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***Crustumerium*: the Urban Road Trench**

It is already well known that one of the most spectacular archaeological features of the site of the ancient city of *Crustumerium*, defined by the research of Lorenzo Quilici and Stefania Quilici Gigli[1], is composed of the profound cuttings in the eastern part of the area. According to the two scholars these cuttings, provided with an earthen embankment, *agger*, on its west side, served as defensive ditches towards the east and as a road trench passing the city. Moreover, it was suggested that on the plateau there would have been a point of passage in the defensive-works which served also the control of the road trench. The date of this arrangement is suggested to the late Orientalizing period, the first decades of the 6th century BC[2].

It is also well known that in the course of the successive research directed by Francesco di Gennaro (Soprintendenza Speciale per i Beni Archeologici di Roma) on the site of *Crustumerium*, in collaboration with the University of Rome, "La Sapienza", and others, since 1988, a revised interpretation has been presented

Fig. 1 – The Road Trench on the south east edge of *Crustumerium* seen from the east.

[1] QUILICI, QUILICI GIGLI 1974-75, 37–53; 1980; QUILICI GIGLI 1976, 151.
[2] QUILICI, QUILICI GIGLI 1980, 67–70, 280.

Fig. 2 – The site of the trench A in the foreground on the right.

University of Oulu (Finland) has carried out fieldwork from 2004 to 2008 in the Road Trench area with the purpose of clarifying its character[6]. A series of excavation trenches (A-G) dug along the route of the south-east cutting and its continuation on the hill top has given a full confirmation of the existence of an ancient road and several phases of its use (fig. 1).

In 2004 a small trench (A) was excavated midway up the east slope of the Road Trench (fig. 2). Here the width of the Road Trench is about 30 m, and the excavation indicated that the ancient cutting of the tuff hill had penetrated to a depth of more than 8 m from the modern surface[7]. Small test pits (B and C) dug above the slopes of the Road Trench seemed to indicate that the cultural stratigraphy below the cultivation layer in this part is nearly non-existent. During the next campaign (2005) a long trench (D) was excavated on the top of the hill where the road cutting is not visible. It proved out that the original cutting in the tuff bed had penetrated here to a depth of five meters from the present surface. In the very bottom some gravel was met (fig. 3), suggesting that we had reached the west side of a gravelled road. The stratigraphy on both sides of the road cutting had been mostly ploughed away, but on the east side remains of an Archaic layer protected by roots of a great oak came to light and proved out to have been sectioned by the road cutting. The presence of an ancient road in the Road Trench[8] line was finally confirmed in the excavations carried out in 2006 in a pit (F) about 80 m northwest of the former one. A row of

regarding the character of the cuttings and the extension of the settlement towards the east, up to about 60 ha[3].

In this context the defensive interpretation of the cuttings has been laid aside, whereas it has been emphasized that they were part of a road tract between southern Etruria, Latium and Campania from the time of the the proto-urban phase of the city. The new research by Angelo Amoroso based on the surface material[4] and some new excavations[5] have confirmed that the urban area extended to the east of the Road Trenches.

Within the international *Crustumerium* research led by Francesco di Gennaro the team of the

Fig. 3 – Gravel visible in the bottom of the trench D.

[3] DI GENNARO 1988, 113–23, partic. 113–4; DI GENNARO (ed) 1999, 25–26; AMOROSO 2007, 147–51.
[4] AMOROSO 1998 [2000], 303–6; 2002, 287–329.
[5] BARBINA 2008.
[6] The initial funding in 2004 for the joint research project with the University of Cambridge was granted by the Finnish Cultural Foundation after which the project has enjoyed funding from the Academy of Finland (2005-2008). Our research is integrated at all levels of archaeological teaching and academic training, in collaboration with other Finnish universities where archaeology discipline is represented (Helsinki and Turku), with the *Institutum Romanum Finlandiae* as the home base for the activity.
[7] See also DI GENNARO (ed) 1999, 25; cf. QUILICI, QUILICI GIGLI 1980, 69, pl. 19 where the depth of the cutting is documented as 12 to 13 meters.
[8] The Road Trench excavation has been the subject in the unpublished master's thesis in archaeology by J. Tuppi in the University of Oulu (2007).

