selection of individuals for burial which, at present, may represent a bias. Since we are only able to look at the preserved skeletons of individuals that were granted the "privilege" of a

burial, we should to make some assumptions about the whole population to achieve a reliable scenario of the local lifestyle.

P.C.; F.D.A.; W.B.P.

Key literature
De Niro 1985; Larsen 1977; Van Klinken 1999.

Block-lifting and recovery
The recovery of ceramic and metal objects associated with a burial is an important and delicate phase in the excavation, because if done correctly, it makes possible the recomposition of the individual objects afterwards and as such it is a pre-condition for the 'reading' and correct interpretation of the context. An archaeological excavation will forever alter the microclimatic situation of the context that is being investigated and of the objects that are inside it. A 'perfect' state of conservation of artefacts at the moment of their excavation, when there is a microclimatic equilibrium between the materials and their environment, is followed by a phase of rapid degradation that 'violently' changes their condition. After years of deposition in the soil artefacts will reach a condition of relative stability, but once brought to light they will undergo a sudden change in this state of equilibrium caused by the passage from an environment lacking oxygen and light to one that is the complete opposite. The sudden change of conditions can be extremely harmful to the conservation of the objects (fig 4.25).

It follows that, apart from a rapid recovery aimed at the best possible consolidation of the artefact and adequate graphic and photographic documentation of the artefacts in their original position, immediate treatment should take place. Afterwards, the

Figure 4.26: *Crustumerium, Tomb MDB 376. Example of badly preserved skeletal remains and metal objects.*

artefacts should be correctly stored in storerooms specifically equipped for conservation.

At Crustumerium, the conservation conditions of the objects are very varied and closely related to the post-depositional history of individual burials; a tomb of which the ceiling has collapsed and has consequently been flooded may present objects that are completely degraded or even totally lost (metal objects are particularly vulnerable, fig 4.26), whereas the objects in a tomb that has not been damaged in this way may be in a fairly good state of preservation.

In order to prevent damage to the artefacts as a result of the changing conditions, the recovery of objects must proceed fast and for this one may have recourse to the block-lifting of objects that are in a bad state of conservation, especially when dealing with a complex set of personal ornaments adorning the body (*parure*), often consisting of a number of fibulae, pendants, and composite objects (collars of amber and glass paste beads). The intricate composition of the objects may call for a micro-excavation in a laboratory context, where the connection between the various elements can be maintained and where it is possible to achieve more precise documentation than the field situation permits. In addition, a laboratory situation allows for the study of the possible presence of perishable material traces (such as textiles, leather etc.).

When the objects (and bones) have been brought to light the situation should first be documented graphically and photographically. Depending on the state of the objects, a chemical called cyclododecane (a waxy white solid) is applied to them to enhance their stability. Cyclododecane is a completely reversible product that will disperse rapidly and completely sublimate without requiring the use of solvents or mechanical operations of any sort, leaving the artefacts in the same situation in which they had been encountered at the moment of their discovery.

After these preliminary interventions, one proceeds with the preparation of the soil block for lifting by excavating all around the artefact or group of artefacts that need to be recovered, in such a way as to obtain a resistant, solid and compact stratum of soil underneath that will keep the artefact(s) in position (fig 4.27).

Once the preparations have been made, the soil block will be reinforced and rendered stable by means of plaster bands applied all around the block. Once the protection of the soil block with the artefacts has been secured, one proceeds to gradually freeing the block using suitable steel or iron rods, in an attempt to insert a wooden plank or a metal supporting sheet below the block to support it. Next, the block will be completely wrapped in transparent polyethylene film fixed with adhesive tape, in order to facilitate the moving and transportation of the block with the artefacts to a temporary place of storage or directly to the laboratory. Here the micro-excavation should take place as soon as possible to identify and bring to light all funerary objects and to start on their documentation and restoration.

G.C.; D.C.; A.M.

Key literature
Angelini et al. 2008; Bojani 1992; Pedelì & Pulga 2000; Sease 1994; Stanley Prince 1986.

Conservation and storage of artefacts
Unfortunately, there are few instances in which restoration goes hand in hand with archaeological excavation. Many archaeological projects end up with large quantities of recovered objects that, in the best case scenario, are conserved with the soil still around them, wrapped in polyethylene film and packed in crates. In a less positive scenario, objects are not conserved as well, and it is exactly this situation that calls for an adequate conservation practice of materials that lives up to the norms set for the conservation of *restored* objects.

The goal of good conservation of artefacts in storerooms should equal that of a good exhibition and as such guarantee the security of the artefacts with an eye for the state they are in, as well as the space and conditions they need. As technical and scientific criteria and museum standards prescribe, it is necessary to identify and divide the artefacts in classes according to their material signature to meet these goals; artefacts that consist of different materials and that require different environmental

parameters should not be stored together. Moreover, it is necessary to identify criteria for a correct storage procedure that respects the grave inventory as a whole as well as its context. First, classify the materials; identify suitable structures for recovery, indicate the characteristics of the containers and finally, but no less important, specify precisely the requisite measures for chemical/physical and biological protection.

As one may well imagine it is indispensable to place the object in a suitable container for storage, with the aim of protecting and stabilising it in the best way possible. Following these guidelines, the materials that come into contact with the artefacts are those of the containers and those used for their protection must be chemically and physically stable so as not to cause reactions that may be harmful to the artefacts. Also for the labels and cards it is advisable to use polypropylene or polyethylene, while for the writing indelible pens should be used.

The place of storage should be easily accessible, with good air circulation and well insulated from outside thermic influences. The labels that identify the object on the exterior of the crate and possible legends and descriptions, should be made of resistant materials and compatible with the primary materials used for storage.

D.C.; G.C.

Key literature
Bojani 1992; Pedelì & Pulga 2000; Sease 1994; Standard Museali.

Figure 4.27: *Crustumerium, Tomb MDB 376. Block-lifting of the skeleton and ornamental parure.*

5 After the excavation

"The restoration constitutes the methodological moment in the recognition of a work of art, in its physical consistency and its aesthetic and historical outlook towards its transmission into the future"

(Brandi, 1963)

Introduction

At Crustumerium, the application of scientific techniques to the analysis of archaeological materials, also known as archaeometry, plays an important role in the conservation, preservation and restoration of the objects recovered from the field. In past decades it has become customary to study archaeological materials using scientific techniques for analyses. There is a wide spectrum of scientific techniques that are employed, ranging from geophysical prospecting to statistics and investigative analyses of the materials excavated.

Before recovering objects or human skeletal remains from the tombs at Crustumerium, consolidation measures often have to be already taken in the field. At times, objects and skeletal remains have to be lifted together with the soil. These so-called block-lifts, as we have seen in Chapter 4, are then transported to the laboratory where specialists can work under optimal conditions to carry out their high precision investigations of the objects and human skeletal remains.

During and after the archaeological excavation there are a number of tasks to perform in order to record, investigate, conserve and possibly even to restore finds. These are termed post-excavation activities and range from the selection, numbering, drawing, photographing and recording in writing of finds to diagnostic analyses, preservation and eventually full publication. The post-excavation phase is at least as elaborate as the archaeological fieldwork itself and its mounting costs often prevent a full range of post-excavation activities, especially in commercial and rescue excavations where the budget is insufficient. Fortunately at Crustumerium, energy, time and financial resources can be invested thanks to the

network of conservators and scientists employed in the project provided by the Laboratorio di Restauro of the Archaeological Superintendency at Rome (SS-Col) and the Istituto di Cristallografia (IC-CNR); specific investigative analysis is performed in the Laboratorio di Indagini Biologiche of the Istituto Superiore per la Conservazione ed il Restauro (ISCR), the Istituto per lo Studio dei Materiali Nanostrutturati (ISMN-CNR) and the Dipartimento di Biologia Ambientale- Laboratorio di Paleobotanica e Palinologia of the Sapienza Università at Rome. In the past two years X-ray analyses of the finds have been undertaken directly on the field, thanks to the setting up of a mobile laboratory by the IC-CNR.

Since 2006 the Laboratory for Conservation and Material Studies (LCM) of the Groningen Institute of Archaeology (GIA) has also been involved in the conservation and restoration of artefacts excavated by students and staff of GIA during annual summer campaigns at Crustumerium. The majority of the artefacts were found in the extensively furnished tombs dating from the period 825 to 600 BC. Since most of the objects have been broken or have deteriorated due to post-depositional alterations, conservation and reconstruction are essential for a full study of the finds. Some of the objects have been restored in a field laboratory during the campaigns at Crustumerium. The majority of the artefacts could, however, be conserved in the LCM at Groningen thanks to the yearly export permits so generously granted and administered by the SS-Col.

In this chapter we will first deal with non-destructive and non-invasive scanning techniques that are used by Italian and Dutch scientists to look 'inside' block-lifts and objects. Then we will look at the excavation of block-lifts in the laboratory, the
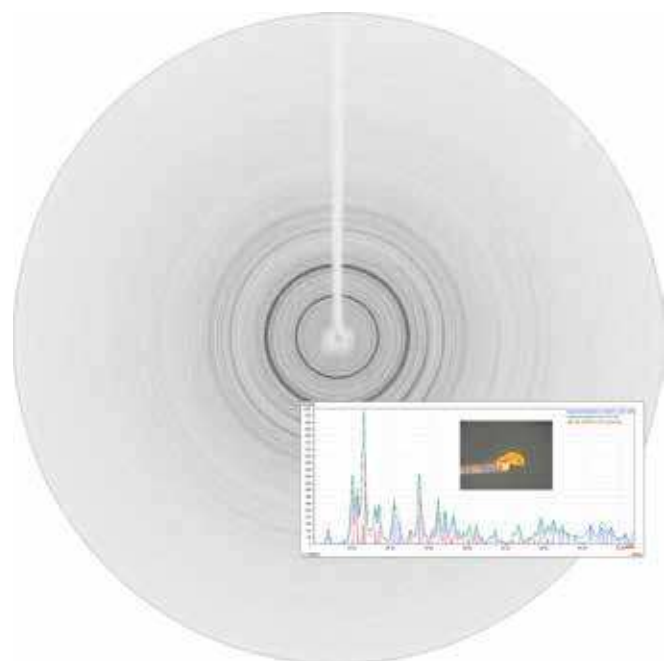

Figure 5.1: *A soil block during XRF analysis.*

so-called micro-excavation. Finally, we will provide insight into the conservation and restoration of ceramics, metals and other materials as well as scientific analyses carried out by the range of specialists involved in the Crustumerium project.

A.J.N.; B.B.M.; P.A.J.A.; P.F.

Key literature
Black 1987; Cronyn 1990.

Figure 5.3: *A. Radiographic image of a block-lift from Tomb MDB 306 showing a dagger. B. Drawing of the same dagger based on the X-ray image C. X-ray image of a block-lift from Tomb Trincea Viaria 4. D. X-ray image of a block-lift from Tomb Trincea Viaria 4 with bracelets and teeth. E. Tomographic image of a block-lift from Tomb Trincea Viaria 4. F. Tomographic image of a block-lift from Tomb Trincea Viaria 4.*

The techniques discussed in the main text were used on a block-lift containing a dagger, belonging to an adult male (Tomb MDB 306), dating to the first half of the 7th century BC. We recorded and then enhanced several radiographic images (fig 5.3A) in order to outline the shape of the blade and to virtually extract the dagger from the sheath (fig 5.3B). The X-rays on a block-lift containing the human remains of an infant (fig 5.3C) (Trincea Viaria Tomb 4), detected the position of the bracelets and of the teeth inside the soil (fig 5.3D). The skeleton is not visible because it is as radiopaque as the soil. After carrying out tomography we enhanced the data to virtually reconstruct the ornaments (fig 5.3E) and the teeth (fig 5.3F). The physical condition of these objects was poor and parts appeared to be missing.

Tomography is based on the principle that by acquiring many radiographic projections of the same object at different angles it is possible to rebuild it three-dimensionally using mathematical algorithms.

Two examples of the application of XRI to the study of block-lifts from Crustumerium are given; one containing a dagger and the other human remains. In block-lifts, the identification of objects may present problems, because they are embedded in soil or covered with corrosion products and their shape is consequently obscured. XRI was therefore used to gain complete information on the spatial disposition of the objects inside the block, on their shape and on their state of conservation without extracting them. The size of the block-lift, the features
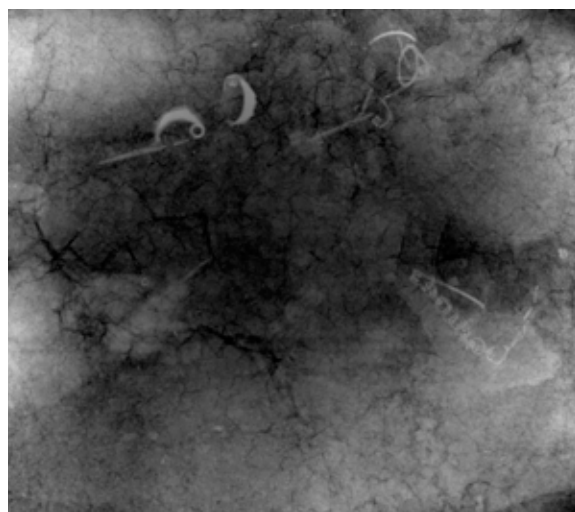

Figure 5.4: *Block-lift of Crustumerium Tomb MDB 59 before (A) and during treatment (B) including details of individual artefacts during the excavation in the laboratory.*

of the objects (size, thickness and metal content), and their state of preservation appeared variable. Therefore, different exposure tests were necessary to identify details from one object to another.

O.T.; M.C.

Figure 5.5: *Crustumerium Tomb MDB 59 with skeleton of an elderly lady. Outline of the block-lift indicated in red.*


Figure 5.6: *X-ray photograph before treatment of the block-lift of Crustumerium Tomb MDB 59. The photograph reveals unmistakably the metal parts of the ornaments while the other materials such as ivory/bone and glass are visible but need a trained eye and a digital image that can be reworked.*

Excavation of block-lifts in the laboratory of the Groningen Institute of Archaeology

Conditions in the field are occasionally unfavourable for conserving or lifting fragile and intricate artefacts individually. As an example we present the laboratory excavation and conservation of Tomb MDB 59 that was excavated at Crustumerium in the summer of 2012. During excavation, it became apparent that the woman was buried with a number of brittle ornaments of exceptional quality, entangled in such a way that laboratory excavation was required. To this end, part of the skull and thorax of the body were lifted as a block (fig 5.4). The block-lift was performed as marked in figure 5.5. The block-lift was subsequently excavated and the artefacts conserved at the LCM. Exploratory X-ray imaging confirmed the presence of a number of bronze fibulae, and ornaments in amber and ivory, as well as numerous small glass beads probably once part of a necklace (fig 5.6). In addition to these, the excavation in the laboratory revealed an amulet discussed in more detail below.

As it turned out, most of the objects lacked internal coherence, necessitating consolidation in order to conserve the whole artefact and not just the fragments. The procedure of investigative cleaning – while consolidating the material at the same time by impregnation – proved indispensable for the recovery of all the objects. The procedure of investigative cleaning provides the archaeologist with maximum accessibility to materials and objects still *in situ* while drawing and documenting the block-lift. As such the micro-excavation in the laboratory is recorded in a manner that is comparable to the archaeological excavation in the field, producing equivalent documentation. In addition to the artefacts, all the skeletal material present in
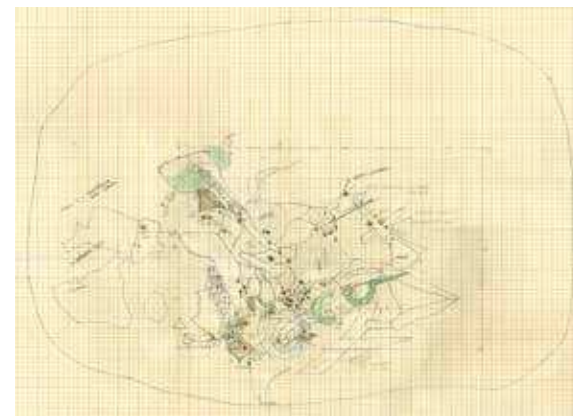
Figure 5.7: *Overview drawing that was made in the laboratory during the mini-excavation of the block-lift from Crustumerium, Tomb MDB 59. All finds are recorded in their original position.*

Figure 5.8: *Bone amulet representing probably a couchant wolf from Crustumerium Tomb MDB 59, after conservation.*

the block-lift was conserved and analysed and documented in the drawing as well (fig 5.7).

One of the artefacts of Tomb MDB 59 is unique and unparalleled. It is an carved in bone, representing a schematic animal (fig 5.8). The object was further restored in Rome (see Chapter 6, Tomb MDB 59).

Bone and ivory artefacts generally suffer enormously from being buried for centuries, causing them to fragment severely. As a result, such objects require specialist conservation treatments and necessitate laboratory conditions for proper retrieval, treatment and analysis. An added value of laboratory excavation is that it permits detailed examination of these exceptional objects.

A.J.N.; G.v.O.

Key literature
Cronyn 1990.

The micro-excavation of a block-lift from Fidenae, Tomb 19

Tomb 19 was excavated in 2004 in the eastern necropolis of the pre-Roman settlement of Fidenae, 8 km from Rome. Like nearby Crustumerium, this settlement was founded in the 9th century BC and its birth and development is mainly due to its strategic position, along a road which connected Etruria (Veii) to the Campania region.

The block-lift contains the skeletal remains and the ornamental *parure* of a young girl (aged 11-14) in a tree trunk inside a trench tomb (fig 5.9). The girl was wearing two silver *fermatrecce* (hair binders), an amber necklace, composed of bulla-shaped beads of diminishing size towards the outer ends, a bronze spiral bracelet on her left fore-arm and two twisted bronze wire rings next to the right arm. Several fibulae and pendants of different types decorated her dress: a silver plated iron fibula is next to her right shoulder; bronze *sanguisuga* (leech-shaped) fibulae are below her chin and on her chest; a couple of horse-shaped fibulae with long catch-holders are placed on her chest; composite

Figure 5.9: *Fidenae, Tomb 19. Block-lift of the ornamental parure as it arrived in the lab.*

leech fibulae with degraded amber and bone elements are placed on her stomach.

