FROM CIL TO GIS: EXPLORING POMPEIAN INSCRIPTIONS THROUGH AN INTEGRATED 2D-3D APPROACH

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Summary

The inscriptions in Insula V 1 in Pompeii were recorded in the 19th century and most of them are published in the volumes of CIL IV printed in 1871 and 1909. With few exceptions, the inscriptions are not preserved today. This poster is about our work with transferring the information given in CIL to GIS-projects in 2D and 3D. How can this be done and to what aims? A full entry in CIL gives the text, its size, on which wall it was written, its location in relation to other inscriptions, and the material and colour of the background. From the text we can pick the topic and the names and sex of people mentioned. By entering these facts into a GIS database we can make various maps and queries that allow us to discuss distribution and spatiality from many different angles. Difficulties to be met are how to treat the inscriptions where we do not have the full set of information, where the information is ambiguous or vague, and, not the least, unintelligible inscriptions. In addition, recent developments in 3D technology, enabled us to test the integration of a couple of wall inscriptions in a three-dimensional GIS system. Such an experiment provided us with the possibility of assessing the visual impact they could have exerted on a set of hypothetical observers inside the house's space.

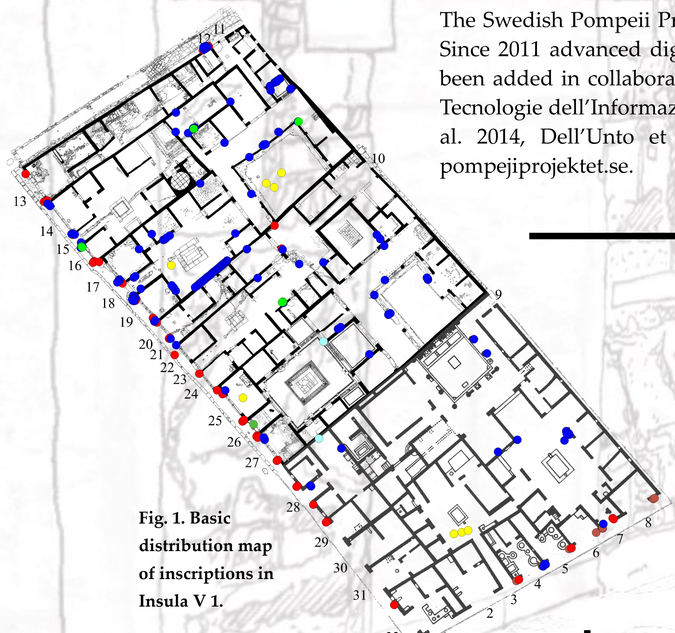
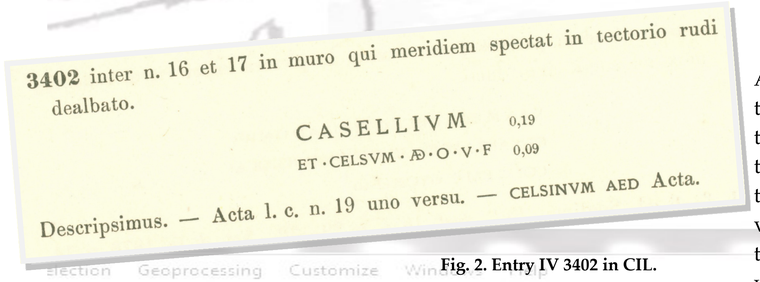


Fig. 1. Basic distribution map of inscriptions in Insula V 1.

The Swedish Pompeii Project started in 2000 with the aim to record and analyse the whole of Insula V 1. Since 2011 advanced digital archaeology, involving 3D reconstructions and documentation methods has been added in collaboration with the CNR-ISTI (Consilio Nazionale delle Ricerche - Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo") in Pisa and the Humanities Lab at Lund University (Dell´Unto et al. 2014, Dell'Unto et al. 2013). The project's results are continuously published at the website: pompejiprojektet.se.

In CIL (*Corpus Inscriptionum Latinarum*) a total of 233 inscriptions of various kinds are recorded from Insula V 1 **(Figure 1)**. One amphora with painted text and one stamped brick have also been found by the Swedish Pompeii Project. The absolute majority of the inscriptions are not visible today and lack photographic or drawn documentation. The two main categories are the painted electoral notices called *programmata*, and the graffiti made by scratching into the wall plaster with a sharp tool. The inscriptions can be located in space, and their various attributes can be inserted in a database, it thus seemed a good idea to make a database linked to a distribution map using 2D GIS. The two main inspirations were Intrasis, Intra Site information System, a computer program that integrates ArcGIS and Access and is widely used in Swedish contract archaeology, and Fornsök/FMIS, the Swedish National Heritage Board's Archaeological Sites and Monuments database and Archaeological Sites and Monuments System.



3402 inter n. 16 et 17 in muro qui meridiem spectat in tectorio rudi dealbato.

