

# Reconstruction and Remounting Materials and Techniques of the Wall Paintings in the Tablinum of the House of the Bicentenary

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## Introduction

The House of the Bicentenary (Casa del Bicentenario), including the tablinum, was excavated in 1938–39 as part of the “New Excavations” under the supervision of Amedeo Maiuri. The techniques and methodology employed by Maiuri during the excavation and subsequent reconstruction, as well as the conservation of the paintings, have determined not only how the architectural surfaces in the tablinum have been presented over the last eighty years but also many aspects of their present condition.

The techniques used by Maiuri have been studied throughout the project, both through the sources available (publications and photographs) and through direct observation of the works in situ and scientific analyses of their components. (See Graves, Piqué, and Rainer, this volume.)

## The Sources

### *Ercolano: I nuovi scavi* (Amedeo Maiuri)

In his *Ercolano: I nuovi scavi* (1927–1958), Amedeo Maiuri (1958) sets out a comprehensive methodological approach to the study and excavation of the archaeological site of Herculaneum during his time as superintendent and director of works there. In the monograph on the site and its excavation, he states that the excavations carried out under his direction adopted more rigorous (and difficult) procedures than earlier digs at Herculaneum and Pompeii due to “the scientific methods that are a requirement of the modern study of antiquity” (*le esigenze scientifiche che lo studio delle antichità oggi impone*).

While Maiuri makes some general references as to how this modern approach must be achieved, he does not go into great detail concerning the methods employed other than to indicate that, despite the scale of the problems faced, the result must be essentially minimal and respectful of the original materials. In the case of architectural structures, “while using the same materials, tuff and brick, special care was taken to clearly differentiate the reconstructed walls from the originals” (*I nuovi scavi* p. 22; *speciale cura si è posta, pur usando gli stessi materiali in tufo e laterizio, nel distinguere nettamente le murature di rifacimento da quelle originali*).

A similarly minimalist approach was employed to restore the paintings: in the “frescoed areas the reconstructed wall sections are left without plasters, or, if a rough plaster was applied, its only purpose was to provide a schematic layout of the wall [decoration] using white lines, which was sometimes necessary to show the design of the wall” (*I nuovi scavi*

p. 22; *I rifacimenti murari sono lasciati senza intonaco o, quando vi si è sovrapposto un intonaco grezzo, ciò è stato fatto solo al fine di rappresentare il disegno schematico della parete a lineeole bianche, provvedimento necessario, a volte, per presentare il disegno decorative di un parete).*

### ***Giornale dei lavori degli scavi di Ercolano***

Limited information about the day-to-day work carried out during the excavations can be gleaned from the *Giornale dei lavori degli scavi* (Maiuri n.d.-b), in which individual workers recorded operations carried out in daily entries. The section of the journal describing the House of the Bicentenary (see appendix 2.1) takes the form of sporadic entries every few days or weeks, briefly describing operations related to the excavation and reconstruction of the house, together with the name and job title of one of Maiuri's workers, presumably whoever was responsible for the particular task.

Despite the limited information it contains, the *Giornale* provides some valuable insight into how the work on the house was structured, though there is little detail concerning the work on the tablinum itself: it is first mentioned on 15 June 1938, with several entries over two months, from 9 July to 9 September 1938, and then once more, on 27 December 1938.

While the bulk of the *Giornale* describes work to stabilize, demolish, and reconstruct the architectural structures, it is clear that this work went on simultaneously with both the excavation and the restoration of mosaics and paintings.

### **The *Giornale* and the Wall Support**

The original wall support principally consists of tuff blocks. When sound, this was conserved by Maiuri's team, but it was often repaired or replaced; for example, the *Giornale* entry of 5 August 1938 states, "Tablinum western part continue work on supporting the *opus incertum* wall and demolishing the degraded wall" (*Tablino lato ovest continua incasso di muratura ad opera incerta con demolizione della muratura marcita*).

As suggested by the above quotes from Maiuri, new construction is usually easy to distinguish from the original Roman work, employing a lighter, yellower, more friable tuff constructed in *opus incertum*.

That the *Giornale* is incomplete is shown by the modern reconstruction work in the tablinum carried out between the upper border of the paintings and the modern wood ceiling, where there is a roughly 80-cm-high band of visible wall. The *Giornale* entry of 27 December 1938 states that this upper part of the east wall (which is almost all modern tuff) was reconstructed to hold cross beams (*Tablino lato est ricostruito una sopraelevazione di muratura ad opera incerta per imposta di travi*). The *Giornale* says nothing about reconstruction on the south wall, which is principally composed of original Roman tuff, but neither does it mention reconstruction work on the upper part of the west wall, which is obviously entirely modern: the only comment is "west side 8 holes made for holding beams" (*lato ovest fatto 8 buchi per le tenute dei travi*).

The lower parts of the south and west walls, mostly reconstructed, have been left bare of plaster, up to a height of 100–145 cm. The lower portion of the pilasters is in *opus vittatum* (in part original Roman construction and partially reconstructed); the lower west wall is reconstructed in *opus incertum*, both using tuff blocks that are lighter in color than the original Roman tuff.

All work on the walls, whether reinforcement or demolition and reconstruction, is attributed to *muratori* (masons).

### The *Giornale* and the Wall Paintings

The wall paintings in the tablinum, and the site of Herculaneum as a whole, were subjected to a number of operations as part of Maiuri's excavation and restoration process, and indeed many have been transferred to new supports and remounted on the walls.

Unfortunately, the *Giornale* says less about the treatment of the paintings in the tablinum than it does about the architectural elements. However, looking at the entries for the House of the Bicentenary as a whole suggests some trends that can be supported by observation of the wall paintings in situ.

It can be noted that there are only a limited number of operations described during work on the house from April 1938 to January 1939. Restoration of plasters (*restauro stucchi*)<sup>1</sup> is mentioned fourteen times<sup>2</sup> and detaching plasters (*smontaggio stucchi*) nine times, recomposition (*ricomposizione*) of plasters seven times, and collecting and transporting plaster fragments only one time each.