On the left side of the chest, a flat bronze suspension ring was hanging from a bronze *navicella* (boat-shaped) fibula. On the right side, a semi-circular bulla-shaped pendant made of folded bronze foil contained a small amber piece, suggesting its function as a rattle. Between the bulla and the right

Figure 5.10: *The same block-lift after the micro-excavation and consolidation of the finds.*

fore-arm, there was a bronze foil elongated object, which may be interpreted either as a pendant or as the revetment of a wooden handle. The latter hypothesis is based on the traces of organic material that were observed during the excavation, suggesting its possible relation to a *flabellum* (fan). A bone object (a stick?) was placed next to the same fore-arm. Pottery and a bronze tripod were deposited
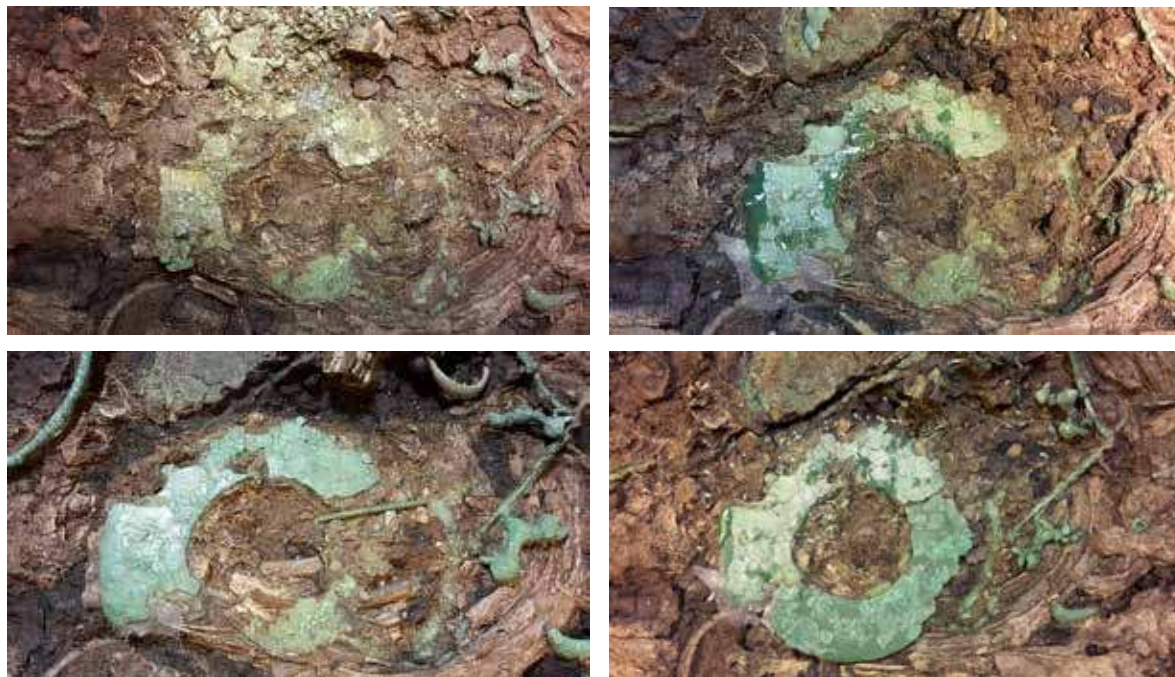
Figure 5.11: *The very slow, careful exposing of deteriorated metal parts with a scalpel.*

Figure 5.12: *Different steps in the micro-excavation and recomposition of an ornamental bronze suspension ring that was buried with this young girl.*

with the burial of the girl, placed above her head inside a niche and delimited by tuff blocks.

The rich ornamental *parure*, including several amber elements, and the associated tools indicate the relatively high social status of the inhumed girl and highlight wide cultural and commercial relationships of the local community. The use of horses (or lions) as decorative elements on fibulae and pendants is rather uncommon but is documented since the 8th century BC. Horse-shaped fibulae are mostly used in pairs and fixed either on the chest or to hold the veil and are also found in Falerii Veteres. The necklace with amber beads of diminishing size towards the outer ends is best documented in the Piceno up to the Archaic period. The ornamental *parure* and the associated pottery in the tomb under discussion suggest a chronology around 730-720 BC.

B.B.M.

Key literature
Cozza & Pasqui 1981; di Gennaro 2006; Lo Schiavo 2012; Lucentini 2015.

Notes on the conservation of metal
Sometimes either the complexity of the ornamental *parure* or the poor preservation of metal objects due to their mineralisation and/or fragmentation into tiny pieces and flakes, necessitates conserving the objects inside a block-lift. In the case of the block-lift from Fidenae, the considerable time span between its recovery in 2004 and its restoration in 2015 has badly affected the preservation of the metal objects; some of them have even been completely lost.

The micro-excavation started with the superficial cleaning of the block-lift by means of soft brushes and with the removal of shifted fragments with tweezers. In the preliminary phase, the most delicate objects were immediately consolidated with acrylic resins or Paraloid B72 in order to keep the fragments *in situ* and allow more in-depth excavation. The soil was moistened with alcohol and slowly removed with scalpels and dentistry tools, soft brushes and bamboo sticks. Once the most fragile and deeper skeletal remains (rib cage) and all the metal objects

were brought to light, they were consolidated with a thin solution of Paraloid (fig 5.10).

At this stage the conservation of the metal objects and the skeleton was substantially improved and different strategies were chosen for their preservation, according to their specific state. The fragmented metal objects which were still in their original position have been glued on the block-lift (fig 5.11). All the shifted but well-preserved objects (fibulae, amber beads, bracelets and *fermatrecce*) were then temporarily lifted for proper restoration. The skeletal remains have been completely brought to light, mechanically and chemically cleaned, recomposed, consolidated and glued together. The reconstruction of the fragmented teeth and placing them back in their original places required a lot of patience. The greenish colour of the teeth is due to the absorption of bronze oxide.

The bronze foil objects were fragmented into tiny pieces and almost completely mineralised: they have been partially restored in *situ* and glued to the block-lift; the shifted fragments have been temporarily removed, recomposed and reinforced, by means of a silk veil. Once the objects had been re-assembled, their missing parts were reconstructed with pigmented resin and their surfaces cleaned and protected with a preservative so as to avoid further corrosion (fig 5.12).

In general, the position of the objects on top of the block-lift has been deduced from their imprints on the soil. It is evident that some of them were not found in their original position: their migration is mainly due to the decay of the body and the tree-trunk (its presence is suggested by the black layer of organic material around the body).

A.M.

Metal objects: from micro-excavation to musealisation

Following excavation, metal objects need to be consolidated as soon as possible, so that exposure to variations in temperature and humidity will not result in active corrosion after excavation. Cleaning with mechanical instruments, sometimes with the help of specific chemical solutions, will aid in the best possible 'reading' of metal objects, bringing to light their original surface with its decorative details and the way they were manufactured (see Chapter 6, Tomb MDB 59). Such interventions entail the removal of several encrusted surfaces of the artefact, deposits that result from the specific environment in which the objects were conserved, as well as concretions and layers of corrosion products. The cleaning is aimed at improving the object's conservation condition, while at the same time ensuring that the surface of the object will become more homogenous and receptive to stabilisation treatments to withhold corrosion and improve consolidation.

Often, however, archaeological coins and other metalwork are friable and/or fragmented, and the cohesion between various components may be lost, thus posing problems that have to do with the object's morphology or state of conservation. This calls for complex and articulated restoration phases that range from cleaning procedures to consolidation. Emblematic in this sense are those artefacts taken from excavations that have the soil still around them and that exhibit relations that will be lost during the micro-excavation in the laboratory, once recovered from the soil that supports their integrity.

For the safeguarding of such data a correct restoration intervention offers the chance to valorise the artefacts and ensure that they can be manipulated under stable conditions. In most cases this goal is
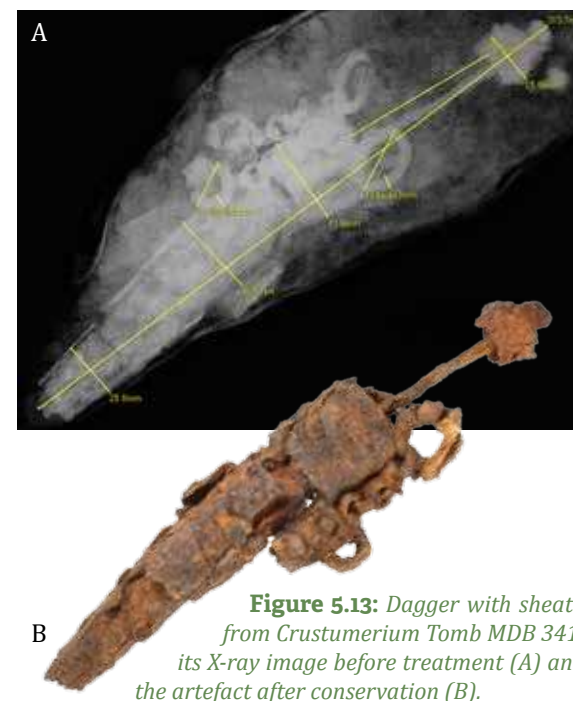
Figure 5.13: *Dagger with sheath from Crustumerium Tomb MDB 341; its X-ray image before treatment (A) and the artefact after conservation (B).*

efficiently met by placing the object on or within a supporting device (see Chapter 6, Tomb MDB 232).

This is a very delicate intervention because of the many rules that have to be observed. Its successful outcome depends on the sensitivity of the restorer, on his or her knowledge of materials and on dexterity: while the positioning on or within the supporting device should permit certain interventions, such as gap-filling and modestly invasive re-composition that do not interfere directly with the material of which the object is made, it should at the same time not hinder the reading of the object. Just as with gap-filling, the support must, in fact, remain in the background with respect to the object. The solution is however not always found in the

application of transparent materials (which do not inherently meet the necessity of color neutrality), but rather through careful case studies, resulting in conservation consistent with esthetic demands (see Chapter 6, Tomb MDB 42). When the support is realised in this way, it will have a double value, because it contributes to the conservation and to the valorisation of the exhibited object at the same time.

M.A.; O.C.A.

Key literature
Brandi 1963.

Restoration of ceramic objects

The restoration of an excavated ceramic object entails many factors having to be taken into consideration by the restorer (fig 5.14). These factors concern the conservation of the ceramic object, the technology of its manufacture, the condition it was found in, and the activity of any degradation factors. The first conservation action to undertake on the material once it has arrived in the laboratory, and after appropriate photographic documentation, is precise cleaning aimed at the best possible 'reading' of its morphological characteristics and preservation status.

Cleaning is an irreversible intervention and it is important that it is carried out in a meticulous, painstaking fashion. Through cleaning one removes incoherent deposits (mud of the excavation) as well as coherent deposits (incrustations of various nature) that come to light on the internal and external surfaces and on fractures.

Once the fragments have been cleaned, it must be determined whether it is necessary to apply a consolidant aimed at preventing loss or disintegration of the materials. The consolidant must be capable of permeating and diffusing homogeneously within the porous material. Following a precise investigation of the fragments belonging together in view of the typology of the object and graphic and photographic documentation at the moment of excavation, one proceeds to reassemble and subsequently reconstruct the ceramic object. Normally one works from the base upwards towards the upper part of the vase. Once the appropriate adhesive, which has to meet specific demands, has been applied to the ceramic fragments, they are held in position and made to fit using small strips of adhesive paper tape, after it has been ascertained that the tape will not affect

Figure 5.15: *Two ceramic artefacts from Crustumerium Tomb MDB 72; during and after conservation; a bowl in impasto rosso and a bowl with two handles in impasto bruno. The illustration also shows the difference between conservation and restoration. The bowl with two handles was conserved but not restored by making it into one complete artefact after gap-filling, colouring etc.*

the surface of the object. Once the fragments are stuck together, the tape is removed and the object is inspected along the lines where it was reassembled. Many bindings may present some difficulty as a consequence of irreversible deformations of the fragments due to the weight of the soil with which they were covered. It follows that, at the moment of reassembling, the various parts of the object may not fit perfectly together, resulting in a number of irregularities. In such cases it is quite difficult to find the correct equilibrium between the parts.

The filling of gaps should be done according to the ethical and methodological guidelines inherent in restoration theory, but only if needed on account of the object lacking structural integrity. Although many would be pleased to see an excavated object transformed into a complete object, the intensive restoration has a strong impact on an object, both from a formal and a decorative perspective.

The decision to reconstruct only some parts should normally be dictated by the stability that is needed for an object. In exceptional cases, as with very important grave inventories or unique pieces, one can opt for a formal reconstruction.

Filled-in gaps should be visible from up close, but undetectable from afar. The chromatic match of the added pieces can be carried out through the 'pointillism' approach. With this technique our eye perceives the original object and the filled-in gaps as an even texture (osmosis of view), while from nearby the gap is recognisable on account of its rendering in points.

If necessary, an object is consolidated with a final coating, using the same consolidant as used for the reconstruction of the fragments, but this time applied in a very weak solution.

G.C.; D.C.

Key literature
Baldini 1981; Bandini 2002; Berducou 1990; Brandi 1963, 1994; Cuomo di Caprio 1985; Emiliani & Corbara 1999; Fabbri & Guidotti 1993; Pedilì & Appolonia 1998.

Figure 5.14: *A series of images showing the progressive stages of ceramic restoration of an anforetta laziale from Crustumerum.*

Figure 5.16: *Crustumerium Tomb MDB 344, overview of associated artefacts after conservation. Example of a tomb with various ceramic wares: one is an impasto bruno bowl that is partially weathered.*

More examples of restored ceramic objects from Crustumerium

A few ceramic vessels found during the excavations at Crustumerium appeared to have deteriorated considerably due to adverse post-depositional processes making the lifting and subsequent conservation time-consuming and expensive. Parts of a number of vessels seem to have disintegrated fully over time. The ceramics involved are mainly dated after 650 BC and the subsequent weathering of their ceramic body seems to be related to the production technique that was used. We have tried to determine the causes of this extreme post-depositional deterioration, but it is a process in which a number of variables are involved, such as the

Figure 5.17: *Bowl of impasto bruno from Crustumerium Tomb MDB 344 after conservation and during treatment; heavy splitting/weathering of ceramic fabric.*

ceramic ware group of the object, its porosity, possibly the firing temperature and the conditions in the tomb, such as fluctuating water levels and local *in situ* geophysical processes.

Figure 5.15 illustrates two bowls in a block-lift from Tomb MDB 72, one well preserved, the other partially disintegrated. Since the vessels were found one on top of the other, the conditions on this specific location in the tomb must have been similar. The bowls do, however, differ in ware group (one bowl is made of *impasto bruno*, the other of *impasto rosso*). It seems that the fine *impasto bruno* table-ware is especially prone to post-depositional deterioration, whereas other contemporaneous ceramic ware groups are less affected. *Impasto bruno*

Figure 5.18: *Disintegration of ceramic fabric as recorded on a base of a bowl from Satricum.*

consists of a refined clay with many small pores and it is burnished to lustre before firing. It colours dark brown to black when fired as a result of the reducing atmosphere in the kiln.

The rigorous post-depositional deterioration of certain ceramic ware groups is also illustrated in the overview of ceramics from Tomb 344. The pottery includes the following wares; three pouring jugs, a bowl and an aryballos (perfume bottle) all of depurated clay, two *impasto bruno* bowls, a *bucchero* kantharos and an *impasto rosso* jar (fig 5.16). Only one of the *impasto bruno* bowls has deteriorated severely (fig 5.17). Post-depositional weathering resulted in the disintegration of part of the base and part of the rim of the bowl. In particular the close-up photograph of the base before making it adhere to the body of the bowl, illustrates the character of the weathering well; it shows a considerable loss of internal cohesion. The state of the object made it impossible to use water during the conservation treatment, because it would result in the dissolution of the weathered parts. Cleaning the surfaces had to be done mechanically by hand, while consolidation

became essential. It follows that the conservation of such vessels is time-consuming and costly.

A similar process of weathering was detected at Satricum (fig 5.18), a Latin town about 60 km south of Rome, where some specific ware groups were affected as well, frequently related to ferromanganese (FeMn) movements in the soil. The periodic, local oxidation and reduction of the FeMn over time may have caused the partial disintegration of a ceramic body since this is associated with changes in volume. If this volume change occurred in the tiny, numerous pores of the *impasto bruno* wares, the effect might be comparable to the disintegration of ceramics caused by salts. It is probable that the depurated impasto clays such as *impasto bruno* are more prone to such weathering due to the smaller, but more numerous pores in the ceramic body. However, this hypothesis would have to be established by porosity measurements of several ware groups and it would still not explain why some *impasto bruno* vessels from the same tomb are affected whereas others are not.

In order to examine the causes of the local weathering of some ceramics and bones, one needs to look into a number of variables such as soil conditions, local changes in pH, migration of FeMn in the soil and its effects, the original firing temperature of the object, taphonomy, the (gradual) deterioration of tomb structures and the effect of periodic water-logging. However, we consider the establishment of the original firing temperature less relevant, because of the local character of the weathering even in one ceramic object.

A.J.N.; G.v.O.

Key literature
Paterakis 1987.

Figure 5.19: *The excavation inside Chamber Tomb MDB 359.*

The restoration of the cylindrical pyxis from Tomb MDB 359

In chamber tomb MDB 359, located in the north-eastern district of the burial ground and excavated in 2014, a huge *impasto rosso* cylindrical pyxis was found as part of the grave inventory of a lady (fig 5.19). Upon excavation the chamber appeared completely flooded and badly preserved, due to the collapse of the ceiling and infiltration of earth from outside the tomb. The pyxis was found lying horizontally on the floor, squashed and broken in half due to the weight of the collapsed ceiling and the layers of mud.

In order to preserve the surface of the artefact, which was likely to have a painted decoration, the pyxis was not cleaned during excavation. Before recovery by a restorer the fragments were progressively numbered, whilst the recovery itself was documented with photographs and pencil sketches to facilitate its reconstruction.