Fig. 4 – Gravelled road lined with tuff blocks in the trench F.

Fig. 5 – Road with a tuff surfacing in trench G.

hewn tuff blocks was found lining the west side of a gravelled road (fig. 4). On the west side of them remains of an earthen embankkment were found.

The character of the Road Trench was right away monumentalized in the fieldwork carried out in 2007 when a series of superimposed road levels was discovered in a trench (G) located between those of the years 2005 and 2007[9]. At a depth of ca. 0.85 m below the modern cultivation road, a road pavement constructed of quite homogenous light grey tuff came to light (fig. 5). The probable date of this three-meter-wide road is the Imperial Roman period. Close to one meter deeper there was a series of gravelled road levels accumulated above a cutting in the natural tuff bed, which was limited on both sides by ditches obviously made to divert rain water from the road surface (fig. 6). The lowermost gravel layer was adjusted to the width of a tuff level cut between the furrows limiting it, about five and a half meters, whereas the successive gravel surface was about one meter wider. Finds in the second gravel pavement suggest that it was in use during the mid-Republican period. After that the gravelling has been limited to a width of some three meters. Eastwards of a large ditch limiting the second gravel pavement, a narrow furrow was discovered below a layer containing Archaic material, and again, on its east side there was another ditch in the tuff bed. It seems possible that in the case of the furrow we are dealing with an Archaic road rut.

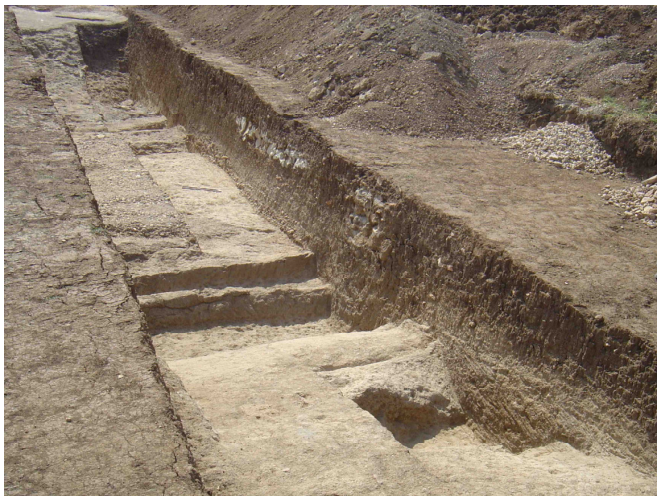

Fig. 6 – Graveled road levels cut in the tuff bed, trench G.

Road trenches cut into tuff bed are known for a long time from the areas of Archaic Etruscan and Faliscan cities[10]. At the moment several Archaic roads and road trenches are known in Latium, too, and in the case of Tor de' Cenci the burials connected to the roads and crossroads suggest that road building, including

[9] JARVA *ET ALII* 2007, 5–9.

[10] KAHANE *ET ALII* 1968, 18, 23–4, 30, 52, 106; FREDERIKSEN, WARD-PERKINS 1957, 85, 88, 94, 116–7, 144, 148–9; POTTER 1974, 13–4, pl. II:b.

cutting of road trenches, might date from as early as the late 8th century BC[11]. According to Lorenzo Quilici the road building in Italy was influenced by *Magna Graecia*[12], a conclusion supported by Yannis Pikoulas who has presented a hypothesis that the know-how of building wheel-roads reached mainland Greece from eastern cultures via Ionia during the Geometric period or early Archaic period[13].

It is obvious that during the phase of the two lowermost gravelled roads in the trench G its width was enough to permit the passing of vehicles, although the present knowledge of their width is scarce. A prolific source on the question is given by ruts in ancient roads in giving information regarding the gauge of the vehicles, which have left them. Jean-Pierre Adam has measured ruts in Roman roads and come to the conclusion that their average distance apart is 1.3 m[14], whereas according to Lorenzo Quilici the Archaic road ruts indicate widths between 1.2 and 1.3 m[15]. Some measurements of road ruts taken recently by our team in the Banditaccia necropolis of Cerveteri and in Blera have given figures slightly more than 1.4 meter. Such gauge measures signify that at least in roads cut into tuff bedrock the minimum width of the road had to be about two meters or more because a great part of the axle, up to almost one meter, was in carts intended for heavy loads covered by the hubs, the navels of the wheels[16]. The suggested minimum finds a parallel in the passage of the Law of the Twelve Tables[17] where the breadth of a straight road is fixed to eight feet and in a curve to sixteen feet (*in porrectum octo pedes habet, in anfractum, id est ubi flexum est, sedecim*)[18]. This suggests an interpretation that the double width of the road in curves was intended for passing of the vehicles.