Although it is clear that this can be considered by no means an accurate quantitative evaluation of treatment processes carried out on the paintings, perhaps their relative frequency suggests that the detachment and reattachment of damaged and probably fractured wall paintings may have been more common than the collection, reconstruction, and remounting of fragments collected from the ground. A contemporary photograph from the site shows that fragment collection and reconstruction was part of standard working practice (fig. 2.1).

According to entries in the journal, the bulk of the operations on the tablinum occurred between June and September 1938, with numerous mentions of repairs to the walls, but there are only two direct references to the work carried out on the wall paintings. Entries on 9 and 11 July record only the number of square meters of plaster restored (*restaurato mq 1.15 di stucchi del tablino di detta casa 27*), giving a very scant idea of the complete work carried out on the wall paintings in this room.

References to the restoration of wall paintings in the various rooms of the house, however, provide a fairly comprehensive idea of the type of work carried out on plasters and wall paintings and by whom. Operations on the wall paintings were carried out by a team of workers from different trades, including plasterers (*stuccatori*), plaster restorers (*restauratori*

FIGURE 2.1.

Reassembly of fragments at the site of Herculaneum, 1935. (Historical Archives of the Soprintendenza Pompei, Maiuri, inv. C2649)



*stucchi*), stone carvers (*marmisti*), paintings conservators (*conservatori dipinti*), and varnishers (*verniciatori*). The main restoration work appears to have been carried out by the *restauratore stucchi*, whose entries frequently record detaching and restoring (painted) plasters (*smontato e restaurato . . . stucchi*), though detachments were twice recorded as being executed by a stone carver (*marmista*). The last mention of work by the *restauratore stucchi* in the entries on the House of the Bicentenary is on 2 January, four months after the previous recorded treatment, where the restorer is described as having “detached and restored (*smontato e restaurato*) 8.5 square metres of *stucchi*.” On the other hand, toward the end of treatment, on 12 November 1938 and 18 January 1939, a *stuccatore* (plasterer) is recorded as “continuing to place *stucchi* on the upper and ground floors with roughing out (?) an architrave and laying on *tonachino* (plaster)” (*continua la messa in opera degli stucchi al piano superior piano terraneo con abbozzi di architrave e messo a tonachina*).

An entry on 9 February 1939 describes the process of recomposition of fragments carried out by the workshop of frescoed plaster restoration (*Officina restauro stucchi affrescati*). It is described as the recomposition of plaster pieces with a cement backing (*ricomposto frammenti di stucco bianco a lastroni con soletta di cemento sull'estradosso*). The remounting of fragments (entry for 21 February) is described as follows: “completed the work of putting into place the plasters with a liquid cement mortar and reinforcement of intonaco” (*ultimato . . . lavoro di messa in opera degli stucchi con beveraggio di cemento fino con malta e finimenti di intonaco*).

A *conservatore dipinti* is mentioned on 9 September 1938 as having “started work on *incrostazione* and spreading wax on the frescoed walls” (*iniziato lavoro di incrostazione e spalmatura cera alle pareti affrescate*) and then, fourteen days later, as “finished work of spreading wax on the frescoed walls of the Casa del Bicentenario” (*ultimato lavoro spalmatura di cera alle pareti affrescate*), suggesting his particular job here involved cleaning and/or consolidation and coating the paintings in wax.<sup>3</sup>

### **Maiuri's *Diario di scavo***

Maiuri's excavation diary (*Diario di scavo* [Maiuri n.d.-a]) provides brief notes on the progress of the excavation (see appendix 2.2). While the diary does not make any direct reference to the actual remounting of wall painting fragments, it does give a sense of the excavation sequence and what was found on the walls at the time of excavation.

The first entry referencing the tablinum is dated 14 June 1938, “Excavation of the tablinum of house number 27 and of the atrium of 31, both sites on the Decumanus Maximus Insula V” (*E incominciato lo sterro del tablino della casa 27 e dell'atrio di quella 31, ambedue poste sul Decumano Massimo Insula V*). The entry for 15 June is the first reference to the wall paintings. “The tablinum of house number 27, the west wall conserves much plaster with a red background with small animal figures” (*Il tablino della casa 27. La parete ovest conserva molto stucco a fondo rosso con piccole figure di animali*). This likely refers to the upper register of the wall paintings and perhaps the frieze. By 20 June, the south and east walls had begun to be uncovered: “Continue the excavation of the tablinum of House number 27. The south and east walls have much red plaster” (*Le pareti sud ed est conservano molto stucco rosso*). The entry of 18 July describes the medallion painting on the east wall, south end; the entry for 25 July describes the central rectangular scene on the west (described as east in the entry) wall with Daedalus and Pasiphaë. After that entry, there are no more references in the diary to the wall paintings, and it seems that excavation of the tablinum was completed by 29 October 1938. The next entry describing the tablinum and the wall paintings is 18 January 1939, when the room is described in detail. No mention



**FIGURE 2.2.**

Photograph of the central section of the west wall during excavation. Wood supports with cushioning material have been placed against the walls and shored up. Temporary rough fills run along the bottom of the plasters to hold them in place.

(Historical Archives of the Soprintendenza Pompei, Maiuri, A2621)



is made of the remaining scene and medallions—neither when they were found nor in what condition. These entries give an idea of the speed with which the room was excavated and the condition of the wall paintings at the time of excavation. The fact that the east wall medallion and the west wall central rectangular scene were described in such detail upon discovery suggests that perhaps these areas were more or less intact when found, or that this is simply an inconsistency in the recording of the work. The assumption that the west wall central rectangular scene was found still on the wall is further substantiated by the historical photograph from the Soprintendenza Pompei archives of this scene being supported by wood props during excavation and reconstruction (fig. 2.2).