The particular shape of this pyxis possibly derives from Geometric prototypes from Cyprus, and is typical of the *white on red* production of the

Figure 5.20: *The painted surface of the pyxis and the treatment of spots of manganese oxides with the converter.*

Etruscan city of Caere (*impasto rosso* painted with white pigments). As we will see in Chapter 6, specific features of the exemplars from Crustumerium suggest that they were made in local workshops, albeit by craftsmen from Etruria.

Because of its wide and rather straight surface, the shape is very suitable for the rendering of monumental decorative patterns including animal and human figures. The pyxis from Tomb MDB 359 has a

shows a procession of real and fantastic animals moving to the right (the sequence of a lion, a gryphon, a standing bird and a sphinx is clearly visible). Below and above it, there are two identical friezes with a schematic motif, coupling the *barca solare* (sun-ship) with chains of palmettes. This motif may be considered the "signature" of a local workshop. The shape dates to the end of the 7th century BC.

B.B.M.

Unfortunately the flooding of the chamber and the collapse of the ceiling has affected the integrity of the pyxis and it needed to be restored (fig 5.21). This was done in 2016 in the Laboratory of the Museo delle Terme, in Rome, with the collaboration of A. Casagrande. It appeared that post-depositional events had caused an uneven preservation of the two halves in which the vessel had broken.

Most of the fragments that had been in contact with the floor of the chamber had lost their original surface and some of them had become badly decayed. Moreover, the pressure of the mud layers and the flooding of the chamber had altered the structure of the impasto ware and caused an overall, slight deformation of the artefact.

Upon removal of the fragments, they were immediately wrapped in plastic film, in order to preserve their micro-climatic equilibrium and to prevent cracks and the loss of painted decoration.

The thin layer of mud still adhering to the fragments was moistened and softened with a blend of water and ethanol (1:1) and removed by means of scalpels. This operation revealed that the pyxis bore a white painted decoration, which had been added after a preliminary firing of the artefact.

Since the surface of the fragments was partially

Figure 5.21: *A series of images showing the progressive stages of ceramic restoration of a pyxis from Crustumerum.*

low foot and four handles attached to the lower part of the body, a slightly convex wall and a thickened rim. The decoration of the pyxis consists of four horizontal friezes but is unfortunately poorly preserved (fig 5.20). A row of erect triangles with criss-cross infill is painted around the lower part of the body and encircles the handles. The main frieze, delimited by horizontal bands with a criss-cross pattern,

covered by black spots, due to the absorption and release of manganese oxides, they were treated with a special patented chemical mixture, acting as a catalytic converter.

The fragments were consolidated by means of a resin; in order to fix the painted decoration on the outside and not damage it, the resin was brushed onto the inner side of the fragments and was slowly absorbed by capillarity. The fractures' surfaces were protected at this stage with a thin layer of primer (resin), that can be easily removed with acetone.

Because of the weight and the size of the arte-fact, its recomposition required careful planning and the adoption of specific supporting devices.

In order to support the object during its reas-semblage, a properly shaped wooden framework was built around it; props and lintels were used on the inside to withstand the thrust of the walls and to keep them stable and vertical. Lead foils and wooden dowels were placed in between the framework and the walls of the pyxis to enhance the conjunction of the fragments. The reconstruction of the pyxis was challenging due to its deformation, which meant that the larger wall fragments had to be slightly adapted to each other which involved dismantling the object several times. The fragments were joined by means of a resin and a glue; during the bonding, a tie rod was used to hold the fractures tightly together.

After the recomposition, the overall surface of the pyxis was cleaned again. The two gaps and the break-lines were stuccoed with pigmented den-tistry chalk; in order to make the integrated parts stand out less, they were speckled with a colour similar to the original ware. At the end, the object was protected with sprayed acrylic resin.

D.C.

Figure 5.22: *The skeleton of a woman with a headdress in Tomb MDB 232.*

Key literature:
Micozzi 1994; di Gennaro 2006a.

Scientific analyses on a headdress from Tomb MDB 232 in laboratories in Groningen and Rome

Some of the objects found in the tombs at Crustumerium are very complex and therefore merit an intensive scientific study in order to understand their function, the way they were manufactured and to determine the materials used for their production. The headdress or diadem from Tomb MDB 232 is such an object. While the inter-pretation and contextualisation of the tomb is given in Chapter 6, here we will deal specifically with the archaeometric aspects of this unique object.

Tomb MDB 232 contained the skeletal remains of a woman aged 40-50 (fig 5.22). At burial she had been adorned with a set of personal orna-ments, consisting of eight bronze fibulae, some of them with ivory and amber inlays, three clasps, a large number of bronze beads and a headdress that was still positioned on her skull. Part of the skeleton with associated artefacts was block-lifted and brought to the LCM in Groningen, where the headdress and the other artefacts were excavated further and restored under laboratory conditions (fig 5.23). CT-scans and X-ray radiography imaging were deployed in the University Medical Centre of Groningen to reveal the details of the artefacts and the complex construction of the headdress itself (fig 5.24). Subsequently the diadem was examined in the laboratories in Rome (Laboratorio di Restauro of the Soprintendenza Speciale per il Colosseo e l'Area Archeologica Centrale (SS-Col), in association with the Laboratorio di Indagini Biologiche-Istituto Superiore per la Conservazione ed il Restauro (ISRC) and the Istituto per lo Studio dei Materiali Nanostrutturati (ISMN-CNR) to reveal the nature of the various materials associated with the object. Below, the object is first formally described and then the detection of material traces other than metal is discussed by specialists. These investiga-tions greatly added to the reconstruction of the ob-ject and the understanding of its function.
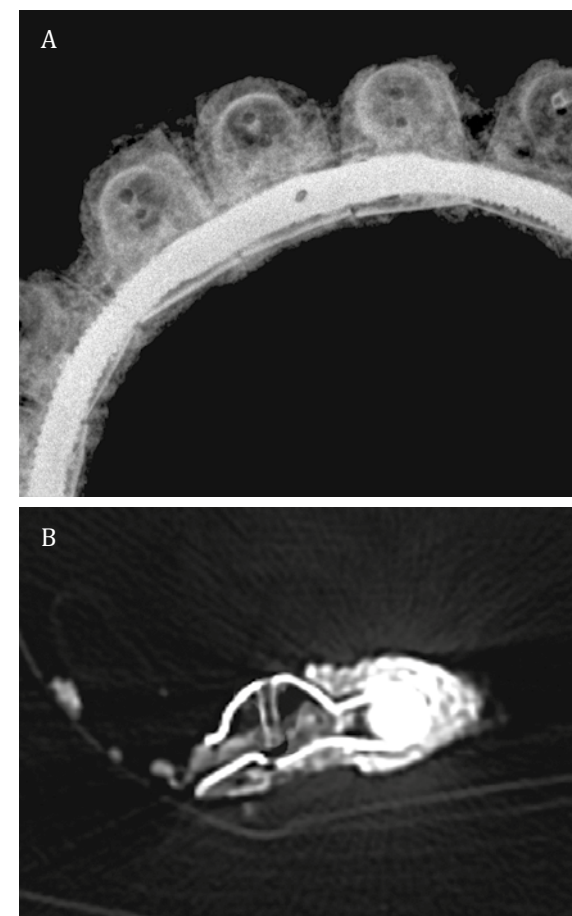
P.A.J.A

Figure 5.23: *The headdress from the block-lift of Tomb MDB 232 during restoration in the LCM in Groningen.*

Figure 5.24: *The diadem of Tomb MDB 232, an X-ray (A) and CT-scan image (B) as well as the diadem before restoration with overview of the area where organic remains of textiles were preserved.*

The diadem consists of a ring made of a solid twisted bar that is circular in section. Six folded plates made of copper-alloy – originally probably free-moving, but now fixed and immobile – can be interpreted as pendants placed next to each other on one part of the ring. The plates are hemispherical and decorated on the front with circles and indentations, while being flat, rough and tapered on the back. The two 'cheeks' of each individual plate are connected by means of a rivet. In a space of 4-6 mm they hold a whitish material (fig 5.25). Close observation of the rear side of the fourth pendant – the only one of which the margins were preserved – revealed that this part is more protruding than the hemispherical decoration of the front, probably to support protruding ornaments made of a whitish material, secured with rivets. In order to determine the nature of this material, electronic micro-analysis was used on a small fragment revealing a chemical composition that includes the elements carbon, oxygen, silicon, calcium, aluminium and iron. Their quantitative values, obtained in different micro-areas, have a constant ratio, indicative of a mineral substance with structure micro-crystalline aggregates, as viewable by optical microscopy (OM). The analyses suggest that the pendants were designed to achieve an ornamental effect consisting of a chromatic contrast between the metal and the stone elements, in addition to the ingeniously decorated folded plates.

M.R.G.; I.A.R.; D.F.

A second discovery concerned the traces of some textile, an organic material that is only occasionally encountered during conservation. Textiles can be preserved either as fibres or as pseudomorphs. Pseudomorphs are chemically different from the original material while preserving all structural details. One may think of fossilised wood or of pseudomorphic replacement by corrosion products. Textiles can be preserved occasionally in the vicinity of metal objects since many corrosion products are harmful to insects and other invertebrates, bacteria and fungi that normally thrive on decaying organic materials. Actual traces of textiles and pseudomorphs are found on only a few metal artefacts

Figure 5.25

from Crustumerium as in the case of the headdress discussed here. Figure 5.26 presents the traces of textile recovered at the LCM while removing the encrustations that covered the headdress. They are located on the back of the metal surface of pendant II and III that were in contact with the skull (fig 5.27).

A.J.N.; G.v.O.

To obtain more knowledge of these textiles, further microscopic analyses were carried out in Rome using optical microscopy (OM) and scanning electron microscopy (SEM). OM observations of both pendants showed that the textile material had been completely replaced by copper corrosion products, while by using SEM it was possible to detect the presence of threads crossing one another at right angles (fig 5.28). It was also noted that textile fibres were preserved as negative casts, in particular casts of scales (cortical cells) that made up the cuticle of fine wool fibres (fig 5.29). Yarns of fibres of the same kind were also observed on the third pendant. They may have formed a fringe bordering the cloth or could belong to a fabric's edge (fig 5.30). The textile material examined was made of fine wool fibres confirming that we are dealing with a veil on which the headdress was placed.

M.R.G.; I.A.R.; D.F.

Figure 5.26: *Detail of diadem recovered in Crustumerium Tomb MDB 232; samples of pseudomorphs and preservation of textile.*

Figure 5.27

Key literature
Giuliani et al. 2014, Nijboer & Willemsen 2012.

Figure 5.28

Figure 5.29

Figure 5.30
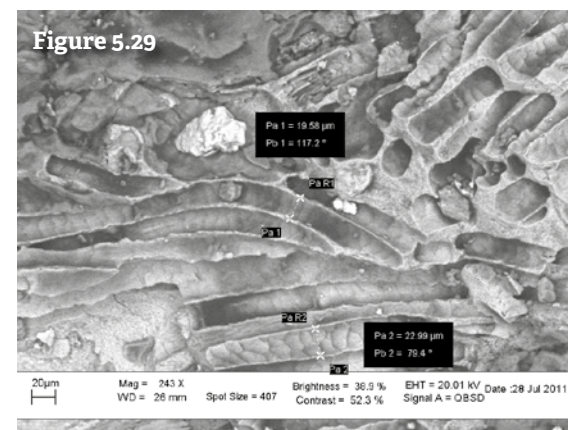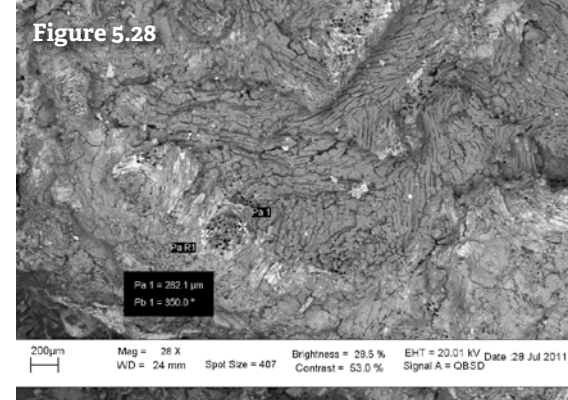
6 TOMBS AND TOMB INVENTORIES AND WHAT THEY CAN TELL US

"Crustumerium developed a highly original local culture that was expressed especially in tomb architecture and tomb inventories"

Introduction

Thanks to its frontier position, in between the Etruscan, Falisco-Capenates, Sabine and Latin territories and along the roadway which connected the right bank of the Tiber to the main routes crossing the Italian peninsula, Crustumerium developed a highly original local culture. It is especially the architecture of the tombs and the tomb inventories that reflect the adoption and re-elaboration of models both from the Etruscan and the Latin world, as well as the funerary rituals that were performed during the burial.

This chapter outlines the development of the cemeteries of Crustumerium, mainly focussing on the burial ground of Monte Del Bufalo. The selection of grave inventories and artefacts exhibited at Copenhagen will help to tell the personal story of the people inhumed in this necropolis, as well as the social and cultural environment of their time.

Early Iron Age tomb architecture, material culture and funerary rituals

The earliest tombs discovered at Crustumerium date back to Latial period IIB2, matching the data from the settlement area (Chapter 1, table 1).

Funerary structures of this period are under-represented in relation to the sizeable number of depositions assigned to the subsequent Orientalising period and are mainly documented on the south side of the settlement area. Their small number is probably due to the preliminary stage of our fieldwork or to erosion, but selectivity in funerary practices should also be taken into account. As a matter of fact, most of the tombs are rather shallow and almost completely ploughed out.
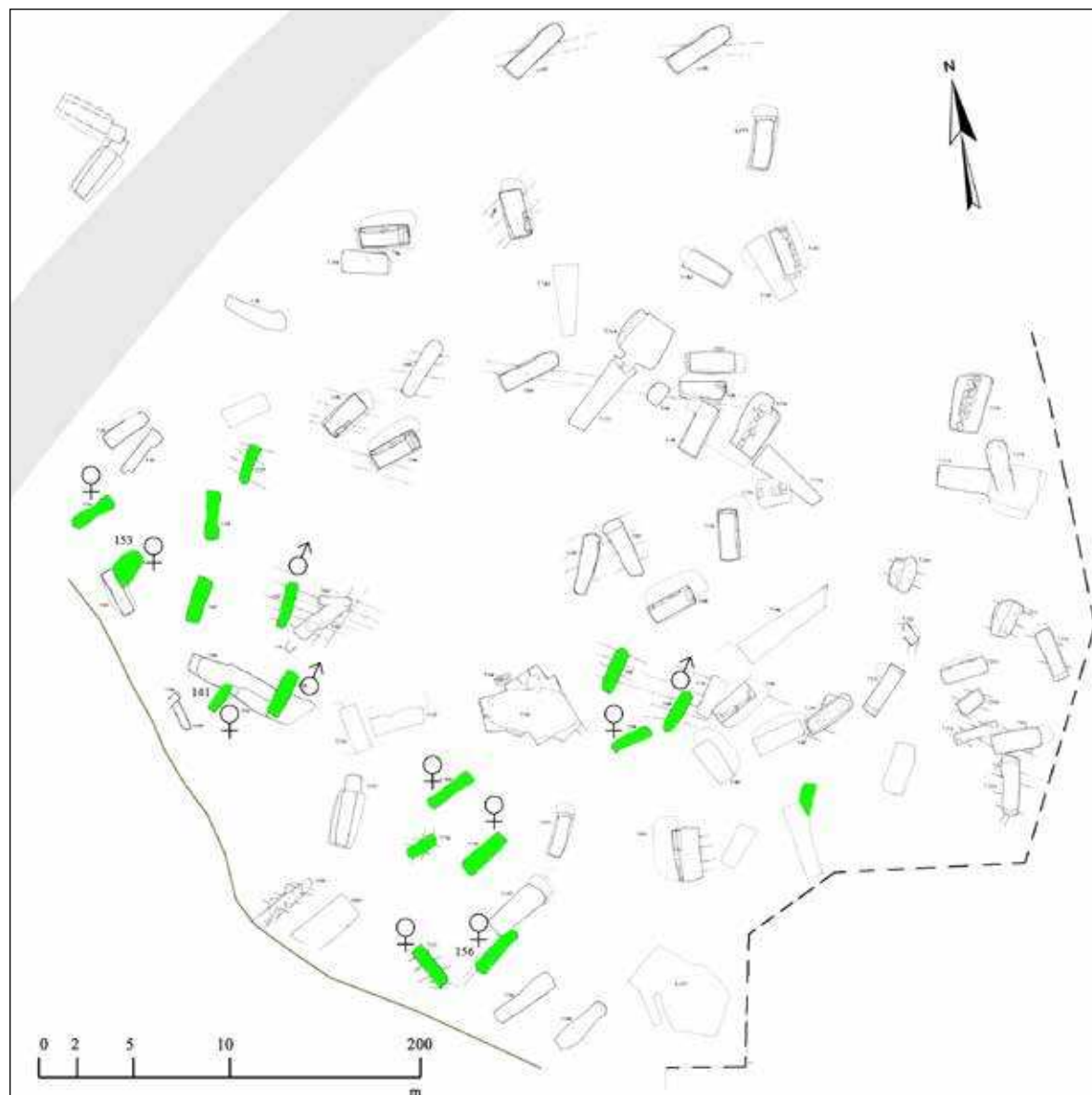
Figure 6.1: *The distribution of Early Iron Age tombs in the western district of the Monte Del Bufalo burial ground.*
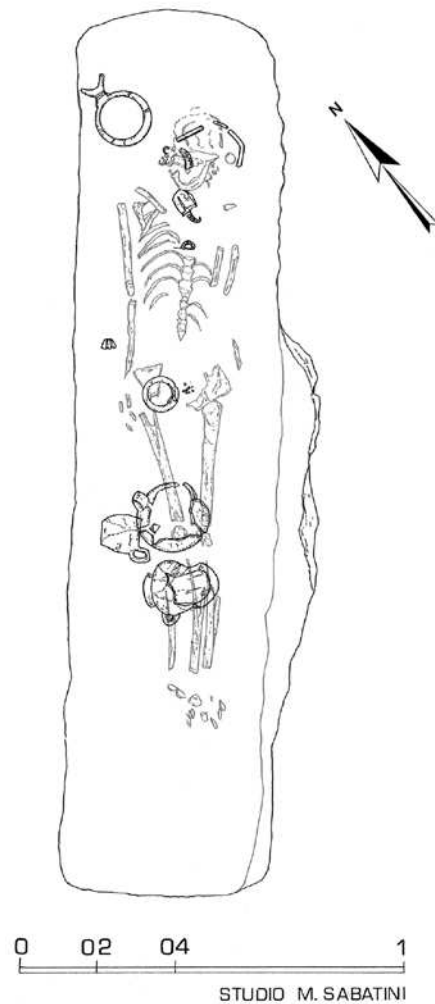
Figure 6.2: *A drawing of a preserved skeleton and the associated grave inventory inside a trench tomb.*

Tomb architecture

During this period, the funerary structures were simple individual trenches or *fossa* tombs of rather small dimensions (average size: around 240-250 cm in length, 65-75 cm in width), ritually oriented to the north.