CASELLIVM 0,19
ET·CELSVM·ÆD·O·V·F 0,09

Descripsimus. — Acta l. c. n. 19 uno versu. — CELSINVM AED Acta.

Fig. 2. Entry IV 3402 in CIL.

A full entry in CIL for a *programma* records **(Figure 2)**
the CIL number [**3402**]
the location [between doors no. **16** and **17**, on the wall that faces south]
the background [**whitewashed coarse plaster**]
the text [**Casellium et Celsum aed(iles) o(ro) v(os) f(aciatis)** = I ask you to vote for Casellius and Celsus as aediles]
the size [**0.19 m**. for the upper line, **0.09 m**. for the lower]
who recorded it [we described = Mau and Zangemeister]
if and where the inscription had been published before and any variant reading [in *Giornale degli Scavi*, with the reading Celsinum aed instead of Celsum aed]

The colour of a programma was red, unless it is stated that it was black.

A full entry for a graffito gives the same information.

From the text in the inscription we can pick out attributes like topic, sex of individuals, if it is a quote, if it written in verse etc. It is of course also possible to add other information – if the inscription was on a façade, in what kind of room, state of preservation etc. When the data and attributes are entered into a GIS project, the first and basic result is a distribution map. The information linked to this can then be used for different queries, below **(Figures 3–4)** are the distribution of female names in graffiti and the programmata for M. Casellius Marcellus.

Fig. 3. Graffiti containing female name(s), without labels.

Fig. 4. Programmata for M. Casellius Marcellus, with labels.

A problem with using traditional 2D GIS for a material like inscriptions is that we end up with a bird's eye view of information that belongs to a vertical wall. However, it is possible to trick the program into believing that a wall is a horizontal surface. By adding information from other sources, in this case the cork model of Pompei at the museum in Naples, we can then use 2D GIS to get at least some ideas about how the inscriptions were placed on the walls **(Figure 5)**.

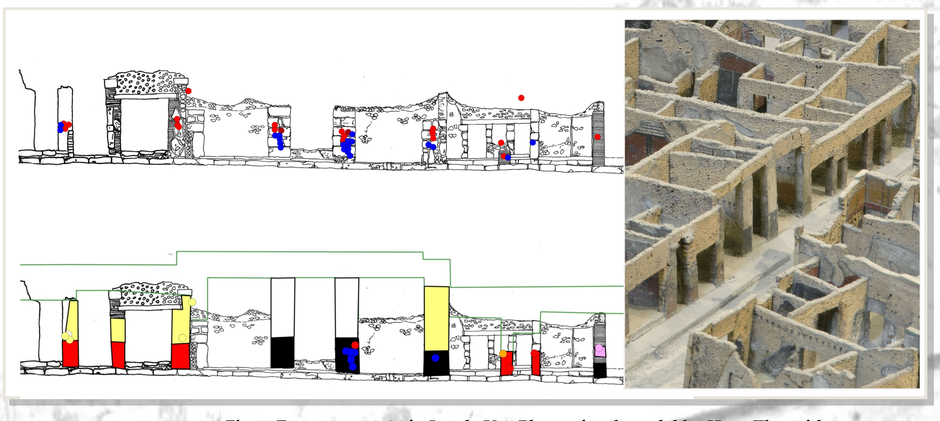


Fig. 5. Doorways 14–24 in Insula V 1. Photo of cork model by Hans Thorwid.

Furthermore, an advanced 3D-GIS system has been recently tested as an additional means to analyse and simulate the spatial configuration related to the wall previously mentioned. In this way, objects can be analysed in their actual three-dimensional context (Benefiel 2010). As a test case, an alphabet and an electoral inscription were compared in terms of their general visibility from a sample of observing points located in the house of Caecilius Iucundus. Not surprisingly, the final result showed us a by far higher level of visibility of the electoral inscription (6.7% vs. 0.1%) **(Figures 6–7)**. Such an analysis was performed considering the virtually rebuilt ancient space of the house and any visual obstacles that could have affected the line of sight. This was an attempt of testing a technique to be possibly extended to a broader dataset. The aim was to identify some patterns of visibility by identifying specific foci of sight and providing archaeologists with a source for discussions about the visual impact of the wall inscriptions.