### Historical Photographs

Further insight into the excavation, remounting, and reconstruction process can be seen in historical photographs of the work in progress (see fig. 2.2). Most images that have been found in the archives of the Soprintendenza Pompei, however, show the wall paintings, and indeed the house, once excavation and reconstruction had been completed.

### Observation of the Works In Situ

Today the paintings in the tablinum have several different characteristics. In some areas, they are made up of large unbroken areas of sound paint that appear to be still attached to the walls by the original techniques<sup>4</sup> employed two thousand years ago. In other parts, the

FIGURE 2.3.

Reassembled wall painting fragments, upper west wall. Some pieces lie close together, and the joins between them are not filled; some are farther apart, with restoration mortar applied to fill the gaps.



paintings are composed of numerous fragments, more or less densely clumped together, at times with large lacunae filled with restoration mortar (fig. 2.3).

The form in which the paintings survived affected how they were treated during their restoration in 1938, and was closely linked to their location. Graphic documentation was carried out in situ to map evidence of remounting and reconstruction in order to better understand the techniques and extent of the 1938 interventions. (See appendix 2.3.)

### East Wall

It is quite likely that a significant proportion of the underlying tuff wall support of the east wall was replaced, as there are large losses in the original plaster, and most of the surviving plaster has been remounted. Additionally, the other side of the wall, in the adjoining ambiente 9, is largely composed of modern *opus incertum*,<sup>5</sup> though a large area of this wall (ambiente 9) is original Roman tuff constructed in *opus reticulatum* (fig. 2.4).

FIGURE 2.4.

Rear of east wall in adjoining ambiente 9. Darker portions at left are original Roman tuff.





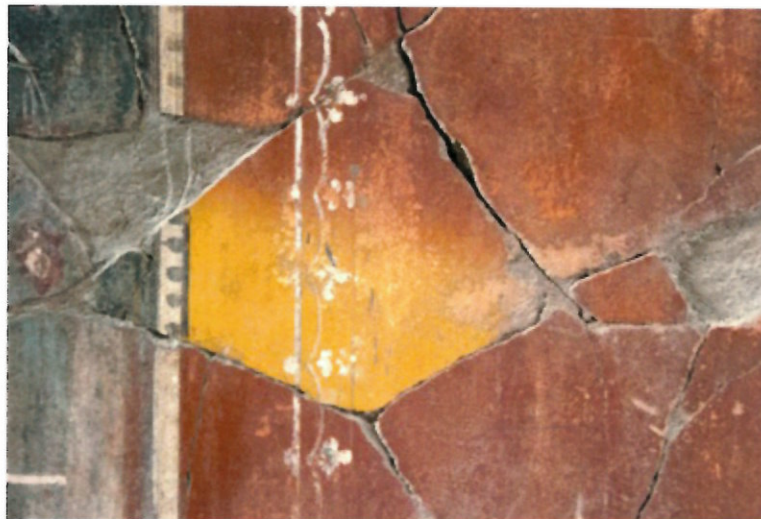
**FIGURE 2.5.**  
East wall. Yellow shading indicates  
original Roman plasters.



The east wall retains less original plaster than the other two walls, with the most severe losses in the upper register (approx. 70%) and the monochrome background of the middle of the lower register (fig. 2.5). About half the plaster is missing from the base of the wall.

The central section has a high proportion of small losses between adjoining pieces of plasters, while the joins between one fragment and another are rarely even and close fitting, suggesting they suffered further damage after the initial break prior to remounting. This wall also contains the few fragments where the yellow pigment goethite has survived the heat-generated transformation into red hematite, suggesting these fragments were more protected from the heat of the eruption (and thus separated) from their neighbors, which have undergone the color transformation (fig. 2.6). A similar transformation is apparent in the central scene, where a piece of drapery that is yellow on one fragment is red and brown on adjoining fragments (fig. 2.7). These fragments with untransformed yellow pigment are concentrated in the center of the wall and at the north end of the upper register.

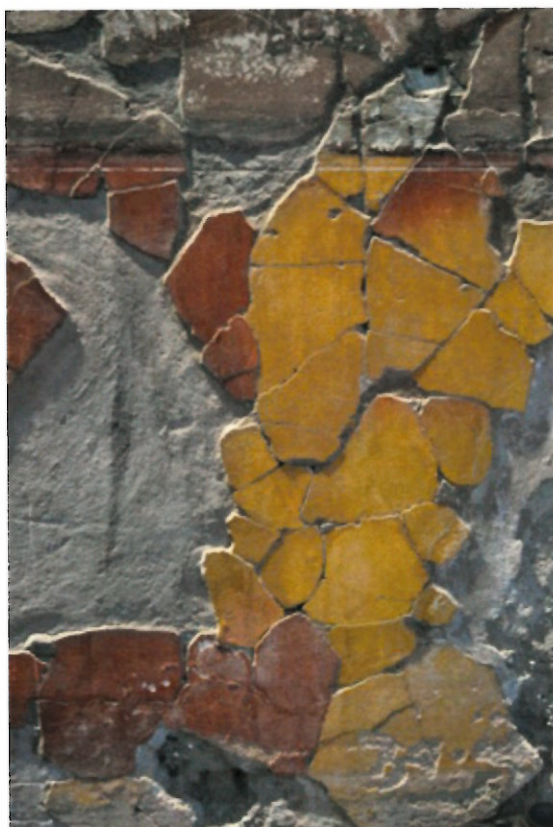
**FIGURE 2.6.**  
East wall. A fragment with yellow  
goethite pigment adjoins other frag-  
ments where the pigment has been  
transformed into red hematite.







**FIGURE 2.7.**  
East wall. In the central scene, the same piece of drapery is yellow on one fragment, brown on another, and red on another.



**FIGURE 2.8.**  
East wall. Lower register (raking light), showing principally yellow fragments somewhat irregularly fitted together.