The largest group of Early Iron Age tombs, 17 in total, is located in the western district of the Monte Del Bufalo cemetery and together with the surrounding later tombs, covers an area of about 200 square metres, forming the largest cohesive cluster of tombs at the site. This group provides evidence regarding the organisation of the cemetery in this early period, in which tombs were arranged in rows at regular intervals and spaciously distributed (fig 6.1).

Another group of tombs, dating from the Late Early Iron Age, is coming to light next to and underneath the monumental tumulus 'Quilici O', on the opposite side of the cemetery. Excavation in this area provides valuable information about the landscape of the cemetery, illustrating that the earliest tombs were protected by small heaps of soil (*tumuletti*) surmounted by horseshoe-shaped structures in tuff stone. Similar structures have been documented in the *Fossa-Kultur* of the Sarno Valley (Campania).

Material culture and funerary rituals

The Early Iron Age tombs so far excavated at Crustumerium contained a maximum of five impasto objects. The standard pottery shapes selected as funerary goods are functionally meant to contain, pour, tap and enable one to drink a liquid and therefore emphasise the consumption of wine as the focus of funerary ideology. Examples are the cup with a high-raised handle, the mug, the jug and the bi-conical neck-jar. The objects are not placed together in the ditch, but distributed in three main locations: next to the head, along the right side of the body and next to the feet.

Figure 6.3: *Detail of a poorly preserved male deposition, associated with a dagger.*

The large number of disturbed tombs and the poor preservation of the skeletons hinder an in-depth study of the combination of grave goods, their ritual deposition in the tomb and the relation between the objects and the body. Nevertheless, in those tombs that have been fully preserved their arrangement is mostly fairly standard (fig 6.2).

The cup with a high-raised handle is usually placed beyond or next to the head, whereas the jug is placed next to the feet or on top of the knees and the tibiae, sometimes on the right side of the body. The position of the mug varies: it seems to be associated either with the cup or with the jug, and may not have a specific significance in relation to the deceased.

The female *parures* frequently include one or two fibulae, small suspension rings, *fermatrecce* and a necklace. Occasionally a spindle whorl is found in a female burial, placed either next to the head or near the right arm/hand. The small number of spindle whorls suggests that they are related to a specific social role and maybe also to a specific age group. It has been argued that in Latium the spindle whorl is present in all female depositions belonging

Figure 6.4: *Example of a capstone reused as the closing stone for the entrance of a chamber tomb.*

Figure 6.5: *A capstone from Santa Palomba (Rome).*

Figure 6.6: *Cinerary hut-urn from Etruscan Tarquinia (10th-9th century BC, Museo Nazionale).*

to Latial period I and II, since it represented the social role the women were entrusted with from their birth, whereas in the following periods spinning and mostly weaving equipment is often associated with high-status depositions and reflect the progressive transformation of the social order.

Male depositions are scarcely represented and are distinguished by iron or bronze spearheads, which are placed on the right side of the head; only in one case is the spear head accompanied by a dagger, and placed upon the chest (fig 6.3).

The excavated Early Iron Age tombs at Crustumerium do not preserve traces of ritual actions during the burials, such as food offerings or intentionally broken objects included in the filling

of the ditch. However, the mug from Tomb MDB 153 may have been used for ritual purposes, judging from its position at a higher level than the deposition.

B.B.M., A.J.N.

Key literature
Belelli Marchesini 2013; di Gennaro & Belelli Marchesini 2014; di Gennaro et al. forthcoming.

Capstones and houses
By the Early Iron Age, the position of the tombs was marked at ground level by tuff capstones of various different types. None of them was found *in situ* at Crustumerium. Apart from the one that was ploughed out from 'Quilici O', several more or less complete capstones were reused in the filling of the tombs from the Late Orientalising period onwards (fig 6.4), suggesting that a radical transformation

of the burial ground took place in this period.

The simplest capstones evoke the house as a protective element of the burial through the representation of the thatched roof, forming a *pars pro toto* (a part that represents the whole). A few of them are disc-shaped and recall exemplars from Etruria (Veii) and the Faliscan area (Narce), used both as lids of cinerary stone containers and as proper capstones; others are column-shaped, like similar ones from Etruria (Tarquinia) and Falerii Veteres.

More elaborated capstones found at Crustumerium provide a detailed and faithful representation of architectural structural elements and are exceptional, locally-made, house-models. As far as we know, the only parallel is provided by a capstone from the southern periphery of Rome (Santa Palomba) which bears the scratched representation of a front door (fig 6.5).
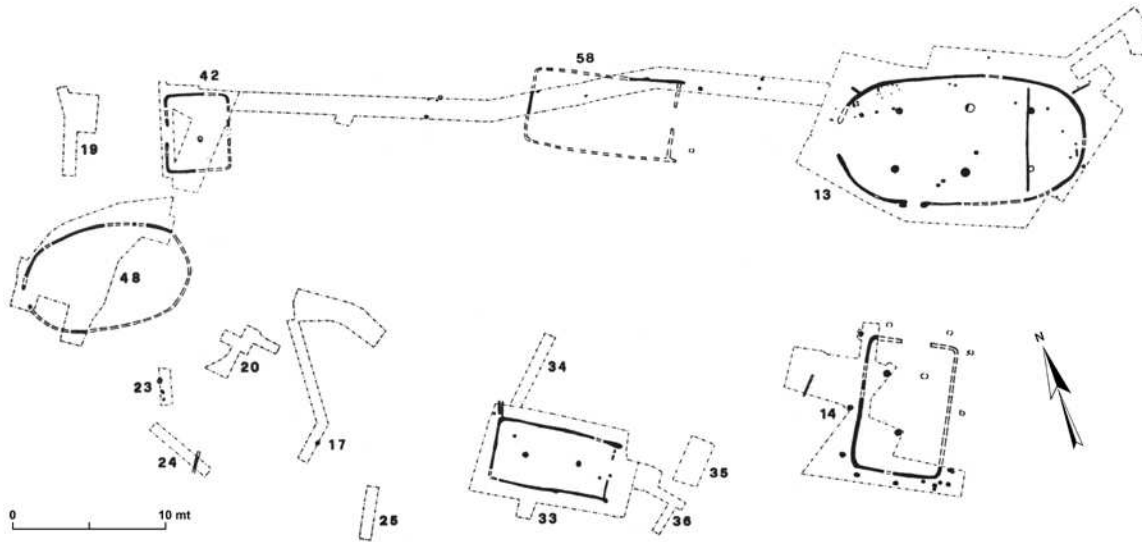
Figure 6.7: *The ground plan of a cluster of huts as excavated in Tarquinia.*

Figure 6.8: *A capstone from Crustumerium imitating a hut structure.*

With what kind of buildings are we dealing here?

In the Tyrrhenian area, different sources inform us about a long building tradition, documented since the Late Bronze Age. On the one hand, there are scanty remains of real huts found inside settlements (e.g. at Sorgenti della Nova), on the other hand, there are terracotta urns in the form of detailed three-dimensional representations of real buildings (fig 6.6).

Both sources suggest that curvilinear structures were predominantly in use, even though rectilinear ones have been documented in the same geographic districts. Examples are the rectangular subterranean buildings of Monte Rovello and Luni sul Mignone (Recent Bronze Age), interpreted as dwellings of chiefs, and the rectangular house-urns from Sala Consilina, Tarquinia and Bisenzio (10th – 9th century BC).

As the huts excavated at Tarquinia (Calvario dei Monterozzi) clearly show (fig 6.7), settlements included buildings of different shapes and dimensions, depending on their function and use, either by the community (the huge oval huts) or by nuclear families (the rectangular and squarish ones - fig 3.13).

From the Middle Orientalising period, advancements in building techniques and the introduction of tiles from the Greek world stimulated a substantial improvement in building techniques and marked the final prevalence of rectilinear structures. The interiors of the tombs of the Etruscan town of Caere show in detail how the carpentry was progressively adapted to support tiled roofs and how the house models were modified, from axial to transversal ones. The Orientalising cinerary urns demonstrate that thatched roofs were still in use, even though

tiles were commonly used in Central Italy by the end of the 7th century BC. This period of transformation ended with the systematic adoption of orthogonal patterns in the planning of urban grids and buildings.

In spite of such achievements, traditional house models ('huts') occasionally remained in use. Some curvilinear structures were imbued with a symbolic and religious meaning, for example the circular Temple of Vesta in the Roman Forum and what is known as Romulus' Hut in Rome. The round or slightly oval capstones from Crustumerium most probably date back to the Early Iron Age and reflect contemporary house models, but they may also belong to the succeeding Orientalising period if we take ritual conservativism into account.

All the capstones from Crustumerium were made by skilled local craftsmen using chunks of red tuff, which were quarried at some distance from the settlement.

Figure 6.9: *A different type of capstone from Crustumerium imitating a hut structure.*

The capstone illustrated in figure 6.8 shows a round building on top of a short drum (diam. 48 cm; h. 64 cm). Its saddled roof is crowned by a ridge pole, at the extremities of which two small openings for the discharge of smoke and ventilation have been sketched. The median portion of the wall bears the representation of three rectangular openings; their frame is rendered with pairs of straight incised lines, but they are featured differently. The two openings on the front and rear side of the building, along the axis of the roof, have a cross infill as if to suggest that they are closed: one of them is certainly a window, the other one is missing the lower part and is possibly a door, since it seems to be provided with a short step. The third opening, on the right side of the door, is slightly recessed and represents an open window.

The capstone on figure 6.9 represents a slightly oval building (85.5 cm x 79 cm; h. 60 cm) placed on a short socket. The saddled roof protrudes slightly over the wall; two detailed horse-shoe shaped

dormers are represented at the extremities of the ridge pole. The wall is surrounded by a pavement and bears two similar recessed openings, both delimited by a rectangular, faintly moulded frame and flanked by vertical grooves (jambs?). They are the same height as the wall: the first, certainly an open door, is on the front side of the building and is provided with two short steps; the second – possibly another door – is on the right lateral side.

Unlike the hut urns, both models from Crustumerium are provided with a secondary door/window on the right side of the door. A parallel for the double door is provided by the long oval huts at Tarquinia (Calvario dei Monterozzi), as shown in figure 6.7. The location of the openings and the blind walls was strictly related to the orientation of the huts and the need to protect them from weathering.

The funerary architecture of Crustumerium does not provide any specific hint regarding the architectural features of contemporary buildings, even though tombs were intended to function as eternal homes. As we will see, due to the poor quality of the local bedrock or as a result of a specific choice, the interior of the chamber tombs was plain and no attempt was made to feature specific details. Nevertheless, schematic representations of houses are again provided in the Archaic period, now in the form of rare cinerary urns (fig 6.36).

F.d.G.; B.B.M.

Key literature
Bartoloni et al. 1987; Bartoloni 1989; Colonna 1986; di Gennaro 2003; Potts 2015; Rasmus Brandt & Karlsson 2001

Orientalising period tomb architecture, material culture and funerary rituals

Introduction
The overall cultural and social change that characterises the Orientalising period was the result of the intensification of commercial trade and cultural contacts with the eastern Mediterranean during the 8th century BC. Merchants were mainly attracted to the Tyrrhenian area by the rich mineral ores of the Etruscan hills and around 770 BC Greeks from Euboea settled in the Bay of Naples, on the island of Pithekoussai. The importance and success of such trading centres, or *emporia*, is evident from the wide diffusion of Greek and Levantine items of value as well as pottery made or inspired by Euboean and Cycladic craftsmen. The trade routes originally followed the river valleys from Campania into Latium, but in the 7th century BC permanent trading posts were established along the Tyrrhenian coast.

Commercial trade and cultural influence helped to accelerate the social and economic progress of the local communities. The increase of wealth led to greater social inequality and the use of imported symbols of power helped to 'legitimise' the rule of a few groups over the mass of the population. The new aristocratic family groups entertained wide-ranging cultural relationships and were responsible for the adoption of specific ceremonial habits and an increasing demand for luxury goods from the eastern Mediterranean.

Central to the funerary ideology of the Orientalising period was the banqueting ceremony and, above all, the consumption of wine. As a crop, grapes had already spread throughout Italy, but historical sources mention substantial improvements in cultivation techniques during the

Figure 6.10: *Pottery assemblage of an Orientalising tomb, during excavation.*

8th century BC, attributed to the Roman king Numa Pompilius (Plutarch, *Vitae Parallelae*, Numa, 1,2 ss.; Pliny the Elder, *Nat.Hist.*, 88). This suggests that by this time wine had become a drink as common as the Greek *oinos* and that it was suitable for ritual purposes.

The new ceremonial habits of the elite are reflected in the large-scale production of vessels associated with wine drinking and the adoption and imitation of foreign pottery shapes. Substantial improvements in the pottery production process (such as the use of the potter's wheel and firing at high temperatures) and of metalworking were also prompted by contacts with the Greek world and the transmission of craft techniques during the 8th century BC. Whereas the tombs dating from the last decades of the 8th century were generally provided with a larger number of grave gifts, the inclusion of imported wares, precious ornamental *parures* and highly symbolic objects are typical of outstanding depositions and proclaim the power and wealth of the deceased (fig 6.10).

At Crustumerium the full exploitation of the burial grounds dates from the Orientalising period and starting from the middle of the 7th century BC we see a substantial increase in the number of depositions. Radical changes in tomb architecture and the evidence for funerary banqueting rituals starting from the late 8th century BC reflect the profound social and cultural transformations that took place in this period and underline the adoption of peculiar ceremonial habits, which are documented both at Crustumerium and at Fidenae in the northern region of the Latin territory.

The tombs now include a large number of grave inventories, which were no longer deposited around the body, but placed in clusters in a separate space and, as a rule, placed above the head of the deceased.

So far extraordinary and extremely rich tombs, the so-called princely tombs that would have belonged to chiefs and the upper aristocracy, examples of which are known from Etruria and Latium, have not been discovered at Crustumerium. In fact there are few remarkable depositions (with above average quantities of grave goods) and they usually pertain to female individuals. As we will see, they are provided with rather elaborate *parures* including precious and rare ornaments, peculiar implements, imported pottery and metal vessels, highlighting cultural connections or trade relations with other Italic cultural districts.

Well known status symbols – for example footstools – have hardly been found in Crustumerium; when they do occur, they are not associated with a single deposition to highlight individual high rank as seen elsewhere (see Tomb MDB 40). The bulk of the tombs do not reflect striking social differentiation, even though specific rituals seem to have been performed only in specific family groups. The tombs
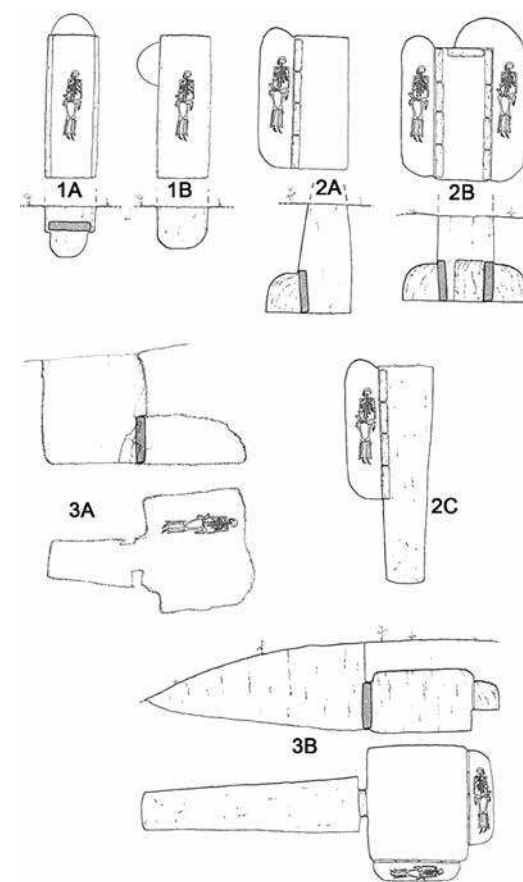
Figure 6.11: *Typology of the tombs. 1A-B: Trench tombs with a niche. 2A-C: Tombs a loculo. 3A-B: Chamber tombs.*

showcased in this exhibition help to illustrate the changes that took place during the second half of the 7th century, as regards both the developments in tomb architecture and in the assemblage of the grave's inventory.

Key literature
Bartoloni et al. 2012; Bartoloni 2013 & Cordano.

Figure 6.12: *A trench tomb provided with an apsidal niche during excavation. At the bottom of the trench, a body inside a tree-trunk and lumps of tufa delimiting the depositional space and supporting horizontal slabs; above the deposition a niche was dug out for the placement of the pottery.*

Tomb architecture

Throughout the Orientalising period and up to 630 BC the cemeteries of Crustumerium featured individual tombs of remarkable architectural elaboration, which were meant to express economic power and in which a ritual reorganisation of the depositional space can be followed over time (fig 6.11). The two main tomb types in use at Crustumerium were contemporarily adopted in the nearby Latin town of Fidenae, stressing intensive cultural contacts.