Even the latest level of the gravelled road in *Crustumerium*, some three meters wide, fills the requirements of the Twelve Tables Law. The same seems probable in the Archaic phase, too, suggesting that even in this phase there was a possibility for passing of the vehicles. The bottom width of the road cutting in the excavation trench D – about two meters - did not offer such a possibility, and probably the situation is the same in the point where trench A was made in 2004.

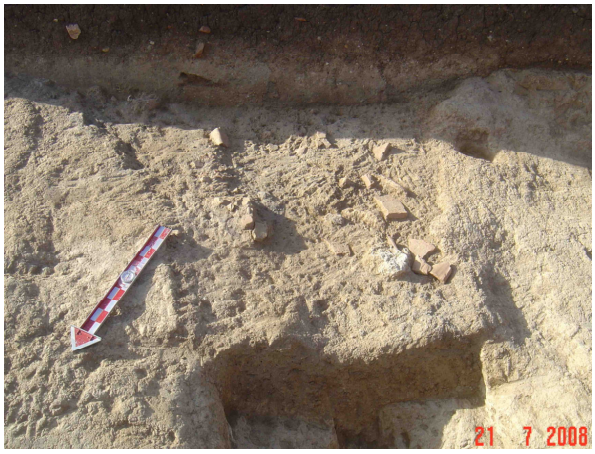

Fig. 7 – Archaic hearth discovered in trench G.

Fig. 8 – Archaic cooking pot buried below the hearth in trench G.

[11] BEDINI 1990, 121–33; QUILICI 1992, 20, fig. 2. There are early discoveries also from *Fidenae* (QUILICI, QUILICI GIGLI 1986, pls. C-CI; BELELLI MARCHESINI, DI GENNARO 1993, 521), *Gabii* (QUILICI 1979, 16; MELIS, VARDARO 1993, 41–2) and the Sabine *Eretum* (OGILVIE 1965, 73–4).
[12] QUILICI 1999, 73.
[13] PIKOULAS 1999, 308.
[14] ADAM 1984, 302.
[15] QUILICI 1999, 73–82, partic. 76. However, the section drawings in the article (figs. 5b and 5d) suggest even greater widths. According to Yannis Pikoulas the road rut gauge in Archaic Arkadia in Greece is regularly 1.4 m: PIKOULAS 1999, 248–319, partic. 251–252.
[16] For hubs, see e.g. WHITE 1986, 136, FIGS. 133, 137; LITTAUER, CROUWEL 1999, 8–9, figs. 5-6.
[17] Law of the Twelve Tables VIII 6 (Loeb Classical Library).
[18] Cf. also the seven feet axle length suggested by Hesiod (*Works and Days* 424).

It is also notable that westwards of the road pavements in the trench G there has been an area broader than five meters in the tuff bed carved approximately to the same level with the road pavements. Here layers containing archaic pottery and marked by burned surfaces were noted. These have a counterpart on the east side of the road remains: the above-mentioned ditch eastwards of the possible Archaic road rut was filled and above it a hearth was made (fig. 7). These signs seem to indicate some activity connected with the use of the road. Buried below the hearth an entire archaic cooking pot[19] lying on its side (fig. 8) was discovered. The purpose of this is not known: the vase is exceptionally small for it to belong to an infant burial, until now in *Crustumerium* child tombs are known only among adult burials[20]. Another problematic feature in this place is the narrowing of the ditch cut in the tuff bedrock (fig. 9). Was it intended to facilitate a passage across the road?

Fig. 9 – Cutting in the tuff bed to facilitate passage across the road?

Fig. 10 – Wall remains in the trench F. A well in the foreground on the right.