The reconstruction of fragmented wall paintings is especially difficult when the fragments do not contain parts of an image or decorative elements as a guide and when pieces do not have clear, well-defined edges. This may explain why the surviving remounted parts of this section of the wall generally consist of fairly large pieces from the figurative scene and its borders, whereas the surrounding areas, which would have consisted principally of monochrome background with few distinctive graphic elements, have been left largely unreconstructed. The only significant monochrome area that is reconstructed at the center of the register is made up of yellow fragments (fig. 2.8).

These factors (worn fragment edges, fragments with yellow pigment side by side, fragments with red and yellow pigment, little reconstruction of plain red fragments) suggest that much of the central and upper parts of the wall collapsed, and the fragments now on the wall were collected from the ground and reassembled.

On the other hand, the plaster along the southern edge of the east wall (fig. 2.9) is made up on the whole of quite large fragments that fit closely together. This, together with the reasonably good condition of the corresponding wall in ambiente 9 (see fig. 2.4), suggests that the plasters here may have still been in place at the time of excavation and been in whole or in part detached and remounted, as evidenced by the pattern of cracking and fragmentation.

The left-hand northern portion of the lower register appears to be an intermediate situation. Here there are clusters of larger fragments with narrow cracks and few losses, and





**FIGURE 2.9.**  
East wall. Map of fragments.



**FIGURE 2.10.**  
South wall. Map of fragments.



**FIGURE 2.11.**  
West wall. The yellow outline indicates an area without significant fractures. The thicker blue lines indicate cracks. The thin lines indicate fragments.

others that seem less well inserted and with small irregular losses along joins, suggesting that part of the wall was still in situ and part of it was not, and that some parts of the plasters were detached in smaller clusters and then remounted on the wall.

### South Wall

The upper register of the south wall (fig. 2.10) is principally composed of medium to large fragments, the western half and the underlying frieze for the most part fitting closely together. The eastern third is instead composed of a much more loose-fitting group of fragments surrounded by a large loss, suggesting perhaps that these were more damaged and detached than fragments in the western part. Although (like the west wall) the monochrome background in the upper register is now entirely red, it is likely the original color scheme incorporated yellow (like the east wall), but here all the original yellow goethite has been converted to red hematite. This suggests that no fragments were protected from the heat of the eruption, and may imply that fewer fragments fell off this wall and were buried.

The plasters of the lower register pilasters are made up of several large islands of close-fitting smaller fragments, suggesting they were detached and remounted in sections.

### West Wall

Like the south wall, the monochrome background of the west wall (fig. 2.11) is now entirely red; however, it is most likely that the original color scheme incorporated panels of both yellow and red in the upper and lower sections, and the central panel may likely have had a yellow background like the east wall. This again suggests that no fragments were protected from the heat of the eruption, and may also imply that fewer fragments fell off this wall and were buried.

Here the map of plaster fragments falls roughly into three distinct areas.

In the first area, the plaster in the upper south portion of the wall is separated from the other plasters by a large horizontal loss. Although this portion includes large fragments, it has many more small fragments and small losses than the other areas of plaster.

In the second area, the right-hand, northern third of the wall is broken up by curved vertical cracks running from top to bottom, suggesting that the underlying wall was pushed up at one point. A similar damage pattern can be seen in other buildings in Herculaneum.

However, the third and most notable area is the central-southern section of the lower wall: it contains a single piece of plaster (area outlined in yellow in fig. 2.11) with only a few cracks (indicated by the thicker lines), suggesting that this plaster is the only part of the tablinum not to have been reattached in the 1938 treatment. This idea is further supported by the absence of any traces of backing plaster used to remount fragments (see next section); the upper border of this section of original Roman plaster is not flat and is higher than the adjacent plasters of the upper section and right-hand section, and the original plaster overall is thicker in this area than in any other area in the tablinum.

Further evidence can be found in a photo from the excavation (see fig. 2.2) showing the central part of the west wall supported by temporary props, a procedure that, on the basis of other photographs from the archives of the excavation, seems to have been employed when plasters and walls were still standing but considered to be unstable.

There are, however, traces of backing plaster in some of the cracks in the lower plasters shown in this photograph, suggesting that some of these smaller pieces may have been detached and/or reassembled and reattached (see discussion below).

## Techniques Employed for Remounting Fragments

### Treatment of the Roman Plasters during Excavation

As previously mentioned, it is probable that in the tablinum three types of treatments were executed by Maiuri's team on the original Roman plasters:

1. Consolidating stable plasters in situ
2. Detaching unstable plasters found in situ, then remounting them on the walls
3. Collecting fragments, reassembling them, and remounting them on the walls

In the first treatment, where plasters were left in situ, it has not been established whether Maiuri and his team stabilized the original plasters using anything more than an injection grout and/or new plaster borders to anchor the original plasters. (See fig. 2.2, where a rough mortar border has clearly been temporarily added along the lower edge of the plasters on the wall. This was then replaced by a sloped mortar edging.)<sup>6</sup> However, there are also holes in the tuff support below the lower border of the west wall paintings, which may have held pins to support the edges of the plaster fragments.

In the second treatment, when the plasters were to be detached, they were presumably faced prior to removal and to assist with their successive treatment, although so far no trace has been found on the paint surfaces of materials being used either as adhesive or as the facing itself (facings made of canvas or similar materials frequently leave trace impressions of the cloth weave on plaster surfaces).

In examples so far observed both in the tablinum and in other areas of the site, it appears that Roman plasters had their deeper coarse gray plaster layers removed prior to applying the various restoration mortars used to reattach the plasters to the wall (Roman paintings in the tablinum presumed not to have been detached are about 7–8 cm thick; reattached Roman paintings, including restoration mortars, are about 3–4 cm thick).

When fallen fragments were collected and remounted, they would probably have received similar treatment, albeit after having been first reassembled faceup. After this,

they would have had a facing applied, and then been turned over and, similarly to the detached plasters, had their original thickness reduced by removing plaster layers before applying a backing plaster in preparation for remounting on the wall.