The first tomb type was a local version of tomb models also documented in Veii since the third quarter of the 7th century BC, which later also spread to the Faliscan region (fig 6.12). By the end of the century, the Crustumini were digging deep, elongated trenches, which were provided with a niche that was usually positioned to the north and above the head of the deceased. The body and its personal belongings were buried inside a coffin or

Figure 6.13: *A trench tomb provided with a lateral niche. Due to erosion, the ceiling of the niche is missing. The poorly preserved remains of the deposition are preserved next to the closing stones.*

a tree trunk and were placed in the trench, whereas the pottery was placed inside the niche which was then sealed with tuff stones. In the oldest examples the coffin was placed in the centre of the trench and protected by rows of horizontal stone slabs, which were supported on both sides, either by ledges cut out in the bedrock or by tuff chunks. The head niche was usually shallower than the deposition. In later examples, the coffin was directly covered with soil and, most frequently, placed toward the left side of the trench, whereas the niche was dug at the same level as the depositional trench or slightly deeper.

A variant of this type is a smaller trench tomb provided with a lateral niche, which was usually cut on the right side of the body: such tombs appeared in the cemetery starting from the Middle Orientalising period and mostly contain female depositions. On the basis of their uneven distribution inside the cemetery, this variant may reflect specific ritual choices and/or habits of specific family groups. At Crustumerium

Figure 6.14: *Because of erosion, the architecture of this tomb a loculo is fully exposed: on the left, the entrance shaft; to the right, the deposition of a man inside a tree-trunk. The pottery is placed above the deposition.*

trench tombs provided with a niche seem to have been used up to the last quarter of the 7th century BC.

The second tomb type, the so-called *tomba a loculo*, also stemmed from Etruscan models elaborated at Veii (for example Casale del Fosso Tomb 871) in the last quarter of the 8th century BC and later spread to the Faliscan region and inner Etruria. This

Figure 6.15: *The shaft and closing system of a tomb provided with two lateral loculi, as seen from the top.*

tomb type consisted of a rectangular shaft, which was cut deep into the bedrock (up to 3.5 m) and was provided either with one (*tipo Narce,* fig 6.13) or two (*tipo Montarano)* lateral loculi. The *loculus* is an empty space and was designed in such a way that it could house both the deposition and the pottery assemblage. Just as in the trench tombs, the pottery was generally placed above the head of the deceased, but a dividing element was usually missing.

This tomb type was in use at Crustumerium up to the Archaic period undergoing progressive simplification and reduction in size.

The *a loculo* tombs pertaining to the first half of the 7th century seem to have had fairly standardised measurements and were sealed by rows of almost modular tuff slabs (fig 6.14 and 6.15), whereas later tombs used rough closing systems, mainly heaps of chunks and reused stones (fig 6.4). Roof tiles and wooden boards were used in the 6th century BC.

Inside the *a loculo* tombs the presence of multiple depositions, which would imply secondary use of the depositional space and an interpretation as family tomb, is rarely documented. In a few cases the *loculi* housed either married couples, accompanied by a double pottery assemblage, or small children laid on top of their mothers. The reuse of the shafts of the tombs *a loculo* as trench tombs occurs more often; a niche for the pottery was usually constructed in the side of the trench. This reuse of older tombs was possibly inspired by the lack of available space in the burial grounds and caused the appearance of clusters of modest tombs in the last decades of the 7th century BC.

Around 630 BC the introduction of family tombs provided with a chamber marks an important social transformation and a changing attitude towards burials, occurring in tandem with a substantial reduction in the size of the grave inventories and anticipating the complete disappearance of *corredi* that would occur during the Archaic period. In contrast to the Etruscan world the adoption of the chamber tomb in Latium was rather late, and the few early chamber tombs in Latium (in Acqua Acetosa Laurentina, Rome) consist of partially built instead of subterranean structures. The earliest chambers at Crustumerium were small rooms accessible through

Figure 6.16 A and B: *Small chamber tombs with a shaft entrance without the ceiling.*

Figure 6.17: *Detail of a parure including composite leech fibulae and navicella fibulae during excavation.*

deep rectangular shafts, which were later extended and provided with steps (fig 6.16A and B). On the basis of current information, we may suppose that they were originally meant to house a single deposition. In this early period, depositions were placed directly on the floor of the chamber or, less frequently, on a lateral bench.

Key literature
Belelli Marchesini 2013; di Gennaro & Belelli Marchesini 2014.

Women and men
The funerary dress of women at Crustumerium was usually fairly modest and included a couple of fibulae pinned on both shoulders and a variable number of smaller fibulae pinned on the chest, up to a total of fifteen. Small iron fibulae were sometimes placed along the body or on the pelvis and may not belong to the dress, but may have been used to attach a *sudarium* (a shroud). In general, the earliest depositions bear bronze fibulae of larger dimensions that are embellished with incised and punched decoration, whereas from the middle of the 7th century BC both bronze and iron fibulae become smaller.

The best documented fibula types are the *navicella* (boat-shaped) and the *sanguisuga* (swollen bow or leech-shaped) fibulae with a long catch-holder, sometimes provided with pendants of different kinds (fig 6.17). Composite leech fibulae with graduated amber and sometimes bone elements are found among the most elaborate *parures* of the 7th century BC. Small bronze coated *sanguisuga* fibulae were frequently documented in later phases up to the Archaic period. Bronze or bone/ivory fibulae with amber inlays, however, are extremely rare and are associated with exceptional burials.

No more than fifteen depositions dating from around the middle of the 7th century BC were found with flat, decorated suspension rings of rather large size, attached to fibulae (see Tomb 40) that were placed on the pelvis. This typical Latin ornament is usually found with adult women of around 30-40 years old, and for this reason most scholars presume that it is a symbol of fertility and maternity. One exceptional deposition included a large suspension ring and hundreds of large fibulae of different types, some bearing small rings, which were interlinked so as to create four separate chains that completely covered the chest of the deceased woman.

The ornamental *parure* usually also included bronze or silver *fermatrecce*, which were placed on both sides of the skull. These objects of thin metal are usually poorly preserved. Necklaces of glass and/or amber beads are also frequently documented. In a few tombs we have also found bronze bracelets and belts of perishable material of which only the bronze wire clasps are occasionally preserved.

Exceptional female *parures* mostly belong to exclusive family groups within the cemetery of Monte Del Bufalo. For instance, similar items, including an elaborate ring of a twisted bronze bar with folded plates are present in Tombs MDB 232 and MDB 71, which were found in close mutual proximity. Even though this object was certainly worn as a headdress by the lady of Tomb MDB 232 (see fig 5.24), its position on the chest of the lady buried in Tomb MDB 71 suggests an alternative function as a suspension ring, recalling similar objects from Caere, Capena and also Spoleto.

Simple rings of twisted bronze bar were found in a few other depositions at Monte Del Bufalo, in which cases they were placed on top of the skull and/or at the feet: in these instances, their function is unclear and they might belong either to the headdress or the *sudarium*.

As far as social functions are concerned, women are mainly associated with spinning activities. Spindle whorls were usually placed on the right side of the body, next to the head or near the hands of individuals more than twenty years old. Sometimes spindle whorls were also included in the grave inventory or placed inside cups or jars, suggesting a specific ritual. In a few outstanding depositions bronze, bone and glass spindle whorls are included, together with bronze foil cylindrical tools which may be interpreted as distaffs used for spinning.

On the whole, female depositions at Crustumerium do not include elaborate spinning and weaving sets, which were typical of eminent women on the right bank of the Tiber. Weaving activities were therefore probably restricted to a

limited number of women according to their age or social class: only four depositions are associated with several spools, placed among the pottery and probably associated with precious cloth.

The pottery assemblages suggest that both sexes could partake in banqueting and wine drinking. This is a peculiarity of the Tyrrhenian area; whereas in Greece women were only involved in the preparation of the drink (Homer, *Il.* XI, 624-643). At Crustumerium the importance of women in wine preparation is also stressed by the association of krater-cups with female depositions only.

The dress of men is usually characterised by the presence of one or a limited number of small iron and bronze *sanguisuga* fibulae which were pinned on the chest. The earliest depositions sometimes contain *arco serpeggiante* fibulae that specifically relate to the mantle.

Most of the male depositions are accompanied by a spearhead, which is usually placed on the right side of the body. Sometimes the spearhead is associated with a *sauroter* (iron tip) and (up to three) bronze or iron cylinders with a transverse nail: they were certainly used as assembling devices for a spear that consisted of multiple wooden segments.

Half of the male adult tombs also contain an iron dagger, which is usually placed next to the left shoulder and sometimes on top of or below the deposition. Two different dagger types are documented at Crustumerium (see Tomb 41 and 42). The first one is typical of the Latin and Falisco-Capenates region and is characterised by a heft with bronze spiral (*volute*) decoration. It was used at Crustumerium from the last decades of the 8th century up to the Middle Orientalising period. The second type has an iron sheath and the heft of the

dagger is provided with two or four knobbed stems. This type probably originates from the Faliscan region (Narce, necropolis of Monte Cerreto, Tomb 73) in the first quarter of the 7th century BC and it was widespread in the Central Italian Apennine region and along the Adriatic coast during the 7th and 6th centuries BC. Throughout this period, this weapon underwent slight typological changes, but it was manufactured *en masse*.

Spearheads and daggers are always placed in tombs in non-offensive positions (alongside the body). They indicate that men in Crustumerium wore weapons that were typical of the hoplite armament, using long spears, short range melee weaponry and casting weapons during battles. No defensive weaponry, such as helmets or armour, was found in Crustumerium.

Key literature
Bartoloni 2007; Bartoloni & Taloni 2009; d'Ercole 2010; Pitzalis 2011; Stary 1981; Weidig 2008.

Children
Tombs of infants are generally very rare on Latin burial grounds. Since Latial period IIB and up to the Archaic period, children were possibly mostly buried inside the settlement areas and around the houses, to delimit the ownership of the ground and to invoke protection over the domestic space (*suggrundaria*). This phenomenon has so far been documented in a few Latin sites (Roma, Ficana, Pratica di Mare, Ardea and Fidenae). The deposition of children has also been associated with exceptional foundation rituals, as shown by the remains of perinatal babies that have recently been found under the floor of the *regia* at Gabii. On the basis of anthropological data it has been suggested that

the treatment of infant burials in Latium mainly depended on the age of the child and that the remains of children less than four years old are exclusively found within the settlement areas.

The cemeteries of Crustumerium, however, provide a different pattern, since they include children of all ages. In general children younger than one year old were buried inside vessels such as jars or *dolia* (so-called *enchytrismos* burials, see Tomb 140), whereas older children were laid to rest inside small tombs *a loculo*. As already stated, a few children were buried on top of their mothers.

Whereas at Monte Del Bufalo and Sasso Bianco individual infant burials are part of tomb clusters, a different situation was encountered along the so-called *trincea viaria*, the deepened road that cuts through the settlement area. Here five small tombs *a loculo* with multiple infant burials were brought to light, dating from the last quarter of the 7th century BC. This cluster may represent a burial area reserved for child burials, comparable to similar situations documented at Narce in the Faliscan region and Pontecagnano in Campania. The plot of children burials could have marked the boundary between the settlement proper and the road that traverses it; on account of their small number, however, excavators suggest that the tombs may also pertain to a single family living in the immediate surroundings.

At Monte Del Bufalo the depositions of small children are usually associated with a small number of vases, including miniature pottery and feeding-bottles; tombs dating to Latial period IVB also include a set of *unguentaria* (perfume bottles). Jewellery was only found occasionally, in which cases it included one or multiple bracelets, tiny fibulae and necklaces. Interestingly, the infant burials

Notes on impasto pottery production at Crustumerium

From the Orientalising Period onwards the range of pottery shapes used in daily life and in tombs was diversified and expanded. Pottery production was highly improved, stimulated by the introduction of the potter's wheel, and fine wares from the Greek world were imported. These technological and cultural developments marked the definitive transition from the minor household output of ceramics to specialised production in workshops. Actual production was now the province of skilled craftsmen in designated areas of a settlement or immediately outside it and raw materials were carefully selected. We cannot, however, rule out the possibility that fundamental components of a house or household, such as roof tiles and cooking pots, were still produced in the domestic environment.

The coexistence of household industry and workshops is well reflected in the wide range of pottery wares found in Orientalising tombs, which are of different colour and shape, and exhibit variations in decorative techniques and quality of the clay fabric. Thanks to the city's frontier position, pottery production at Crustumerium was somewhat eclectic. It adopted models from the surrounding cultural areas and elaborated them in an original way. The local material culture is therefore well characterised; stolen products from Crustumerium, as already stated, can be easily identified by their style.

The shapes and decorative patterns of black impasto pottery are well documented in other Latin settlements, but typical of Crustumerium (and Fidenae) is the addition of spikes to the handles of Latial amphorae and double-handled cups (fig A and B). A typical shape is the rather large cup, used to mix wine, with a high-raised large handle; it can be considered a *krater*,

Figure A and B: *Black impasto objects were mostly decorated with a stamped and an incised decoration, that was accentuated by means of a red or a white paste. Incised decoration mainly consisted of geometric patterns (such as zig-zag lines, meanders, triangles, stars) and, less frequently, animal figures such as birds and fishes. Birds were highly symbolic animals, connected with beliefs in an afterlife. The schematic image of birds carrying the chariot of the sun (the so-called "barca solare") appeared in Central Europe between the 13th and 12th century BC. In the Early Iron Age, peculiar motifs and figures of birds decorated bronze vessels and furniture of the most outstanding depositions. From the middle of the 8th century, a new iconography of birds was adopted, thanks to the influence from the Greek world (bird skyphoi). During the Orientalising period this motif became extremely popular: it consists of lines of birds (so-called "herons") in a narrative style and is found on pottery and in painted tombs.*

although it is much smaller than the monumental exemplars displayed on high stands in some tombs of other Latial towns (Acqua Acetosa Laurentina, Decima).

Another interesting shape is the so called *scodella crustumina*, a shallow bowl with a deeply incised decoration on its base; its prototype was produced in the Faliscan region (in the town of Narce) from the second half of the 8th century BC onwards (fig C).

Other characteristic black impasto shapes are less common and may have been imported: this is the case with the Latial pyxis (fig D), which is associated with a few outstanding female depositions, and the earliest Cypriot-Phoenician *oinochoai* (fig E) and spiral-amphorae.

Impasto rosso pottery production adopted a selection of the shapes that were fashionable in the Etruscan (Caere

and Veii) and Faliscan towns. Typical of Crustumerium is the so-called *olla a coppette*, a ceremonial vase that was developed in the first half of the 7th century BC and was occasionally exported to Rome and Lavinium.

On the basis of the large number of impasto rosso vases decorated with the white-on-red technique, we can assume that workshops with varied levels of specialisation were established at Crustumerium. This particular production, rarely documented in Latium (Acqua Acetosa Laurentina, Ficana and Gabi) and the Sabine region (Cures), is typical of Caere and the Faliscan region. How it spread is still a matter for debate: imported objects may have stimulated local imitation, but most probably non-local craftsmen had moved to Crustumerium to produce the specific pottery (fig F). On the other hand, the import of certain pieces is also attested, for example,

Figure C: *The scodella crustumina has a typical kind of incised decoration, rendered on the outside, and the object was therefore presumably used both as a bowl and as a lid. Its decoration did not change until the end of the 7th century.*

Figure D: *The Latial pyxis is a cylindrical box on a high-stemmed foot, furnished with protuding knobs along the carination. Its lid is always provided with bulky handles; the monkey-shaped one from Tomb MDB 196 is exceptional. The function of this shape is not clear, but it may have contained some special kind of food.*


Figure E: *The bulky globular Cypriot-Phoenician oinochoe from Tomb MDB 307 is exceptional because of the quality of its decoration, including a snake that crawls around its belly. The shape, named after its origin on the Lebanese and Palestinian coasts, spread all over the Mediterranean area in the Orientalising period. The ceramic vessels derived from metallic prototypes. The earliest types, characterised by their globular body, were associated with outstanding depositions. The globular type was gradually substituted by a type with an ovoid body, broadly documented in the second half of the 7th century BC and at Crustumerium as well. The motif of the snake, of proto-Corinthian origin, is not well documented, but it was used by the Caeretan workshop of the "Painter of the Gru". The meander and vegetal patterns which decorate the neck, belong instead to the repertoire of incised pottery of the Faliscan district. As it turns out, the oinochoe matches different cultural models. However, its heavy fabric suggests that we are maybe dealing with a local "experimental" production.*

by the discovery of a Faliscan *holmos* in Tomb MDB 232.

Whereas geometric decorative patterns and Orientalising motifs (herons, fishes) are common, elaborated friezes of real and fantastic animals associated with rows of palmettes are found only on a number of ceremonial shapes (jars, *olle a coppette* and cylindric *pyxides*) during the second half of the 7th century BC.

B.B.M.
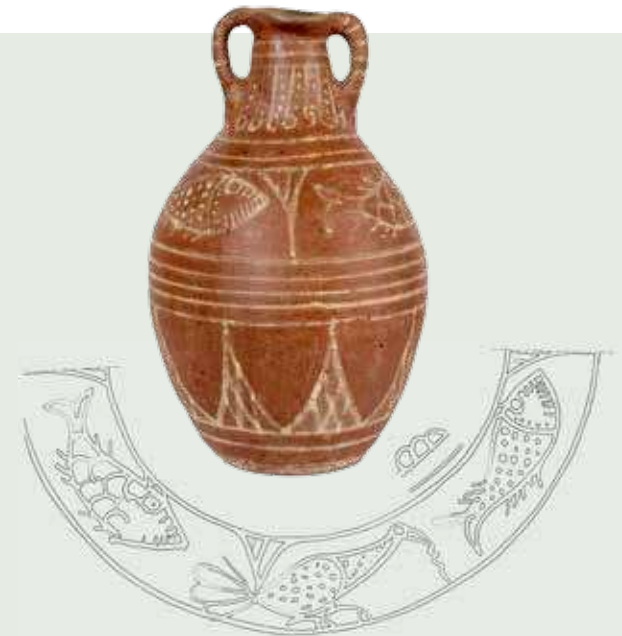
Figure F: *The impasto rosso amphora from Tomb MDB 4 is decorated with two white-on-red fishes and a bird, which is picking a worm from the ground. Its decoration strictly recalls the style of the Caeretan workshop of the "Painter of the Gru" (first half of the 7th century BC), but its shape has no parallels and is maybe an invention of local workshops. The transmission of this decorative language to Crustumerium can be explained both by the circulation of the pottery from the "Painter of the Gru" atelier in the Faliscan area and the territory of Veii, and by the mobility of craftsmen working in the Tiber district.*

Key literature
Amoroso 2014; di Gennaro 2013; Micozzi 1994, 2014 ; Nijboer et al. 2014.