The realization of the Road Trench was inevitably a major project in *Crustumerium*[21]: we can estimate that its realization required the digging and removal of a notable amount of tuff, probably tens of thousands of cubic meters. Such an operation required a formidable organization and labor force. The result was that the southern part of the Road Trench of-fered a ramp with a slope of about 2.3 degrees[22], which formed an appreciable logistic facility. Such a project could not be prompted by local interests alone but must have been realized with greater interests in mind: to make this route attractive for economic contacts between southern Etruria, especially *Veii*, and southern Latium and finally Campania[23]. The existence of a channelled road running through the site implies a possibility of control, which, together with exchange of products, probably offered an essential economic resource to the community of *Crustumerium*[24]. The width of the road could offer possibilities for those using the road to stay and exchange goods with the local people. We can also estimate that the local people had an opportunity to control the traffic in this area, especially from the west side where the terrain was a couple of meters higher than the road level.

Despite concentrating on problems regarding the Road Trench the excavations have also produced other discoveries. In the eastern part of the trench F on the hill plateau, walls of a structure built mainly without the use of mortar came to light. A few meters south of this a well built of reuse mixed materials bound by mortar (fig. 10) was found. The pottery and other material connected to these remains range mainly from the late Republican period to the early Imperial period. It seems probable that these structures

[19] Cf. COLONNA 1963-64, fig. 8, n. 98 (group C, type B).
[20] AMOROSO 2002, 304 with references; BELELLI MARCHESINI 2008, fig. 12.
[21] AMOROSO 2008, 147.
[22] Cf. AMOROSO 2008, 147.
[23] DI GENNARO 2006, 222–3.
[24] DI GENNARO 2002-2003, 50.

are more or less contemporary with the uppermost road level discovered in the trench G. Obviously these discoveries bear witness to the agricultural activity previously suggested on the basis of the surface materials during the late Republican and the Imperial periods[25]. Below the structures in the trench F emerged a thick stratigraphy, the excavation of which was stopped at an Archaic level.

In the west part of the trench G, rests of two canals and a rectangular pit in the tuff bed were met. The date and function of the channels are not known for the time being, however their use in cultivation can be supposed[26]: perhaps furrows in a vineyard are a promising hypothesis. Between these and the uppermost road level some burials were discovered. One of the two burials excavated was of the common type covered by roofing tiles, *a cappuccina* (fig. 11), and contained the remains of a rather slender cremated (female?)

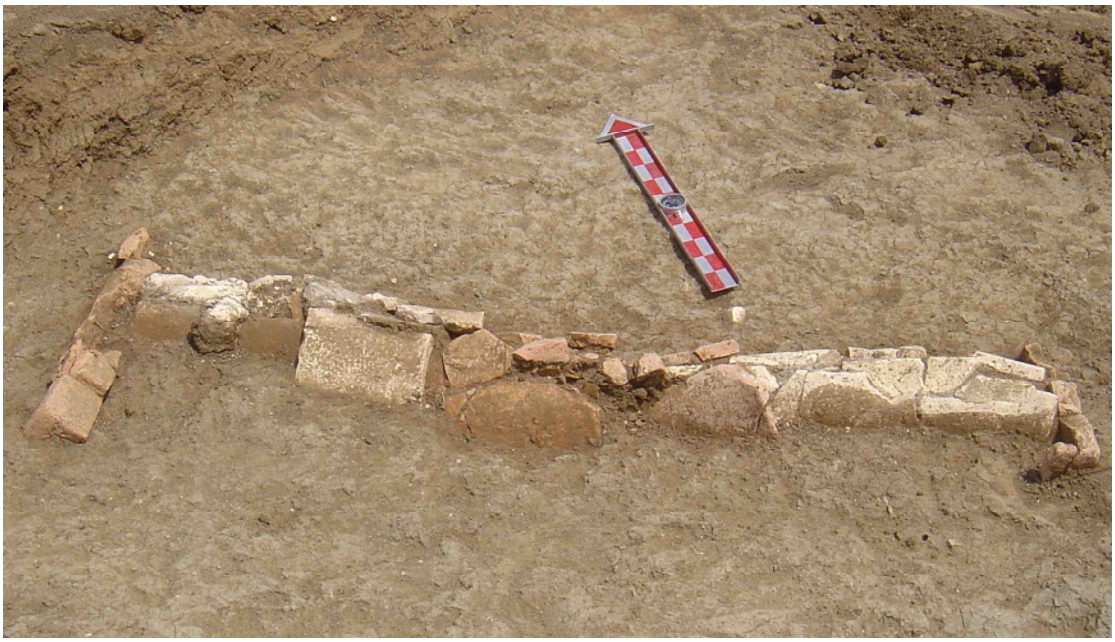

Fig. 11 – A Roman Imperial period tile grave discovered in the trench G.