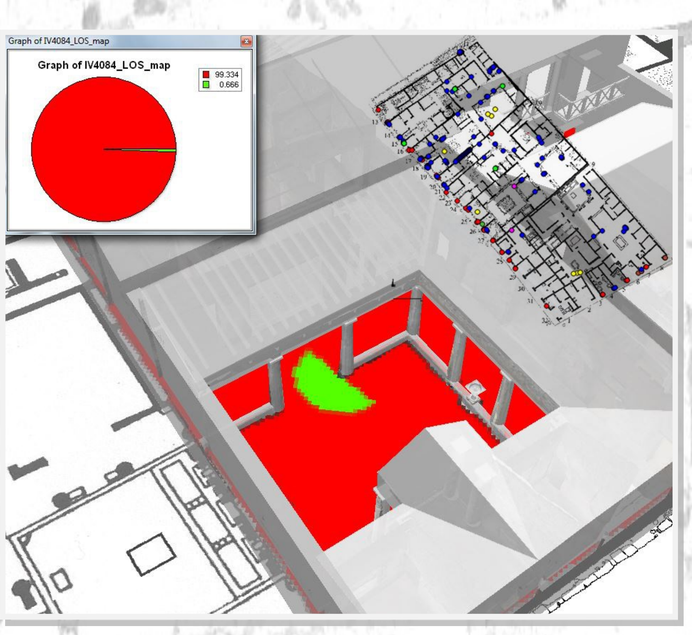


Fig. 6. Line-of-sight analysis run inside the reconstructed house of Caecilus Iucundus. The green area shows those observing spots from which is possible to see the target object, in this case an alphabet inscription originally placed on a peristyle's column.

In brief, using GIS to manage and explore the inscriptions of one insula is useful. The possibilities to enhance the understanding of Pompeian writing practices if we continue outside "our" insula are vast. Hopefully, Insula V 1 is a test case for new digital methods of recording and analysing inscriptions that will ultimately cover all of Pompeii and be linked to/integrated in a larger database such as Pelagios.

So far this has been a trial and error test for our own use. In addition, the implementation of a 3D-GIS was explored as a possible means for investigating the visual properties connected to the targeted inscriptions. In this sense, GIS is no longer used just as a "mapping" tool, but as a real place to think (Gillings and Goodrick 1996, Chapman 2006), where interpretation is enhanced by the use of the third dimension as an additional exploratory field (Landeschi and Carrozzino 2011). To be even more effective, it would need to integrate more, hopefully all, of the Pompeian inscriptions, have the inscriptions coded according to TEI-practices (Text Encoding Initative) and be linked to a larger search platform such as Pelagios.

A GIS project is never better than the data available. It is important to remember that it does not represent the truth; it is a representation of interpretations of the different kinds of available information. The transfer of information about Pompeian inscriptions to a GIS environment can never result in a complete database and involves many decisions that will affect the final result. To give but one example: CIL IV 4077 is a graffito that might, or might not, be read as "(l)ocus (es)t R(u)finae", it's Rufina's place. If I decide to enter this reading and the name Rufina in the database and, consequently, mark her as a woman, and, likely but not certain, a slave, I end up with an entry with four uncertainties: the reading of the text, the name, the sex, and the social status.

Also, the information given in CIL on the placement of the inscriptions are limited to which wall and to how inscriptions relate to each other. The information given might be vague, note the red marker floating above the wall in fig. 5; CIL IV 3422 was somewhere between doorways no. 20 and 24. CIL IV 4068 is said to be "close to the previous". It is very rare that anything is said about the hight that an inscription was found at, how far from an opening or any other more exact location.

Despite the uncertainties involved, to transfer the inscriptions to a GIS project is feasible and rewarding. Just to be able to look at a plan does improve our understanding of the distribution. The big advantage is that all data are collected in one and the same project, which makes it very easy to make queries. With appropriate data added we would be able to sort out the outdoor graffiti that contain the name Felicula and are more than 2 cm high. That might not be the highest prioritized question, but it shows the possibilities of the technique.

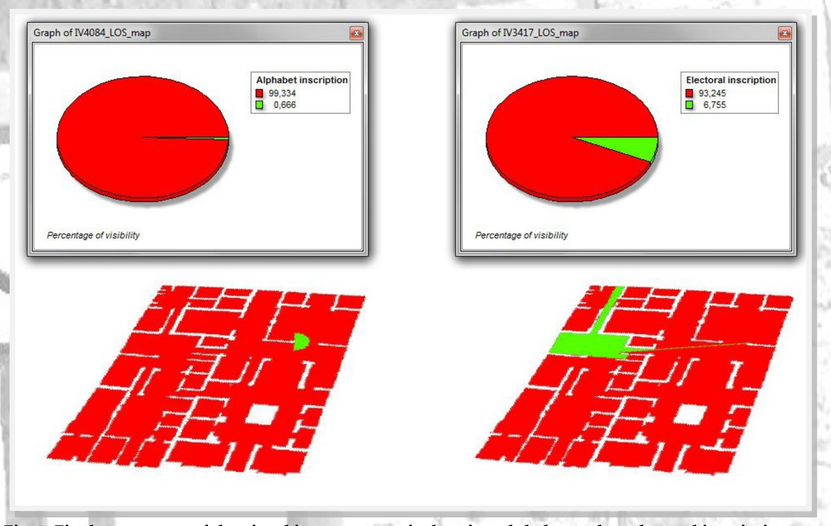


Fig. 7. Final assessment of the visual impact respectively, of an alphabet and an electoral inscription.

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2D GIS mapping has been made through the use of QGIS software.

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