Figure 6.18: *Reconstruction of the ritual use of the olla a coppette.*

near the *trincea viaria* have an abundant, rich grave inventory, including bronze and ceremonial vases, which highlight their special *status.*

Key literature
de Santis et al. 2007-2008; Jarva 2014; Modica 2007.

Grave inventory assemblage and funerary rituals
A typical grave inventory of a tomb from Crustumerium includes a complete set of vases pertaining to the symposium; a ceremonial drinking occasion which is represented by a jar containing wine, and with other pottery used to fill the jar, scoop the wine from the jar, mix the wine and finally to drink it. The typical assemblage of the Early and Middle Orientalising period included the jar, a couple of Latial amphorae of different type, cups and

ladle-cups. The participation of the deceased in the symposium seems to be symbolised by the presence of a larger cup in connection with a ladle cup.

The jug of the drinking service is not always included in the pottery set and is always misfired; in most cases it was found next to or below the deposition, so as to suggest its function in purification rites. There is a limited number of elaborate grave inventories where the symposium is overrepresented through the duplication of each shape and through a peculiar positioning of the pottery. In these *corredi* the jar has a central position and is surrounded by a large number of cups, up to 55, which were probably tied together with a rope. Sometimes the jar is replaced by a so-called *olla a coppette*, the function of which seems to be strictly connected to the small ladle-cups (fig 6.18).

In female tombs the jar was sometimes accompanied by the *krater-cup*, which is used in the preparation of the drink and hints at the active participation of women in the activity. This special association of pottery indicates that the ritual of *circumpotatio* may have been practiced, during which each participant would scoop the wine from the jar by using the cup as a ladle. The cup, as its Greek name *kyathos* (unit of measure) suggests, was used not only to extract a specific amount of liquid from the jar but also to measure the quantity of wine each member of the group was entitled to.

Of course the funerary ritual refers to ceremonies which were part of life and that were meant to underline special communal events. The funerary evidence suggests that such rituals were performed only by specific social groups within the community up to the end of the 7th century BC. On the other hand, evidence for comparable rituals based on the communal consumption of wine is well documented in Etruscan
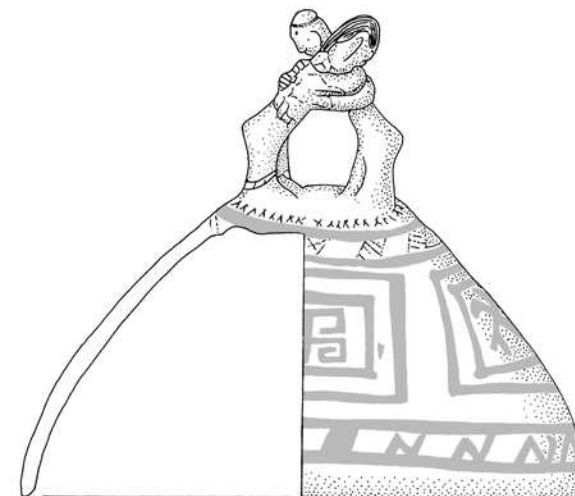
Figure 6.19: *Geometric, linear and rudimentary representations of humans in Early Iron Age artwork from Italy.*

settlements: the best example is provided by the hundreds of ladle-cups which were deposited within a jar on the acropolis of Populonia, to celebrate the renovation of a building complex around 700 BC.

The role of food consumption in the burial ritual is also seen from the Middle Orientalising period onward. Functional shapes such as basins, plates and small bowls are found, sometimes even with a whitish pastry residue - possibly porridge. The grave inventory often included the so-called *scodella crustumina*, a decorated bowl which is sometimes also used as a lid for a jar.

Both the composition of the ritual pottery assemblage, and the prevailing use of local pottery, changes in the Late Orientalising period, with the introduction of bucchero and Etrusco-Corinthian pottery and the increasing use of depurated wares.

B.B.M.

Figure 6.20: *A bronze rhyton (drinking and pouring vessel) from Veii. A realistic depiction of a roaring lion dating around 725 BC (Museo Nazionale Etrusco di Villa Giulia).*

Key literature

Bartoloni 2011; Belelli Marchesini 2013; di Gennaro & Belelli Marchesini 2014.

Real animals and mythical creatures (Mischwesen) on Orientalising pottery

Mischwesen are mythical creatures combining features of two or more animal species and/or human beings. For example, griffins are a cross between a lion and an eagle while Egyptian sphinxes combine the body of a lion with a man's head. Mischwesen are still popular in modern culture as enigmatic emblems. Depictions of real animals and Mischwesen became fashionable in large parts of the Mediterranean during the 7th century BC but at Crustumerium they achieved a characteristic rendering.

Figure 6.21: *Khorsabad, the rhyton depicted on a stone carving originally from the Palace of Sargon (the Louvre).*

From around 800 BC onwards, Etruscans, Latins and other peoples in Italy came in touch with depictions of real animals and Mischwesen from the Near East thanks to their contacts with Phoenicians who travelled and traded over the entire Mediterranean from 950-900 BC onwards. Before 800-700 BC the few representations of humans and animals known from Italy are geometric, linear and rudimentary (fig 6.19). Some of the imported, naturalistic images from the Orient must have caught the imagination of Italian artisans. Nonetheless, in the centuries to come, their art remained a mix of schematic representations and realistic figures.

The move away from linear and geometric art in favour of more naturalistic depictions of humans

Figure 6.22: *Some of the first Etruscan tomb paintings were found in the 'Tomb of the Roaring Lions' at Veii, dating around 700 BC.*

and animals took place in Italy mainly during the 7th and early 6th century BC, as it did in Greece. This process is illustrated here while we focus on images from Crustumerium and nearby sites. Thus at Veii, north-east across the Tiber and ca. 20 km. from Rome, the lower part of a fragile bronze *rhyton*, a drinking and pouring vessel, was found with the realistic depiction of a roaring lion dated around 725 BC (fig 6.20). This rare *rhyton* was imported from the Near East where the same drinking vessels were used in rituals as illustrated on a stone carving originally from the palace of Sargon II at Khorsabad but now exhibited in the Louvre (fig 6.21).

Such imports must have captivated the imagination of people from Veii because not long afterwards they started depicting roaring lions locally in one of the first Etruscan tomb paintings, dated around 700 BC (fig 6.22). In slightly less than a century, the representation of mythical and real animals in Etruscan tomb paintings at Veii and elsewhere

Figure 6.23: *A copy of the paintings discovered in the Campana Tomb at Veii (ca. 600 BC, Glyptotek, HIN 120).*

Figure 6.24: *A ceramic lid with a knob in the shape of a monkey from Crustumerium.*

Figure 6.26: *A lion in ivory found at Sant'Omobono, Rome (Antiquarium Comunale, ca. 575 BC).*

increasingly resembled creatures depicted on the imported, fashionable pottery from Corinth, Greece. A good example of this development is the fresco from the Campana Tomb dated around 600 BC (fig 6.23). Painted in this fresco are lions, sphinxes, horses, panthers, dogs and other animals. Exotic monkeys also became a popular theme in Italy around 700-600 BC and depictions were executed in various materials such as amber, bronze, pottery and ivory. At Crustumerium we occasionally come across squatting monkeys on pottery and bronze artefacts (fig 6.24).

Consequently Crustumerium is no exception regarding the fascination with real and imaginary creatures, even though there is limited evidence for overseas imports at the site. Representations remain schematic during the 7th century BC as is evident from the bone amulet recently excavated in Tomb MDB 59 dating from around 650 BC (fig 6.25). The amulet was found next to the skull of an elderly woman together with other ornaments. As far as we know this relief is unique in form, though amulets or seals with couchant animals and

Figure 6.25: *The amulet from Tomb MDB 59 in Crustumerium, probably depicting a wolf (ca. 650 BC).*

Mischwesen are occasionally found in the Eastern Mediterranean. A parallel, but dating almost a century later, is the more realistic, couchant lion in ivory found at the Sanctuary of Sant'Omobono in Rome (fig 6.26). However, currently there is no real

Figure 6.27: *The famous Roman Lupa Capitolina. In a recent debate the supposed Etruscan origins of the bronze sculpture have been questioned as the casting technique suggests a Medieval date. The babies representing Romulus and Remus were certainly a later addition to the statue of the she-wolf.*

contemporaneous match for the wolf amulet found at Crustumerium, which makes it a unique piece.

The wolf from Crustumerium is reminiscent of a

basic, somewhat overstated, rendering of the *Lupa Capitolina*, the she-wolf suckling the twins Romulus and Remus, which is the icon for Rome itself (fig 6.27). Both have similarly pointed ears, gazing eyes, a long pointed snout and a large, half open mouth. We suggest that we are dealing with a wolf not just on account of the resemblance, but also because wolves were considered both real and mythical creatures in antiquity as they were in later folklore. In a sense they were for Europe what the lion was for the Near East. Like lions, wolves live on raw flesh and are feared by almost all land animals. Moreover, ancient authors record their bewitching stare and this feature is captured well in the amulet from Crustumerium.

Wolves were known from first-hand experience to all people in antiquity. In their agricultural societies, the voraciousness of the wolf made it into an enemy of farmers and shepherds. As such they were feared and hunted yet simultaneously venerated. In Italy, the wolf was sacred to the Hirpini, a Samnite tribe, and the Etruscans often associated the wolf with death in their rituals. Of course in Rome the she-wolf was revered as being part of the founding myth of the city and frequently associated with Mars.

Illustrations of real or imaginary animals were also produced at Crustumerium on decorated ceremonial vases such as the *olle a coppette*, jars with small bowls attached to the shoulder and rim (fig 6.28 and 6.29). A variety of animals are depicted on these vessels in white slip on a red ground: these include fish, birds, deer, winged horses (*pegasoi*), goats and other species. The style of the images, the combination of decorative elements and other features on this white-on-red pottery is so typical when compared to other white-on-red production sites that today specialists can clearly distinguish the pottery that originated from Crustumerium itself.

Figure 6.28 and 6.29: *Two views of an olla a coppette with white-on-red decoration from Tomb MDB 169.*
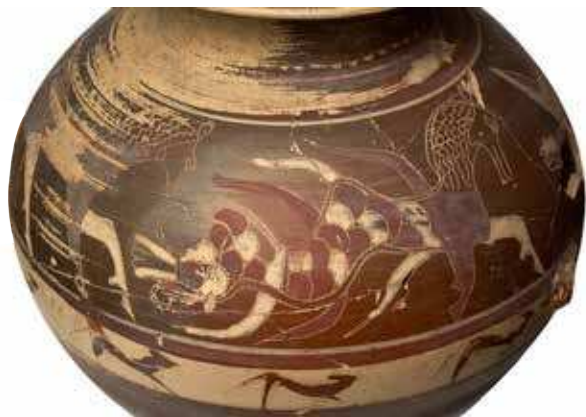

Figure 6.30: *Perfume bottle in the form of a squatting monkey (Rhodian, 1st quarter of the 6th century BC, Glypoteket, IN 3383).*

Figure 6.31: *Fragment of pyxis lid of Corinthian origin, excavated in Francavilla Marittima (Calabria, 640-625 BC, Glypoteket, IN 3555).*
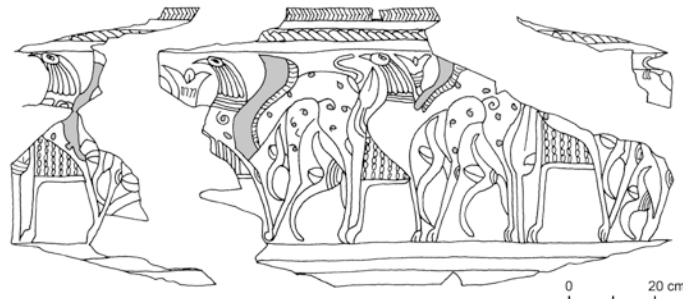
Figure 6.32: *An amphora with a depiction of a hippocampus from Etruria (ca. 600 BC, Glypotek, HIN 512).*

Figure 6.33: *Jars depicting lotus flowers and griffins were found in Carmona, a settlement in the interior of SW Spain that was in contact with Phoenician/Punic colonies on the coast.*

Figure 6.34: *Example of an Archaic loculus tomb with a very narrow sepulchral niche (Tomb MDB 207).*

It is not just in Central and Northern Italy that these oriental animals and Mischwesen became fashionable. In Greece perfume bottles were made in the image of the squatting monkey around 600-550 BC (fig 6.30). Also the Corinthian pottery that became produced *en masse* and exported overseas during the 7th and early 6th century BC is decorated with all kinds of animals or Mischwesen that the Corinthians themselves had never seen in real life; panthers, lions, sphinxes and hippocampi (horses with a fish-like rear) (figs 6.31 and 6.32). A final example shows that the fascination with such creatures during the 7th and early 6th century BC was felt over the entire Mediterranean, as storage jars excavated in southwest Spain also depict mythical animals such as griffins (fig 6.33).

We can conclude that the community living at Crustumerium shared the interest in Mischwesen with many other people in the Mediterranean. However the twist given to this artistic influence in Central Italy is quite specific and this is what we now call the Orientalising phenomenon. This phenomenon involves not merely the adoption of specific imagery but also includes creolisation: the way cultural features of different origins blend to create new customs and artistic renderings. The incorporation of influences from overseas took many forms and it appears that it inspired many communities not just to simply imitate others, but to create a distinctive and unique style as is illustrated by the characteristic rendering of animals and Mischwesen at Crustumerium.

A.J.N.

Key literature
Babbi 2008; Belén et al. 2004; Bietti Sestieri 1992; Boitani 2010; Delpino 2012; De Puma 2011; di Gennaro 2013; Drago Troccoli 2013; Dunbabin 1962; Elliot 1995; Giovanelli et al. 2012; Greenlaw 2011; Hencken 1968; Krauskopf 2015; Medori 2010; Micozzi 1994; Naso 2010; Sciacca 2003; Von Eles 2014.
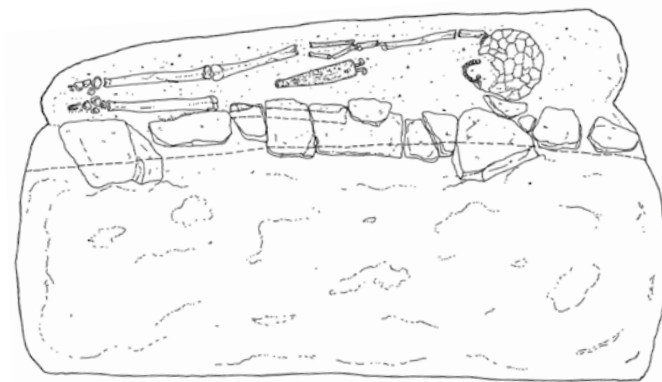
The burial grounds in the Archaic period
Towards the end of the 7th century BC the funerary customs practiced at the burial grounds surrounding the settlement of Crustumerium started to change. Several different transformations came about more or less simultaneously. While the introduction of more spacious funerary architecture offered room for the burial of more than one individual, the funerary wealth decreased rather quickly and less and less objects ended up in the grave.

Architecture
A very important development at the burial grounds of Crustumerium was the introduction of the chamber tomb. Although the first examples date as early as the middle of the 7th century BC, this tomb type started to gain enormous popularity in the Archaic period. The more simple plans of the earliest chamber tombs, were later elaborated; the chambers were being furnished with one or more *loculi* in the walls and a proper *dromos* leading to the entrance of the chamber that could be closed off with large tuff slabs.

Figure 6.35: *Closing system of Tomb MDB 288 consisting of recycled tufa blocks, among which is part of a sarcophagus lid.*

The more traditional *tipo Narce* tomb remained in use during the Archaic period, albeit with some subtle alterations in its execution. The *loculus* that had once been a spacious niche, large enough to fit the dead body, its accompanying personal objects *and* the banqueting set (positioned at the head end), was now reduced to a narrow place that could barely hold the deceased (fig 6.34). In addition, the *loculi* in the Archaic *tipo Narce* tombs were hardly ever closed off with a set of monumental closing stones, as had been common practice in the previous phase; instead, the

Figure 6.36: *Heap of bones moved to a corner of Tomb MDB 32. After the previous burial had been pushed aside, the loculus was used for the deposition of another burial.*

niches were closed with tiles, wooden planks or an improvised pile of recycled tuff stones (fig 6.35). All in all, the Archaic *loculus* tombs seem to have been created with lesser expenditure of energy and resources.

Multi-deposition

Thanks to the introduction of the chamber tomb, it was now possible to bury more than one individual inside a single tomb. Whilst the 7th century chamber tombs were generally rather small and held the remains of only one person, the tombs dating to the 6th century were mostly relatively large and furnished with one or more *loculi* for the deposition of the dead bodies. In this period, the chamber tombs contained about 3 depositions on average. The fact that the tombs now offered enough room for the burial of more than one deposition, meant that many graves were opened and closed several times. A study of the distribution of the skeletal material

indicates that in many instances, an older burial had been moved aside to make room for a new deposition. As a result, one finds heaps of bones along a wall, or pushed into a corner (fig 6.36).

We may presume that the people who were buried together in one grave were members of an (extended) family or of the same social group.

Distribution of tombs

At the Monte Del Bufalo burial ground, the tombs dating to the Archaic period are neatly nested within the existing distribution of graves. Since the younger tombs often partially intersected existing funerary monuments because they were situated so close to these older graves, we may conclude that people went out of their way to be buried in the vicinity of their (social) relatives. The occurrence of small tomb groups, evenly distributed over the burial ground, suggests that the area was divided into plots, allotted to families or small social groups.

Child burials

Just as in the previous phase, child burials are not very numerous at the burial grounds of Crustumerium in the Archaic period. However, quite a few chamber tombs have yielded skeletal material pertaining to (young) children (aged between 4 and 14 years old). Most of these tombs contained the remains of at least two other, adult individuals, suggesting that the child was buried together with an older relative. In a few exceptional cases, the child was the only individual buried in the chamber. The children do not seem to have undergone any special treatment; apart from an occasional bead or small vase, they received hardly any objects in the grave.