As mentioned above, the pieces that show signs of having been collected and reassembled (broken, rounded edges, less well-fitting joints with other pieces, more numerous smaller losses in the plasters, discontinuities in the condition of the paint layer) often have fairly well-defined figurative or decorative elements on them, which would have facilitated the reassembly of fallen fragments.

### Remounting of the Roman Wall Paintings: Backing Plaster, Anchoring Mortar, Pins, and Grouting Mortar<sup>7</sup>

Prior to remounting the reassembled fragments and probably the detached wall paintings, it appears that Maiuri's team assembled the pieces into clusters, or islands, of several pieces. These islands were held together by a cement-based backing plaster, which consisted of a fluid dark mortar composed of lime and CAC (calcium-aluminate cement).<sup>8</sup>

On the basis of observation of the plasters in place and remounted plasters in other areas of the site, the pieces used to make up an island were probably shaved down on the reverse, then placed side by side facedown on a flat surface. The backing plaster was poured over the back of the pieces (*soletta di cemento sull'estradosso*), forming a continuous layer of cement plaster 1–2 cm thick (fig. 2.12).

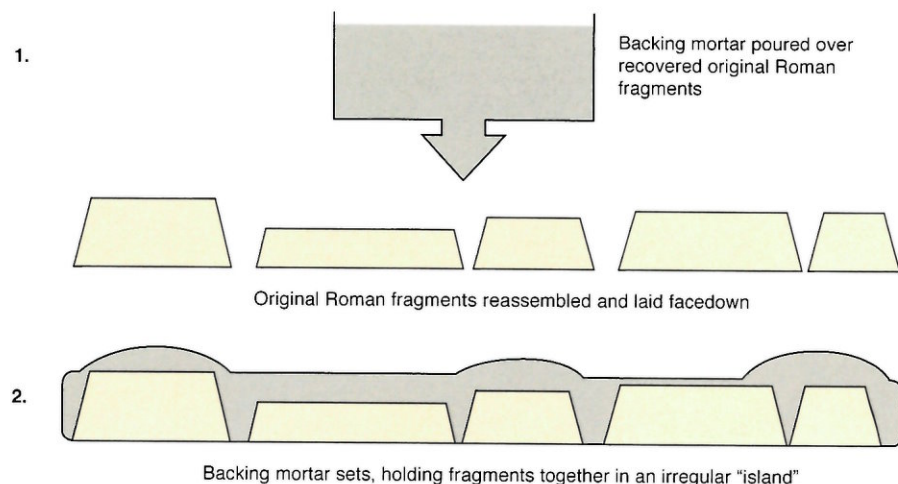
Once set, this formed a rigid support, holding the pieces together in an "island," which could then be attached to the wall. Traces of backing plaster can be seen in examples of deteriorated wall paintings at the site, which have left this layer exposed (fig. 2.13).

In the tablinum, it is difficult to separate out these individual islands of fragments among the larger areas of remounted wall paintings, though there are a few areas where such groups are discernible (fig. 2.14; see also figs. 2.9–2.11).

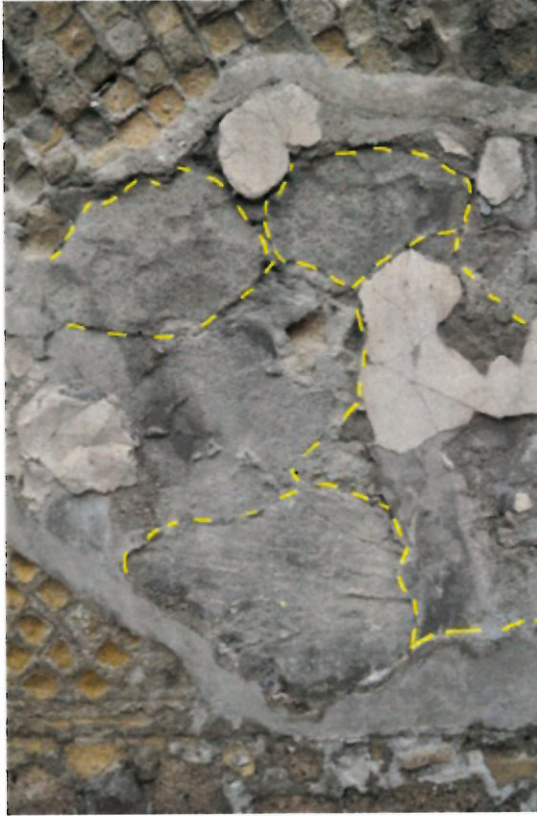
These islands frequently have small losses or gaps between fragments. In some cases, the backing plaster seeped into small cracks or gaps between fragments to form flat cement plugs at the level of the paint layer. In some areas of remounted plaster, there are many of these plugs (fig. 2.15).

In general, Maiuri's team did not fill any losses in the plaster up to the level of the paint, preferring to fill them 2–3 mm lower than the paint surface (fig. 2.16). They must have used a system to avoid the cement backing plaster from flowing through to the level of the paint

FIGURE 2.12.  
A hypothetical method for constructing the fragment islands.







**FIGURE 2.13.** A remounted section of plaster from another area of the site that has lost almost all the Roman plaster, exposing the backing plaster and leaving an imprint of the original Roman plaster fragment (shown by the yellow dashed line).



**FIGURE 2.14.** Areas of close-fitting pieces on the east wall that likely make up fragment islands, outlined in yellow.

**FIGURE 2.15.** Cement plugs that have formed around a fragment.





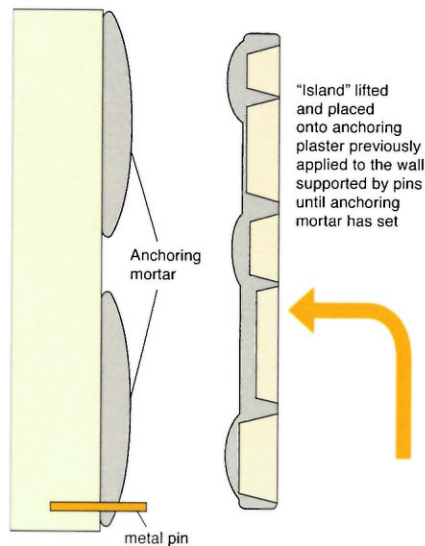
**FIGURE 2.16.**

Tablinum, south wall. A loss in the middle of a recomposed fragment island. Water damage has eroded the upper fill, exposing the underlying dark-gray backing plaster holding the separate surrounding fragments together, seen in the area inside the yellow dashed line.