corpse in the burial pit (*bustum*)[27]. Fragments of an oil lamp[28] and a partially visible brick stamp on one of the roofing tiles (containing also a footprint of a cat?) indicate that the burial is not earlier than from the late 1st century AD. Several iron nails in the burial pit obviously result from the wood used in the cremation pyre.

A major discovery came during the 2005 excavation season, when a trench (E) was made on the west bank of the Road Trench: two Iron Age burials (1-2) were discovered in an area regarded as forming part of the settlement[29]. Tomb 1 was located on the very top of the road cutting and came only partially visible in the excavation section. The excavated part of the tomb indicated that we are probably dealing with a trench tomb (*tomba a fossa*). A shallow cut, approximately one meter below the modern tilling soil, was found in the tuff bed for the deceased, a type of tomb also found in other burial grounds of *Crustumerium*[30]. The excavated part of the tomb did not contain any skeletal remains and there was only one small, corroded

[25] QUILICI, QUILICI GIGLI 1980, 103, 294–304, pls. 103, 118–20; AMOROSO 2000, 266–82; 2002, 323. For the *villae* and their owners in the northern *suburbium* of Rome, see di GENNARO *ET ALII* 2005, 27–48.
[26] Similar agricultural channels were discovered in *Crustumerium* in the excavation carried out in 1998: AMOROSO 2000, 268–72, figs. 6-8; 2002, 323.
[27] Cf. e.g. BALDASSARRE *ET ALII* 1996, 38, fig. 9. For the definition of the word *bustum*, see Festus (LINDSAY 1913) 29.ll.7–11.
[28] Cf. BAILEY 1980, nos. Q957, Q960, Q969, pl. 21 (2nd half of the 1st cent. AD); Q1205-1211, pls. 56-7 (Claudian to early Trajanic); Q1222, pl. 58 (last 3rd of the 1st cent. AD).
[29] These burials have been the subject in the unpublished master's thesis in archaeology by A. Kuusisto in the University of Oulu (2007).
[30] See e.g. DI GENNARO *ET ALII* 2002-2003, 45–62.

Fig. 12 – Tomb 2 in the trench E with the closing blocks of the burial alcove (*loculus*).

javelin head in iron. The filling layer of the tomb contained small pieces of red impasto and fine ware pottery, roof tiles and daub, suggesting a date for the tomb in the Orientalizing or early Archaic periods.

The 2006 excavations revealed that the tomb 2 is a Narce type *loculus* tomb (fig. 12): a type well-known in *Crustumerium*[31] and in centers of southern Etruria and Faliscan area[32]. The fill of the shaft rose above the tuff bed, to a height of 1.4–1.6 meters. The *loculus* had been cut to the north wall of the shaft and it was closed by three tuff blocks of different size; at least two successive downfalls of the *loculus* roof had occurred in the past.

Fragments of a spiral amphora (SSBAR inv. 525528/525530) were discovered at a height of 40 cm above the bottom of the *loculus*. It seems possible that this is evidence of libation or sprinkling of the body with wine, which had taken place at the open grave and after that the vessel was deliberately broken in the grave. Such a ritual has been previously identified in the burial grounds of other Latial centers such as Castel di Decima[33], *Ficana*[34] and Osteria dell'Osa[35], where it seems to have been selectively used in rare occasions. Some other grave goods, too, could have been used in a funerary banquet.

The skeletal remains consisted mainly of a small piece of the jaw with a few teeth, the location of which enables us to suggest that the deceased had been buried the head towards the east. The deeply worn masticatory surface of the teeth suggests that the deceased had been a mature adult, perhaps between 40-60 years at the time of death. Discovery of an iron spearhead can be taken as a generic reference to a male person.