Figure 6.37: *House-shaped tufa urn on the floor of the chamber of Tomb MDB 25 placed near the rear wall.*

Cremation

A remarkable phenomenon of the Archaic period is the occasional occurrence of the cremation rite. So far, two chamber tombs have been found to contain a tuff stone cinerary urn in the shape of a house, holding the cremated remains of a deceased individual (fig 6.37). In both tombs, the urn was placed on the floor of the chamber, near the back wall. The tombs do not stand out in terms of funerary wealth or architecture, and it is not known why the cremation rite was chosen for these two individuals. The shape of the urn, modelled after the house of the family, may however allude to the social position of the deceased within the household.

Grave gifts

Possibly the most dramatic change of the Archaic period is the almost complete disappearance of funerary gifts in the tombs. Not only did the number of banqueting vessels decrease dramatically, the

custom of accompanying the deceased with his or her personal objects and ornaments came to an almost full stop as well.

Whereas the 7th century BC tombs were as a rule furnished with an elaborate set of many vases, jugs, cups and bowls, destined to be used in a funerary banquet (in- or outside the grave), the Archaic tombs are mostly completely deprived of these objects. Only in a few tombs do we find modest sets of ceramics, consisting of no more than a few vessels. The question is whether the custom of banqueting in honour of the deceased had gradually ceased, or whether these rituals now took place somewhere else, without a material reflection in the grave.

Just as the banqueting assemblage, the set of personal objects and ornaments had become much more modest as well. Although many men were still represented as warriors, being accompanied by a set of weaponry, the female role in the household was no longer expressed by means of a spindle whorl for spinning or a knife to distribute food stuffs. Although small fibulae continue to be deposited in the graves, the funerary attire seems to have been very modest in the Archaic period.

The Twelve Tables

The change in the funerary wealth, that is to say, the rather sudden decrease of the number of objects that accompanied the dead person in the grave from the end of the 7th century BC onwards, is generally explained as a result of the introduction of sumptuary legislation. This type of legislation is aimed at the abolishment of conspicuous consumption and display, for example on the occasion of a funeral. Indeed, laws of this kind must have been written down on the Twelve Tables, an Archaic set of laws, issued in Rome around the middle of the

5th century BC by a committee of ten patricians (the *Decemviri*). The Tables have unfortunately not been preserved, but thanks to Cicero's *De Legibus* we are informed about some of its content. The Tables recorded regulations regarding marriage, jurisdiction and ownership, and the Tenth Table would have been especially concerned with the burial practice. It stated how many flute players were allowed at the funeral and it forbade women to lacerate their cheeks as a sign of mourning. Apart from a number of regulations that seem to have been aimed at lessening the disruption of social life caused by the extravagant funerals, the Tenth Table also recorded some rules regarding the treatment of the dead body and the objects that should no longer accompany the deceased in the grave.

Since the decreasing deposition of funerary gifts had already started long before the Twelve Tables saw the light, it is believed that the laws essentially codified a practice that had already been *en vogue* for generations. However, the fact that the burial customs changed rather dramatically from the beginning of the 6th century onwards cannot merely be explained as the result of abiding by (unwritten) laws; it must have been strongly related to the more overarching developments of this period. The urbanisation of the settlement and the altered social tissue of the community living at Crustumerium asked for a new way of dealing with the dead and led to a shift of investment, away from the mortuary realm and towards the public domain of the urban centre.

S.L.W.

Key literature
Bartoloni et al. 2009; Colonna 1977; Willemsen 2014; Willemsen 2014a.

Examples of burial customs

Ornaments and status symbols from Tomb MDB 40

The female Tomb MDB 40 was excavated in 1996. This tomb, consisting of a long trench and an apsidal niche for the pottery, was looted but part of a ceremonial assemblage (some impasto and bronze vases) had survived the event. The deposition was protected by a horizontal row of tufa slabs and had a rich ornamental parure, including a necklace of amber beads, several bronze navicella fibulae, amber composite leech fibulae and a large suspension ring with punched decoration, attached to a fibula. No skeletal remains were preserved.

Tomb MDB 40 has also yielded the only bronze foot-stool found so far at Crustumerium, which was placed below the deposition. The footstool (not exhibited) was block-lifted and underwent conservation soon after its storage; it is presently still under restoration in Rome.

Footstools are highly symbolic objects. Their design is derived from oriental prototypes and bronze examples are known from Etruria and Latium (Decima, Acqua Acetosa Laurentina). Its ideological association with the throne is proved by iconographical representations of tombs from Caere as well as by the wooden examples from Verucchio (like Tomb Lippi 89). The importance of the foot-stool as a symbol of power and wealth is emphasized by the decoration of the bronze revetment plates, which were nailed to its wooden structure. Tomb MDB 40 should be dated around 700 BC

B.B.M.

The suspension ring from Tomb MDB 40 is covered by remains of textiles which adhere to both sides of the object. The preservation of textiles and

pseudomorphs was helped by the corrosion products of bronze, which hinder the decay of organic materials by micro-organisms, through the process of mineralization. Evidence of different layers of cloth suggests that the ring was in contact with both the dress and the sudarium (shroud) that wrapped the body. Specialist analysis is presently being carried out in Rome (in collaboration with ICR) using optical microscopy, scanning electron microscopy and spectroscopy, in order to determine the nature of fibres, the features of yarns and the weaving patterns.

I.A.R.

The amulet from Tomb MDB 59

Tomb 59 was excavated in 2012 as part of a cluster if tombs in the centre the Monte Del Bufalo district. This tomb, consisting of a ditch and a lateral niche for the pottery, was almost completely ploughed out and looted. No objects were left but the deposition of a 40-50 years woman with an exceptional *parure*, that was block-lifted and taken to Groningen. The unique amulet

Moreover the pendant has a specific weight, 10.7 grams without the chain, which equals half of a piece of ivory with the same volume. Of course further diagnostic analysis could resolve the question, but a sample of the material would be needed, which, considering the small dimensions of the object (4.2 x 2.5 cm), was not found to be opportune.

M.A.

Daggers from male depositions

As explained two different types of daggers are known from male burials at Crustumerium. The iron blade of the so-called "pugnale a volute" from Tomb MDB 41 is provided with a pivot, holding the termination of the hilt and the wooden handle. The leather sheath is reinforced and decorated with a bronze folded strip at its upper edge and by copper wire wrapped around the bottom; the iron knobbed tip is fixed to an iron longitudinal strip, ending with a double spiral. A double iron chain was attached to the sheath and connected it to the belt. In the earliest exemplars, the suspension system of the dagger also included iron or bronze decorative disks. This type of dagger was in use from the late 8th century until the middle of the 7th century BC.

from this tomb has already been referred to in chapter 5 while discussing the micro-excavation of the block-lift. The special object with the depiction of a wolf has been treated with extreme care during its conservation in Groningen and its successive restoration in Rome.

When the artefact was brought into the Roman laboratory it was only partially cleaned of excavation soil while treated with a consolidator that held together the disconnected fragments in the distorted position they had assumed in the ground. The restoration interventions have made it possible to 'read' the object; the removal of the soil and the product used for its consolidation have permitted the separation of the fragments of the pendant and their successive correct repositioning. The cleaning of the chain has restored much of the original mobility of the rings and

completely liberated the moulding of the hind feet of the represented animal. As far as the constituting material is concerned, the presence of parallel planes of flakes would suggest that we are dealing with ivory, however this phenomenon is not strange to some long bones. The accurate observation of the internal and external surface has not led to the identification of other elements characteristic of ivory, like so-called "schreger lines".that can be found in the fabric of tusk.

The so-called *pugnale a stami* from Tomb MDB 42 (restored in 1998) is provided with a triangular iron blade and a wooden handle, which is secured by means of small nails. The termination of the hilt of this type of dagger, decorated with stems, is usually attached to the pivot of the blade by means of a washer. The sheath is made with a folded plate and a flat smaller one, which are held together by a moulded hollow tip and by an iron element wrapped around its upper edge. This element was made with a folded metal strip protruding on one side, to which the suspension chains were attached. The example from the looted Tomb MDB 42 is exceptional for the bronze termination, which suggests a chronology within the first half of the 7ᵗʰ century BC. This type of dagger is also used in Crustumerium during the Archaic period.

B.B.M.

The dagger from tomb MDB42 was recovered from a block lift together with the remains of a belt and suspension chain, although fragmented and somewhat mineralized, the blade appeared to be in a good state of preservation compared to the other similar artefacts. Therefore it was possible to remove it from the soil and submit it to a complete restoration together with an iron fragment of the belt. The remaining artefacts, that consist of very degraded organic material and corrosion losses, have, because of their fragility, been left in the block lift. To maintain the relation between the dagger and the other elements associated with it, once the soil was removed during its recovery, a mount was made in resin that functions as a support for the artefact.

O.C.A.

Examples of tomb inventories

Tomb MDB 156

The trench tomb is 65-70 cm wide and 270 cm long. It is that of an adult woman. Of the skeleton only a few fragments of a femur have been preserved. The position of the deposition was indicated by the ornaments, including a couple of fibulae, a suspension ring, and a necklace. A cup was placed above the head and the other three impasto vases (a mug, a jug and a double-handed vase) were aligned along the right side of the body. The bronze cup, placed next to the feet, is the only example from Crustumerium so far and is comparable to a cup from a burial ground at nearby Veii. The pottery from this tomb dates between Latial period IIA2 and IIB, whereas the ornaments suggest a date in Latial period III.

B.B.M.

Tomb MDB 153

The tomb was transversally cut at the western edge by the deep Early Orientalising Tomb MDB 150. It is 120 cm wide and more than 185 cm long. The remains of the skeleton are those of a woman aged 40-50 years, who was buried inside a coffin in the southern half of the

trench: only some teeth were preserved. The ornaments included a copper wire, which was found next to the head and a fibula with a ring suspended from it, which was placed on the chest. A spindle whorl and a cup were placed on the right side of the body. An amphora on a stand was placed next to the feet: it probably formed part of a group of objects which were accidentally removed in Antiquity during the digging for the nearby tomb. A mug was placed on top of a sort of bench, made with tuff-chunks and earth, flanking the coffin on the north side. The vessels do not seem to pertain to the grave inventories. The small amphora with a circular stand is the only example so far encountered at Crustumerium and can be interpreted as a ceremonial vase. The tomb dates to the transition between Latial period IIB2 and III.

B.B.M.

Men, women and the ritual consumption of wine

Tomb MDB 5

Tomb *a loculo* MDB 5 was excavated in 1987, close to the entrance of the deepened road that cuts through the settlement area. It was part of a cluster of tombs that was constructed between the late 8th to the middle of the 7th century BC. The *loculus*, cut along the eastern lateral side of the trench, was closed by a row of four large tuff slabs. In spite of the absence of bones, the spear suggests the dead person was a man. The weapon had been disassembled: the spear-head was found next to the deposition, while the tip and three iron cylinders and pivots belonging to the shaft were located near the pottery.

Latial amphora with spiked handles and a double-handled cup were placed near the jar.

On the opposite side of the tomb, there was a second Latial amphora (with pseudo-helicoidal handles) and another double-handled cup, containing a

The inventory of Tomb MDB 5 included two outstanding Italo-Geometric objects – an *oinochoe* and a cup on a high-stemmed foot – most probably imported from the Faliscan region. On one side, there was a globular jar surrounded by thirty ladle-cups, of two different sizes, with biforal (two holes) and monoforal (single hole) handles. To complete the drinking set, a

ladle-cup: this ritual association is recurrent and indicates the importance of the two objects to the dead. Next to them, there was a jug and a grooved impasto bowl, imitating metal prototypes and decorated with incised motifs (a swastika on the bottom; zig-zag lines on the lip). The ceremonial consumption of food as part of the funerary ritual is highlighted by the presence of a plate on a high-stemmed foot, decorated with a cross on the inside, by a *scodella crustumina* and by an iron knife. Fragments of iron with wood traces, a small iron nail and small copper foil flat rings and buttons were scattered among the pottery, and suggest the original presence of perishable objects, such as a wooden box. This tomb was dated to the second quarter of the 7ᵗʰ century BC.

B.B.M.

Tomb MDB 7
Tomb *a loculo* MDB 7 was excavated in 1987, near Tomb MDB 5. The *loculus*, located on the north-eastern
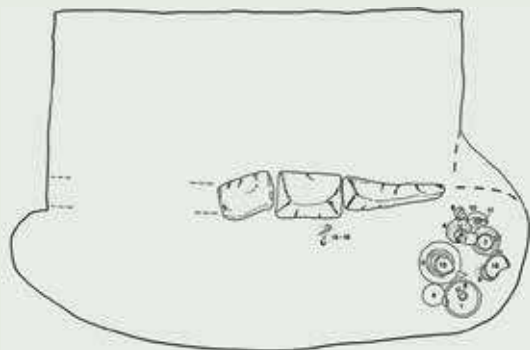
side of the shaft, was closed off by a partially preserved row of slabs. The *loculus* contained some traces of a

female deposition, accompanied by a spindle-whorl and three iron swollen bow fibulas. The grave inventory was clustered at the north-western side of the *loculus* and included an impasto rosso jar with beautiful painted decoration (a row of herons), closed by a *scodella crustumina*, and a *krater*-cup containing a hooked ladle-cup.
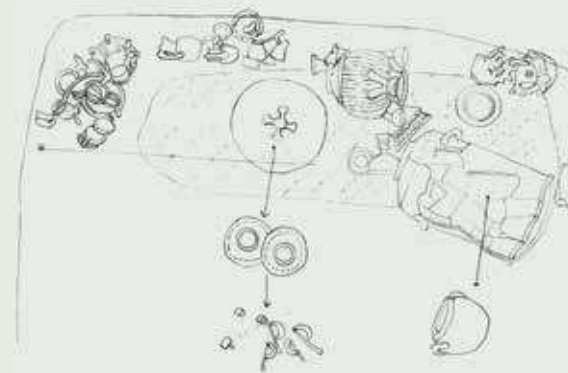
The drinking set also included a couple of Latial amphoras, two double-handled cups (one of them containing another ladle-cup) and a jug. The consumption of food is implied by a bowl with *red on white* decoration and two more *scodella crustumina* bowls (not exhibited).

This context illustrates that the *krater*-cup, which was used to dilute wine, appears to have been associated with women of relatively high status. This tomb was dated to the middle part of the 7ᵗʰ century BC.

B.B.M.

Tomb MDB 359
Chamber Tomb MDB 359 was excavated in 2014 in the north-eastern area of Monte Del Bufalo burial ground. It was accessible through a fairly deep shaft that was provided with steps. It contained two depo-

sitions, the first one was of a lady who was laid next to the right wall of the chamber, and the second one – a later burial – was of a man who was buried in a *loculus* on the opposite side. The lady was lying directly on the floor, or perhaps on a wooden board. The preservation of this deposition had been affected by the collapse of the ceiling and the flooding of the chamber, causing most of the artefacts and bones to have migrated from their original position towards the rear wall. The original position of the body was suggested by the location of an ornamental *parure*

presentation and consumption of food is suggested by a bowl on a high-stemmed foot, two plates, four small bowls and the Latial pyxis with its lid.
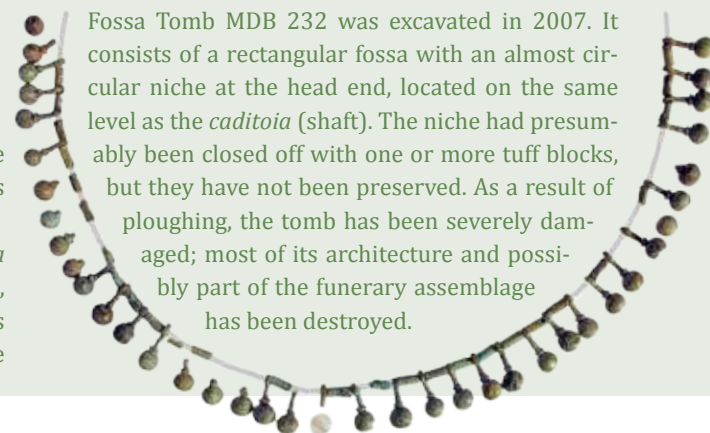
The scale and quality of this banqueting set is exceptional. Concerning the impasto rosso, all objects have a white on red or red on white decoration. Even though the main shapes – the cylindrical pyxis, the stamnoid jar and the plates on a high-stemmed foot – recall the ones that were fashionable at Caere; the peculiar features of the pyxis (the low foot and the four handles) suggest that they were produced at Crustumerium by highly specialized workshops. Their association with typical local shapes relating to the ceremony of *circumpotatio* (shared drinking) indicates the illustrious social position of the lady and her cultural relationship with the Etruscan elites.

The grave inventory of the female burial should be dated between the end of the 7th and the beginning of the 6th century BC, whereas the two miniature objects inside the stamnoid jar could be dated slightly later.

B.B.M.

Tomb MDB 232

Fossa Tomb MDB 232 was excavated in 2007. It consists of a rectangular fossa with an almost circular niche at the head end, located on the same level as the *caditoia* (shaft). The niche had presumably been closed off with one or more tuff blocks, but they have not been preserved. As a result of ploughing, the tomb has been severely damaged; most of its architecture and possibly part of the funerary assemblage has been destroyed.

that included four *navicella* fibulas and three composite amber leech fibulas.

A monumental impasto rosso cylindrical pyxis (as seen in figures 5.19 to 5.21) was lying horizontally at her feet and contained a stamnoid impasto rosso jar. The jar contained two miniature objects, a cylindrical jar and an impasto lid, that in spite of the lack of bones most probably relate to a child burial (*enchytrismos*). The lid of the pyxis was used in a peculiar ritual,

perhaps to emphasize fertility. It was placed on the breast of the lady and covered two upside-down plates on a high-stemmed foot.

The ceremonial drinking set included an *olla a coppette*, a krater-cup, three Latial amphoras, a jug, an Etrusco-Corinthian *olpe*, thirty-one ladle-cups with hooked handles and a bucchero *kantharos*. The

Due to illicit excavation of the apsidal niche, most of the objects pertaining to the banqueting set that was originally placed there, are now lost. Fortunately, we were able to reconstruct some of the objects from the fragments the *tombaroli* left behind. One of the items was a so-called *holmos*, a large impasto rosso stand, designed to support an olla, possibly containing wine. Most of the other fragments pertained to *tazzine-attingitoio*, small ladle-cups used in a drinking ceremony.