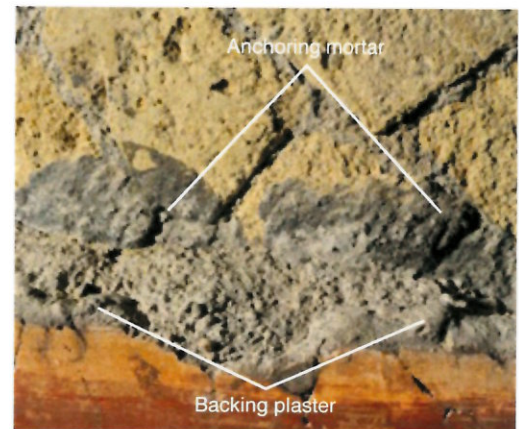


where there were larger cracks and more significant losses between fragments. It is likely this was achieved with a technique still used in modern times: placing a thin temporary fill into the gaps between fragments, which allows the backing plaster to flow over the back of and between the fragments, but stops it from reaching the level of the paint layer.

An anchoring mortar, very similar in appearance and composition to the backing plaster, would have been applied to the wall to adhere the recomposed fragments. The island of fragments assembled on the backing plaster would have been positioned on the wall at that point and held in place by metal pins inserted into the wall along the edge of the fragments until the anchoring mortar had set (fig. 2.17). Clear traces of this anchoring mortar can be seen where it has splashed onto the tuff walls above the upper border of the plasters (fig. 2.18). It is likely the pins were removed or cut where possible once the anchoring mortar had set (fig. 2.19).



**FIGURE 2.17.**  
A hypothetical system for remounting fragment islands on walls.



**FIGURE 2.18.**  
View of the top of the wall where anchoring mortar has splashed onto the tuff wall and has also largely overflowed over the backing plaster along the edge of the painting fragments.

**FIGURE 2.19.**

Anchoring mortar around the edge of a piece of exposed backing plaster that has lost the original Roman plasters. The holes indicate the locations of pins that may have been removed once the anchoring mortar had set.



Some fragment plates appear to have been aligned during mounting by the use of guidelines drawn on the paint surface: on the northern vertical band on the east wall, a pencil line is drawn down the central axis of the band (fig. 2.20). This, together with a plumb line, may have helped to achieve the correct vertical orientation of the pieces making up the vertical band.

In some cases, along the lower borders of the remounted fragments, there are drip marks or traces of a gray friable plaster, or grouting mortar (*beveraggio di cemento fino con malta*), which appears to have been poured behind the remounted fragments to fill areas not attached by the anchoring mortar.

**FIGURE 2.20.**

Pencil line running down the center of the vertical band (east wall, north end), likely added to help align fragments during the remounting process.







2. Small to medium losses inside original reattached fragment islands, generally with the backing plaster underneath
3. Large to very large losses between fragment islands
4. Extensive areas of loss with no surviving original plaster

These various types of losses were treated in different ways by Maiuri's team, but fairly strict criteria were used in each of the different cases, based on a consistent underlying principle of minimal intervention: original materials were always distinguished from restoration materials, and reconstruction work, when undertaken, was clearly visible and deliberately schematic. The treatments are described below.

#### **Small Cracks and Small Losses along Join Lines**

These areas were left unfilled, even if they were often quite deep. The deeper losses (0.5–1 cm) are visible from a distance and are characteristic of Maiuri plasters, which have not been subjected to later treatment (when wall paintings have had more modern, post-1938 treatments, these deeper losses are often filled).

However, in some places they were filled—presumably accidentally—by the CAC-based cement backing plaster, which flowed through and formed small cement plugs that sometimes cover part of the original paint (see fig. 2.15), and that are flat and plane with the surface.

#### **Small to Medium Losses Inside Original Wall Painting Fragments, with Backing Plaster Underneath**

These areas were filled with a fairly coarse-grained pale gray fill plaster with dark inclusions, composed of a lime binder with black volcanic sand as an aggregate. The fill is always slightly lower than the surrounding original wall painting surface to distinguish the loss from the original material, and it appears that the fills were colored to match the surrounding paint.

There are many examples of fills of this type, particularly on the west wall, that are still in good condition and that clearly have been tinted red to match the monochrome background. In other areas, on the east wall and, in particular, in the figurative scene, the situation is less clear due to the much poorer condition of the fills due to wear, waxing, and accumulated grime. However, it appears there are traces of coloration that may be similar to the surrounding original wall paintings even when the fill is not red, but it is difficult to be certain at the present moment. This plaster can be referred to as rough fill.

#### **Large to Very Large Losses between Groups of Fragments: Filling Plaster, Gray Finishing Plaster, or White Finishing Plaster and Gray Lime Wash**

In these cases, isolated islands of original or remounted plasters, 4–6 cm thick, were applied on a bare tuff wall. To join these islands, a gray fill plaster was applied over the tuff that was only slightly less thick than the original or remounted plasters. This filling plaster appears to have been a coarse-grained lime/sand/pumice mixture applied in a single thick layer to within a few millimeters of the level of the original plasters. The finishing of this material, however, appears to vary according to the purpose and size of the fill.

Where the losses are relatively limited in size, such as on the south wall (about 20%) or the central part of the west wall (less than 10%), it appears that the coarse gray fill is covered by a thin layer of fine gray plaster, which appears to be similar to the rough fill material used for the small to medium losses described above. This is applied to bring the level of the fill to approximately 2 mm lower than the original paint layer. On the south and

west walls, this fine gray plaster was tinted to match the surrounding plaster in both the larger and the smaller fills (fig. 2.23).