[31] DI GENNARO 1988, 113–23.
[32] MURA SOMMELLA 2004-2005, 219–87; DI GENNARO 2007, 163–76.
[33] ZEVI 1977, 251–5.
[34] CATALDI DINI 1981, 132.
[35] BIETTI SESTIERI (ed) 1992, 241–2, 840–1, 860.

In total, there were 30 grave goods, which were mainly located in the east part of the *loculus*, behind the head of the diseased as in other burials in *Crustumerium*. The grave goods consisted of 13 vases of brown-to-black impasto pottery, 9 pieces of fine ware pottery, 3 red impasto vases, the spearhead and some very fragmentary materials (fig. 13). Among the impasto vases there is for example a variant of Latial amphora (SSBAR, inv. 525529) the handles of which are each provided with three cusps, a feature typical of *Crustumerium*. The quantity of Italo-Protocorinthian *aryballoi*, 7 in total, is a notable feature, bearing witness to contacts of *Crustumerium* with Etruscan centers such as *Veii* and *Caere* in the 7th century BC.[36]. One of these *aryballoi* (SSBAR, inv. 525543) had been uniquely embellished with small glass rings that formed lines on the mouth and the body of the vessel (fig. 14). Together with the spearhead these *aryballoi* can be regarded as personal objects. Among the vases which can be interpreted as banquet equipment, it is noteworthy that the two cups (SSBAR, inv. 525537 and SSBAR, inv. 525541) with horizontal handles (cf. Greek *kotyle*) have been posed symmetrically on both sides of the jaw level of the deceased, supporting thus the suggestion of Annette Rathje that these were used in the distribution and drinking of wine[37]. On the basis of grave goods, especially the Italo-Protocorinthian *aryballoi*, the date of the tomb 2 can be estimated to 650-30 BC.

Fig. 13 – Tomb 2. Fine ware *aryballoi* and impasto vases coming to light.

Fig. 14 – An Italo-Protocorinthian *aryballos* decorated with small glass rings.

A calculation of the capacity of the pottery discovered in the tomb 2 has been done, an approach not often turned to by archaeologists, as the practices and methods are not yet standardized. There are different ways to measure the capacity, e.g. by filling vases with some liquid or fine-grained dry material[38]. In this case reconstruction drawings were used, a method in which the reliability of the results depends on the accuracy of the documentation. In all methods the evaluation of the level to which the potters intended their vases to be filled in the antiquity is problematic.

The capacity of the carinated amphora (SSBAR, inv. 525529) provided with cusps in the handles can be calculated at about two litres, thus falling out of the two categories defined by Paolo Togninelli among this

[36] DI GENNARO 1993, 512–4; DI GENNARO *ET ALII* 2002-2003, 45–62; AMOROSO 2008, 147–51.
[37] RATHJE 1983, 12–3.
[38] NIJBOER 1998, 223.

vessel type in *Crustumerium*, circa 1.4 litres and 2.4 litres[39]. The capacity of 2.4 litres comes close in the very fragmentary spiral amphora (SSBAR, inv. 525528/525530), which could be reconstructed only graphically. The small dipper cup, a type very common in *Crustumerium*, provided with one vertical handle (SSBAR, inv. 525540) has a capacity of ca. 0.76 dl, falling thus in the range of 5.5 and 8.5 dl noted by Togninelli among other finds from *Crustumerium*. Among other vases it is notable that the capacities of the two small cups provided with horizontal handles (SSBAR, inv. 525537 and SSBAR, inv. 525541) arrive respectively to 2.2 and 2.7 dl, do not differ greatly from the Attic unit of a *kotyle*, corresponding to the Roman *hemina* (2.736 dl)[40]. A Roman metrological parallel seems to be also in the case of the globular impasto olla (SSBAR, inv. 525526) with the calculated capacity of 4.4 litres (cf. the Roman *semodius*, 4.377 l)[41]. Accordingly in some cases we can find support for the hypothesis of Togninelli that an ancient metrological system existed in *Crustumerium*.