The tomb contained one primary deposition, a woman between 45 and 50 years of age, accompanied by a large number of personal objects. Her dress was adorned with a large number of fibulae, some of them inlayed with amber and ivory elements. The three bronze clasps found near the woman's waist, suggest that she was wearing a belt. The most outstanding element was a bronze headdress placed on the head, as discussed in Chapter 5. A series of small beads suggest that the lady was adorned with a necklace. The tomb can be dated between 675 and 650 BC.

S.L.W.

The string of beads found in Tomb MDB 232 consisted of 39 bronze pendants with spherical outer ends of 1 cm in length, separated by small cylinders in bronze sheet. Some of the pendants are fragmentary and only 27 of the original 38 spacers have been preserved. Given the very small dimensions and the advanced state of mineralization it was necessary to use a support on which to fix the necklace, replacing the missing parts with similar elements of inert material.

The various components of the string of beads, already recovered one by one and numbered according to the sequence in which they were found, have been put in order again, restoring their original function. To be able to carry out this operation a lengthy intervention was needed using a stereo microscope with the aim of freeing the holes, at least partly, of the remaining particles of soil.

O.C.

Infant burials

Tomb MDB 140

Tomb MDB 140 is that of a child, 6-12 months old, who was buried without any ornaments inside a huge dolium. The skeleton was poorly preserved (skull, fragments of humerus and ribs); the head was oriented to the N-E and towards the bottom of the dolium. The pot was sealed with a huge white stone, collected from a river bed. Close to the belly of the dolium,
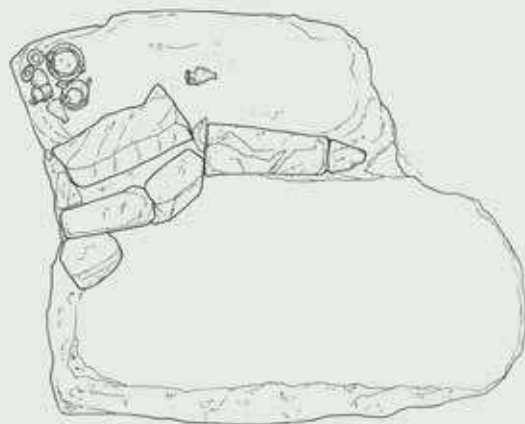

there were a small amphora and a ladle-cup; both were missing a handle, possibly following some ritual practice. A parallel for this deposition is provided by a tomb on the Capitoline Hill, in Rome (Giardino Romano, Tomb 12).

B.B.M.

Tomb MDB 262

The extremely small tomb *a loculo* MDB 262, almost obliterated by the effects of erosion, was excavated in

2009 in the north-eastern area of the Monte Del Bufalo burial ground. The *loculus*, located on the northern side of the shaft, was closed off with small, irregular blocks. The grave goods were placed against the northern edge of the *loculus* and included miniature vases: a feeding bottle, an impasto cylindrical-ovoid jar, a bucchero jug and three *aryballoi*. A fourth *aryballos* was
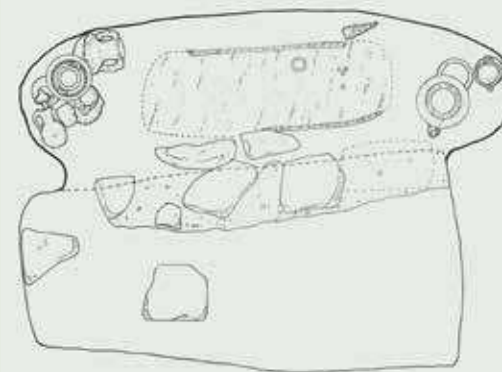

found in the depositional space and was probably used in purification rites. No bones of the small child were preserved. This tomb should be dated to the beginning of the 6th century BC.

B.B.M.

Tomb MDB 319

The small tomb *a loculo* MDB 319 was excavated in 2011 in the north-eastern part of the Monte Del Bufalo

necropolis, being part of a dense cluster of tombs. The *loculus*, located on the western side of the shaft, was closed off with piled-up tuff chunks. A small child, 6-7 years old – probably a boy – was buried inside a tree-trunk in the middle of the *loculus*. The ornamental *parure* consisted of a bronze bracelet; a javelin-head was placed on the right side of his head. Just a few teeth were preserved.

In contravention of ritual prescriptions, the grave inventory was arranged in two separate groups of

objects. Above the head of the child lay a small impasto rosso jar, a couple of black impasto double- handled cups, an Italo-Geometric bowl, and an impasto *aryballos* with an incised decoration (a fish).

Next to his feet, the tightly packed objects included a couple of Latial amphoras with pseudo-helicoidal handles and stamped decoration; a couple of Cypriot-Phoenician *oinochoai*, both decorated with an incised bird; a barrel-shaped (*a botticella*) jug and an Italo-Geometric stamnoid olla, placed inside a impasto rosso bowl with white on red decoration.

This context stands out for its selection of decorated objects, all of them of rather small dimensions. Taken together, the context included a complete drinking set, but the absence of the ever-present ladle-cup is striking. On the basis of the stamnoid jar, this tomb should be dated to the last quarter of the 7th century BC.

B.B.M.

Changes in grave inventory assemblages

Tomb MDB 263
Tomb *a loculo* MDB 263 was excavated in 2009 in the north-eastern part of the Monte Del Bufalo necropolis. The *loculus*, located on the western side of the shaft,

was closed off by a row of four tuff slabs, which was reinforced by several tuff chunks, and housed the deposition of a 20-30 year-old woman. She was placed inside a tree-trunk and was wearing an ornamental *parure*, including silver *fermatrecce*, a necklace with glass beads, four bronze swollen bow fibulas (holding rings and iron pendants) placed on the shoulders and just below the chin, and two smaller iron ones on the chest.

The pottery was clustered in the northern part of the *loculus*, which was shaped as a semi-circular space. The objects were arranged in two separate groups. To the west, there was a *krater*-cup surrounded by two small Latial amphoras with spiked handles, four bowls with erect handles and a *scodella crustumina*. To the east, there were a jar, four spindle-whorls and two separate ritual stacks of objects. The first stack was supported by a misfired jar, that was devoid of a mouth, and included a cup with spiked handles containing a ladle-cup, and a spindle-whorl placed inside a bowl on a high-stemmed foot. The second stack

the largest lid, with a couple of handles and decorated with a frieze of real and fantastic animals, was found leaning against the wall of the *loculus*. The drinking set included black impasto pottery (two Latial amphoras and a spiral-amphora, a *kotyle*, two chalices and a mug, bucchero (a jug and a *kantharos*) and Italo-Geometric ware pottery (four *oinochoai*). An iron knife with a bowl is associated with the consumption of food.

This grave inventory contrasts with the ritual assemblages of most tombs at Crustumerium and illustrates the change that occurred during the Late

included a cup with twisted handles and a ladle-cup, both placed inside a cup with spiked handles.

The presence of several spindle-whorls, which were not placed next to the deposition but among the grave goods, is exceptional. This tomb is dated to the second or third quarter of the 7th century BC.

B.B.M.

Tomb MDB 111

Tomb *a loculo* MDB 111 was discovered and partially excavated in 2001 and reopened in 2009. The *loculus* was located at the western and the northern side of a rather narrow shaft, closed off by three monumental vertical slabs. The deposition was not preserved, but
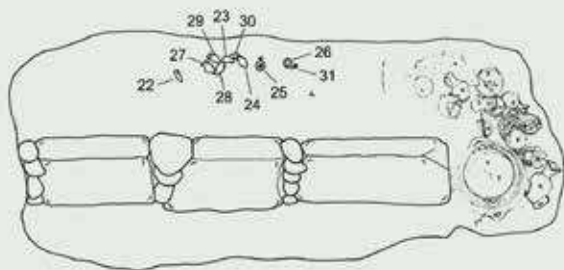
its former position was marked by a small iron damascened fibula and a group of eight Etrusco-Corinthian *aryballoi* of different types, including an exemplar decorated with "running dogs". The *aryballoi* contained ointments that were used during the burial or relate to the *toilette.*

The grave inventory included two exceptional cylindrical pyxides with a white on red decoration. The smaller one and its lid were placed inside a larger pyxis;


Orientalising period. The two pyxides, a shape that was adopted from Caere by local, specialised workshops, indicate that there were ideological and cultural connections with the opposite bank of the Tiber. This tomb is dated to around 600 BC.

B.B.M.

Tomb MDB 222

Chamber Tomb MDB 222 consists of a long, deep, stepped dromos leading to an irregularly shaped chamber, furnished with three sepulchral niches (*loculi*) cut out in the walls. The loculi had originally been closed off with tiles, which must have slid down onto
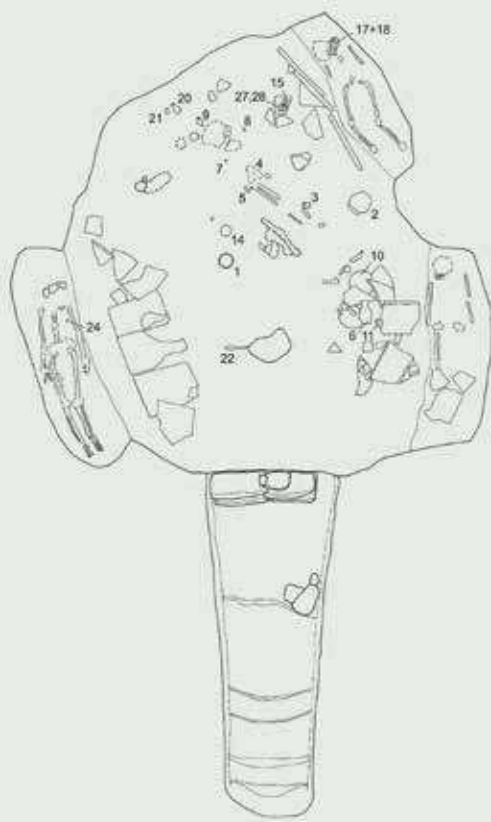
the floor of the chamber over the course of time. One loculus was dug out in the left wall of the chamber; the two other loculi are situated in the right wall, one

behind the other. The chamber was closed off with an irregular pile of large tuff blocks with several smaller chunks on top. The dromos was filled up with small tuff chunks, presumably when the chamber had been closed off after the deposition of the last burial.

The chamber housed five primary depositions; three inside the loculi and two on the floor of the chamber. Two of the individuals buried inside the loculi were female, one was male. The man was between 40 and 50 year old, the women were aged 16-18 and 20-30 respectively. A woman of 18-20 years old and a child, aged 4-6, were found lying on their back on the floor of the chamber.

Most of the burials were accompanied by a one or more personal objects, found close by or on top of their body. While the man was buried with a small iron fibula only, one of the women received multiple perfume bottles (*aryballoi*) and probably more than one personal ornament. Some objects were found in isolated locations without a clear spatial connection to one of the depositions. Post-depositional processes such as the collapse of part of the ceiling and the recurrent flooding of the chamber may have caused the objects to move from their original location in the tomb. An iron lance point found in the centre of the chamber, for example,

A cross section of Tomb MDB 222 derived from its virtual re-construction as a 3D-model (based on laser scanning). The section shows the dromos and the chamber (and the loculus in the left wall).

may well have belonged to the man buried in the left loculus and might have been deposited there originally.

Apart from a number of personal objects, the tomb yielded a few banqueting vessels, placed on the floor of the chamber. The vessels refer to a drinking ceremony; the *olle* (large containers) probably held wine, the *brocca* (jug) was used to pour wine into the *kantharos* (drinking cup with two handles), from which one drank. The hemispherical bronze bowl, found in the centre of the chamber, may also have been used for the consumption of wine.

Even though the funerary assemblage of Tomb MDB 222 is not particularly abundant, especially if one takes the large number of individuals buried in the tomb into consideration, it does stand out in terms of its wealth when we compare it to other chamber tombs encountered in Crustumerium. Tomb MDB 222 seems to represent the transitional phase between the elaborate funerary assemblages of the early and middle 7th century BC and the modest sets of gifts encountered in the Archaic period. The early date of some of the objects suggests that the tomb may have been created somewhere around the middle of the 7th century BC, but remained in use for a period lasting more than one generation, over the course of which the burial customs had changed quite profoundly.

After excavation Tomb MDB 222 was documented by laser scanning, allowing its virtual reconstruction in 3D.

S.L.W.

Epilogue
A future for Crustumerium

In recent years a number of initiatives have been taken in order to protect and enlarge the archaeological site of Crustumerium. Many of these initiatives have been successfully brought to their conclusion: restoration work and protective backfilling of tombs excavated in the past decades; excavations in order to prevent looting of the burial grounds; documentation and monitoring of illicit excavations, and the summer field school set up by the Soprintendenza Speciale per il Colosseo e l'Area Archeologica Centrale (SS-Col) in collaboration with the Groningen Institute of Archaeology of the University of Groningen (GIA).

The archaeological site of Crustumerium offers many opportunities to develop large-scale projects, both cultural and environmental ones. Because the site is located in a perfectly preserved Roman countryside that is part of a Regional Natural Reserve called the Riserva Naturale Marcigliana, its archaeological remains are still only partially explored. Apart from the preserved archaeological features belonging to ancient Crustumerium, there are also a group of medieval cave dwellings, a water mill of Roman date near the Formicola Creek and the unexplored remains of a monumental Roman villa in the area of Cisterna Grande near the farmhouse.

Bringing the ancient Latin centre back to life means turning it into a destination for cultural tourism and a means for cultural growth through nature and entertainment. The state-owned agricultural properties of the Casale Cisterna Grande farmhouse are under restoration and in the near future they will be able to host Italian and foreign students of archaeology, offering laboratory and storage facilities for archaeological material and study rooms. Exhibition spaces will be arranged, dedicated to the Crustumerium and Fidenae excavations and there also educational workshops for schools and families will be held.

To make the site appealing to the public we want, if feasible, to reconstruct in the area of ancient Crustumerium area not only tombs, but also parts of the domestic and defensive structures of the ancient city, so the visitor can appreciate aspects of the settlement, according to the ideas that archaeologists have about them. A real dream would be the reopening of the original valley of the Formicola Creek, restoring the countryside to the way it was before the excavation of the artificial tunnel that was dug in antiquity to improve drainage and infrastructure. Although this would be a substantial landscape intervention, it would be a significant contribution to the reconstruction of the protohistoric landscape.

In the context of the Law 107/2015, which regulates the national education system reform and which introduced the concept of "school paths", we will organise a summer camp for students in Crustumerium, a successful experiment with which was conducted for the first time during the summer of 2015. This year, the initiative will see the involvement of 50 high school students who will be taught excavation techniques, archaeological measuring and scientific documentation, and thus will experience what the job of an archaeologist really entails. However, the main project to which we aspire is to realise an international centre of archaeological research in Crustumerium. To this end we are working in collaboration with other Italian and European institutions to develop an international project which includes archaeological excavation, the education of university students from different European countries involved in various archaeological sub-disciplines, followed by the dissemination of the results in the various partner countries.

In the meantime it is our intention to carry on the scientific collaboration that is now in place and focus the research and excavations on a number of key points that may provide answers to some as yet unresolved archaeological questions.

Finally, all those who believe in, and work towards the realisation of this project have confidence in the added value of collaboration and are positive that knowledge through constructive interaction with colleagues from other cultural contexts is helpful and that the enthusiasm and creativity that characterise young students should be valued.

Crustumerium will come back to life from the past not only through knowledge and scientific research but also through participation by and opportunities for the visitors to appreciate the archaeological site to the full.

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Source of illustrations

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Fig. 2.17   Becchetti 1983, fig. 1
Fig. 2.20   Google Earth (elaboration: S. Boersma)
Fig. 3.1   Beloch 1926, pl. 1
Fig. 3.3   Quilici & Quilici Gigli 1980, tav. CXXIII
Fig. 3.16   Jarva et al. 2013, p. 40, fig. 5
Fig. 3.17   Fraioli 2016, fig. 6 and 7
Fig. 3.19   Quilici & Quilici Gigli 1980, tav. XCIV
Fig. 4.2A-B   Togninelli 2006, fig. 6 and 7
Fig. 4.2C   di Gennaro 2013, p. 5, fig. 5
Fig. 4.3   Aichmeir 1998, p. 114
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Fig. 4.5   Catalogo Pandolfini, p. 70, nr. 225
Fig. 6.6   Colonna 1986, fig. 259
Fig. 6.7   Colonna 1986, tav. 2
Fig. 6.19   Chiusi, Poggio Renzi (Babbi 2008, tav. 90) (elaboration: S. Boersma)
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Fig. 6.21   Jean-Christophe Benoist (The Louvre)
Fig. 6.22   PR Veio (www.parks.it/parco.veio)
Fig. 6.23   Glyptotek, HIN 120
Fig. 6.26   Vincenzo Pirozzi (Antiquarium Comunale, inv.nr. 28776)
Fig. 6.27   Marie-Lan Nguyen (Musei Capitolini, inv.nr. 1181)
Fig. 6.30   Glyptotek, IN 3383
Fig. 6.31   Glyptotek, IN 3555
Fig. 6.32   Glyptotek, HIN 512
Fig. 6.33   Belén et al. 2004, p. 159, fig. 7 (elaboration: S. Boersma)

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Being conceived as a companion to the 2016 exhibition "Crustumerium, Death and Afterlife at the Gates of Rome" in the Ny Carlsberg Glyptoteket of Copenhagen, this book tells the multi-faceted story of an ancient Latin settlement located at only a few kilometers from Rome on the basis of years of painstaking interdisciplinary archaeological research. Following a historical and landscape archaeological introduction, the spotlight is on Crustumerium's exceptional funerary record that is being meticulously excavated and safeguarded for the future by an international team of field archaeologists and restorers, allowing the reader an exceptional insight in the long journey from discovery in the field to showcase in the museum. Crustumerium was founded ca. 850 BC and subjugated to Rome shortly after 500 BC, after which it was abandoned.