On the other hand, when there were very large losses between various fragment islands, as, for example, on the east wall of the tablinum, Maiuri adopted the procedure described in his *Nuovi scavi* mentioned earlier: "si è sovrapposto un intonaco grezzo... solo al fine di rappresentare il disegno schematica della parete a lineeole bianche" (p. 22), that is, a "schematic drawing on the wall with white lines" delineating the basic layout of the decoration, applied on reconstruction plasters, and used to connect surviving decorative elements on the various pieces of original painting. He frequently employed this minimal reconstruction technique in many other areas at both Herculaneum and Pompeii (fig. 2.24).

To make white lines stand out against the gray plasters, it appears Maiuri's team adopted a variant of the classic *sgraffito* technique. After the fill plaster was applied to the

FIGURE 2.23.

The layers of restoration fills in losses in the original wall paintings on the south and west walls.

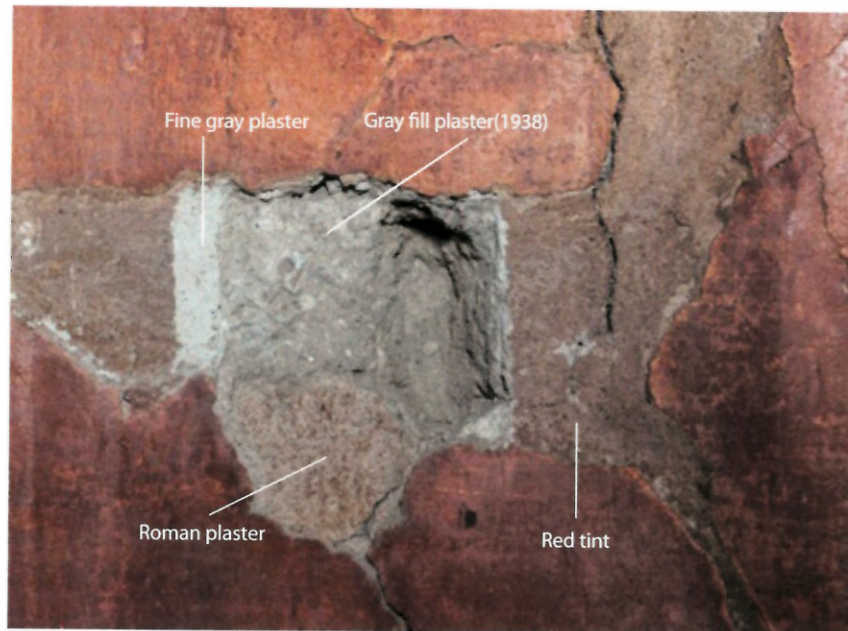


FIGURE 2.24.

Example from another area at the site, showing the different approaches used by Maiuri for the treatment of major lacunae: losses between islands of Roman plaster are filled with a gray lime-wash plaster with connecting design elements sketched in by white incisions. Instead, where there are no connecting islands, the walls are left as bare tuff (mostly modern) (Casa del Bel Cortile, Herculaneum).







**FIGURE 2.25.** Reconstruction of the basic design of architectural elements on the upper east wall by Maiuri's team in area of large loss made by incising a line through a gray lime wash applied to the surface to reveal the thinly applied fine white lime plaster below.



**FIGURE 2.26.** Flaking paint and plaster expose the stratigraphy of the reconstruction plaster in a loss on the east wall: gray lime wash over a thin white plaster covering a thick layer of gray fill plaster.



**FIGURE 2.27.** Central section, east wall, 1938, just after restoration and before the *sgraffito* design was incised in the reconstruction plaster surrounding the original fragments. (Historical Archives of the Soprintendenza Pompei, Maiuri, C2782)



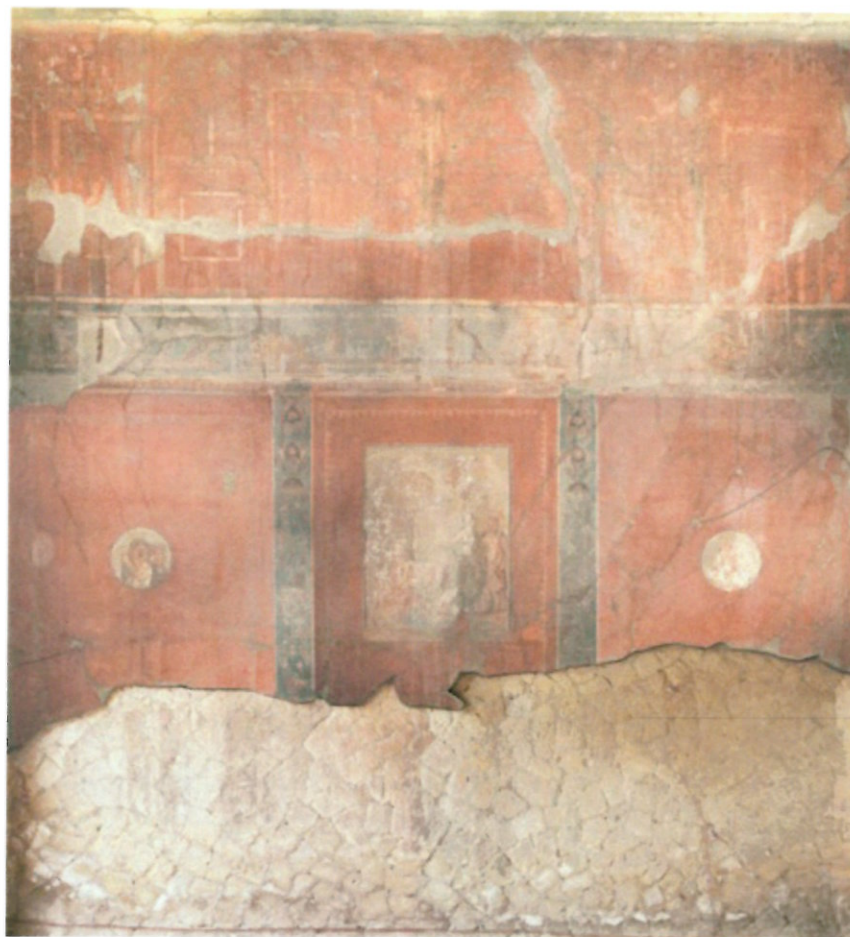
**FIGURE 2.28 (RIGHT).** Central section, east wall, 1983, showing the *sgraffito* design in the reconstruction plaster surrounding the central rectangular scene. (Historical Archives of the Soprintendenza Pompei, Maiuri, D29302)