Discovery of the burials of the Orientalizing period in an area previously recognized as belonging to the urban area even before this phase[42] aroused new interest in the surface materials on the western side of the Road Trench. Lorenzo Quilici and Stefania Quilici Gigli have documented a group of finds datable to the Orientalizing period and earlier from their site J which covers the area between the Road Trench line and the modern road, Via della Marcigliana[43]. The distribution of these finds is not specified. Accordingly a field survey of the area between the Road Trench line and the modern road, Via della Marcigliana, was carried out in 2006 and 2007[44]. The soil surface was harrowed, thus offering a relatively good visibility of the finds, the coordinates of which were documented by a GPS instrument. Processing of the material is not yet complete, but there is a marked concentration of Iron Age finds in the area around the level of 100 m a.s.l., whereas on the level of the burials and southwards of them only later material has been found in our survey[45]. This raises the question whether the settlement in this part of the urban area had, until the Orientalizing period (the Latial phase IVA), been more restricted than previously thought. Another line of interpretation for the occurrence of burials in this place would be that they are exceptions to the general rule that dead were buried outside the settlement area, one of these known from the nearby *Fidenae*[46].

In summary, the excavations conducted in the Road Trench area of *Crustumerium* between 2004 and 2008 demonstrated the great potential of research in this area. Despite the fact that, as usual, the uppermost areas are highly consumed by the modern ploughing, reaching commonly to a depth of 0.35 to 0.45 m, a complex and deep stratigraphy of ancient activity is remained in the Road Trench proper and in its vicinity. The preliminary collection of GPR data by the Department of Physics, the Third University of Rome, was carried out in 2007 under the direction of Elena Pettinelli and Pier Matteo Barone on the north side of the trench F. It proved out that this geophysical technique is useful in the settlement area of *Crustumerium*[47].

The question of the date and nature of the earliest road passing the area under research remains open in the light of the data received up to now, but the presence of graves of the Orientalizing period may signify that even in the early phase of the settlement a road passed there, possibly in a less monumental cutting or without one. In the light of the present research, the great road trench was dug into the tuff bed during the late Orientalizing or early Archaic period, offering good logistic facilities but obviously other services, too. Our trenches seem to show that the road was cut all the way along the hill plateau without a point of crosswise passage in the level ground. The great care of the maintenance of the road during the mid-Republican period is a notable feature: such an effort does not seem logical for local needs, and as *Veii*

[39] TOGNINELLI 2006, 41–2; see also TOGNINELLI 2007, 156.
[40] HULTSCH 1882, tables X,C and XI,C.
[41] HULTSCH 1882, table XI,C.
[42] QUILICI, QUILICI GIGLI 1980, 276–81, pls. 104-5, 107-10; AMOROSO 2002.
[43] QUILICI, QUILICI GIGLI 1980, 89–103, pls. 30-4. See also AMOROSO 2002, 298–300, fig. 8; AMOROSO 2004, 162, fig. 11.
[44] A walkthrough of the east side of the Road Trench line on the top of the hill was conducted.
[45] It is possible, of course, that the earliest layers down in the hillside have been covered by later ones and thus are not easily brought to light by ploughing. On the effects of ploughing, see IKÄHEIMO 2003, 35–45.
[46] DI GENNARO 1990, 260–2 with references. For the adult burials in the settlement area of *Ficana*, see BECKER 1996, 459, 463–4.
[47] PETTINELLI, BARONE 2008.

was conquered by the Romans in the early 4th century, one would suppose that in this phase "all roads led to Rome". As a result of the third Roman conquest at the beginning of the Republican era, as mentioned by Livy (2.19.2), the fields of *Crustumerium* were assigned to a newly created 21st Roman tribe, the *Clustumina*[48]. On the other hand, the less careful character of the uppermost level of the gravelled road seems to indicate fading of the settlement during the Republican period, also demonstrated by surface material[49]. It seems possible that the road trench was gradually abandoned towards the 2nd century BC. *Crustumerium* thus fell into delivering agricultural products to the markets of Rome. Also the later road provided with the tuff pavement in the trench G is a notable discovery with the Imperial period burials. Its extension and course are still unknown: it was not seen in other trenches and its slightly divergent orientation may mean that it did not follow faithfully the line of the Road Trench.

In addition to the obvious research potential of the Road Trench area of *Crustumerium*, it is noteworthy that in a limited area a many-sided archaeological resource exists, which after further excavations and publication could be developed into an interesting site to be visited both by scholars and the public at large.

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