large areas of loss, it was covered with a thin (1–2 mm) white plaster layer. This, in turn, was covered with a coat of gray-tinted lime wash. The line drawings re-creating the outlines of the decorations were then incised in the surfaces, breaking through the gray covering tint and exposing the white plaster underneath. This created an effect of white lines on a gray background (figs. 2.25–2.26).



**FIGURE 2.29.**

Overall of west wall of the tablinum, showing the approach used by Maiuri for the treatment of major lacunae with no fragment islands, leaving the bare tuff (mostly modern) along the base of the wall.



This technique is seen in two historical photographs of the east wall that show the wall paintings during reconstruction in 1938 with a large fill (fig. 2.27) surrounding original plaster fragments and the central rectangular scene and, much later, in 1983, with the incised *sgraffito* design (fig. 2.28).

However, in some areas, most notably where the fills are relatively small, a fine gray plaster was used under the gray wash instead of the fine white plaster, even when lines are incised.

#### **Extensive Areas of Loss with No Surviving Original Plaster**

In the case of extensive areas with no surviving fragments, such as in the lower parts of the west wall and south wall, Maiuri did not apply any reconstruction plaster, leaving bare the (often reconstructed) underlying wall (fig. 2.29).<sup>9</sup>

#### **The Use of Edging Plasters *le Scarpette***

On both the upper and lower borders of the original and reconstructed plasters, where bare tuff wall begins, a sloped edging plaster was applied. Some of the plaster strip along the upper border has remained in situ and appears to be similar to the rough fill (fig. 2.30).

Along the lower edge of the west wall, all of the 1938 edging plaster was removed in a subsequent treatment and was replaced with plaster borders perpendicular to the wall plane. However, the location of the original mortar edging can still be clearly seen as a lighter-colored strip on the tuff wall extending the length of the lower border (fig. 2.31).



**FIGURE 2.30.**  
Coarse-grained mortar edging partially covering both anchoring mortar and backing plaster.



**FIGURE 2.31.**  
Lower edge, west wall. The lighter-colored strip (outlined by the yellow dashed line) is the location of the first sloped edging plaster.

## Conclusion

The information gleaned through a careful examination of the wall paintings and through research into Maiuri's method of reattaching wall paintings at the site, combined with a reading of the historic references, provides insight into the methods and materials used to reconstruct the wall paintings in the tablinum of the House of the Bicentenary. The careful selection of materials similar to the original Roman plasters, and the approach that Maiuri and his team took to reintegrating losses following a principle of minimal reintegration and use of materials similar to the originals, demonstrates Maiuri's progressive ideas of conservation and the scientific rigor that he describes in his monograph on Herculaneum, *Ercolano: I nuovi scavi* (1958). Research into the materials and techniques used in the tablinum of the House of the Bicentenary can be useful in understanding his approach to the conservation and reconstruction of wall paintings in other houses at the site. Further study into the evolution of the materials and techniques used by Maiuri over three decades of excavation at Herculaneum would shed additional light on the excavation and conservation history of the site.

## Acknowledgments

The authors would like to acknowledge the staffs of the Herculaneum Conservation Project (HCP), and of the Parco Archeologico di Ercolano and its previous iterations, and conservator colleagues for the valuable knowledge they shared on the excavation of the site, the House of the Bicentenary, and the tablinum, through the use of archival material, historical photographs, and other references. We are especially grateful to Domenico Camardo, archaeologist, HCP, for his generous sharing of information on the process of excavation and the materials used.

## Notes

- 1 Often the *Giornale* uses the word *stucco* (plaster), but from the context it is clear this usually refers to wall paintings. *Tonachino* is also used, perhaps also indicating plasters in general.



- 2 It is probable that several of these mentions refer to the same treatment taking place over several days: on three different dates from 2 to 20 May, the same phrase is used: "Restaurato mq 22 di stucchi appartenente all'ambiente terraneo 25" (restored 22 sq m of plasters in ground floor room [of] 25).
- 3 The application of wax could have served to consolidate or fix the paint, which may have been powdering or flaking, to saturate the colors, or as a protective layer, or indeed all of these.
- 4 See Rainer and Piqué, this volume, for a description of original materials and techniques.
- 5 The modern tuff additions are deliberately distinguished by Maiuri from the older tuff blocks, as mentioned previously.
- 6 In various other locations at Herculaneum, plasters have clearly been stabilized with iron T or butterfly pins, both left in sight and initially concealed under fills, though it is not clear whether these are part of Maiuri's original treatment or a subsequent maintenance/restoration treatment. Private conversations with other conservators suggest that at least at Pompeii at the beginning of the twentieth century, poured brick-dust mortars were used to consolidate frescoes, and starting in the 1920s cement-based mortars appear to have been used for the same purpose. The authors have had experience with other wall paintings in Italy where casein and cement were used to consolidate wall paintings in the early twentieth century.
- 7 See the glossary at the end of this volume for definitions and illustrations of the different terms used here.
- 8 Graves, Piqué, and Rainer, this volume.
- 9 The losses in the lower part of the east wall were not left as bare tuff because, in contrast with the west and south walls, about 50% of the original wall paintings survived apparently still attached to the wall, although in a fragmentary state.

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