

# FIRST ANNIVERSARY

Since the appearance of the Society's second Newsletter and our second meeting in January, there have been many exciting developments. Foremost among them is the spectacular announcement that a team from the University of Kentucky has devised a technique for reading rolled-up papyri: truly breathtaking news, and a triumph of modern technology. The story is told elsewhere in this Newsletter. The potential for the Herculaneum papyri is immediately obvious, in that we can now hope to read the hundreds of papyri from the 18th-century discoveries that have not been unrolled (and cannot be unrolled without major damage), as well as any papyri that might emerge from new excavations.

In the wake of our last meeting, there was a flurry of press coverage. The audible gasp heard when Nigel Wilson showed the effects on a palimpsest of new photographic techniques, akin to the multi-spectral imaging applied to the Herculaneum papyri by Roger Macfarlane and his team from Brigham Young University, particularly impressed Daily Telegraph reporter Christopher Howse, whose article was picked up and amplified around the world. Trustees were nobbled for interviews in various media, which in most cases pitched the story as an either-or decision to dig or not to dig, and a row between archaeologists and papyrologists. The Today Programme was probably disappointed to find Andrew Wallace-Hadrill of the British School at Rome (who spoke at the January meeting) saying that the Villa of the Papyri could potentially be one of the great archaeological digs of the century, and me saying that the excavation

should in no circumstances be undertaken without due consideration of the problems of preservation. David Packard, whose Foundation is very generously financing the Herculaneum Conservation Project, wrote to the Sunday Times to say that he would pay for the excavation of the Villa, working in conjunction with the Italian authorities and their programme for the site. This was really splendid news, and everyone must hope that whatever obstacles there are in the path of the preservation work and the resumption of excavation can be overcome. Links to these and other press items are available on our website, at [www.herculaneum.ox.ac.uk/news.html](http://www.herculaneum.ox.ac.uk/news.html).

We await still the results of the feasibility study on the excavation of the Villa: publication is now forecast for Spring 2006. The study will look not only at archaeological aspects but also at major engineering issues and the impact of development on the modern town. As this newsletter goes to press, we have just held a very profitable meeting with the Soprintendente, Prof. Pietro Giovanni Guzzo, to discuss how the Friends of Herculaneum can help.

Meanwhile the membership continues to grow in a most satisfying manner. Both American and UK Friends can now gain tax relief from their donations. If you are reading this Newsletter as a guest, I hope you will consider joining the Friends of Herculaneum and helping improve the fortunes of this great World Heritage Site.

Robert Fowler



Left: the excavated corner of the Villa, covered by a fibreglass roof, with the volcanic rock that encases it looming overhead.

# THE HERCULANEUM ARCHIVE

As prospects for new discoveries on the slopes of Vesuvius loom large, a repository of material in the tradition of the Villa of the Papyri's lost library is taking shape in the Society's Oxford headquarters. Unlike the Herculaneum library with its all too perishable materials, the new Herculaneum Archive is based on a core of virtual, volcano-proof web-accessible materials:

**DIGITAL IMAGES OF THE FACSIMILES OF THE HERCULANEUM PAPYRI** (principally pencil drawings) made as the papyrus scrolls were being unrolled in the early nineteenth century. The facsimiles are housed in the Bodleian Library, and are an essential resource for scholars, alongside the much deteriorated originals in Naples. By the kind permission of the Bodleian, the Society is licensed to make these images available to the public on its website for teaching and research. Complete sets of the image files and photographs printed from them are also available for consultation in the Society's Archive. In a project almost a decade in the making, images of five of the seven volumes of the facsimiles (about 2000 folio pages) have now been created and put into a searchable database on the Society's website; the remaining two volumes will follow soon.

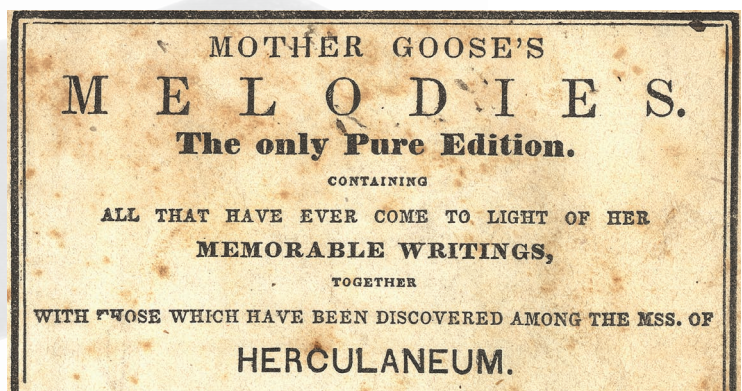
An **ON-LINE BIBLIOGRAPHICAL GUIDE** to the books from Herculaneum and Related Texts (editions and translations).

The **LINKS PAGE** and **NEWS SECTION** on the Society's webpage take you instantly to other web-based resources and up-to-date media coverage of events and progress.

A variety of print materials has also been acquired by donation, among them a range of books documenting the archaeology and history of the site, scholarly editions of the papyrus texts, offprints, and papers. The Centro Internazionale per lo Studio dei Papiri Ercolanesi 'Marcello Gigante' in Naples generously provided complete sets of the series 'La Scuola di Epicuro' and of the journal *Cronache Ercolanesi* vols. 1 (1971)–33 (2003). Vol. 34 (2004) was donated by Philip Hooker. Other publications document the early history of the discovery of the Villa of the Papyri and the first work carried out on its library. These include an early English engraving of a column of Philodemus' *On Music* dated 1810, and a copy of the two-volume original 1824–5 printing of the Oxford engravings of the Herculaneum papyri, both donated by Professor Peter Parsons. Disbound copies of *Herculaneum volumnum quae supersunt* vol. 1 (1793) and vol. 2 (1809), together with D. Lambinus' 1570 edition of Lucretius' *De rerum natura*, have been generously donated by a local antiquarian bookdealer.

Other more unusual materials donated to the Archive document the reception of Herculaneum as a cultural icon and attest to the influence of and interest in the Herculaneum library as it was perceived early on. In addition to a rich harvest of published engravings, drawings, and other images, a striking illustration of the extent to which interest in the literary finds from Herculaneum had developed by the early

nineteenth century is provided by the poem Wordsworth famously penned in 1819 (printed and discussed in Jim Porter's article, p. 6) setting out hopes for new poetic works from Herculaneum. It is worth observing, as W. B. Henry reminds me, that Wordsworth was a close friend of Sir Humphry Davy, whose planned experiments in scientifically unrolling the Herculaneum scrolls held out great promise at the time of the poem's composition. Knowledge of the discovery had spread so far that the first American edition of Mother Goose's Nursery Rhymes (Boston, 1833), a copy of which has been donated to the Archive, styles itself as *Mother Goose's Melodies. The Only Pure Edition. Containing All That Have Ever Come to Light of Her Memorable Writings, Together with Those Which have Been Discovered among the Mss. of Herculaneum.*



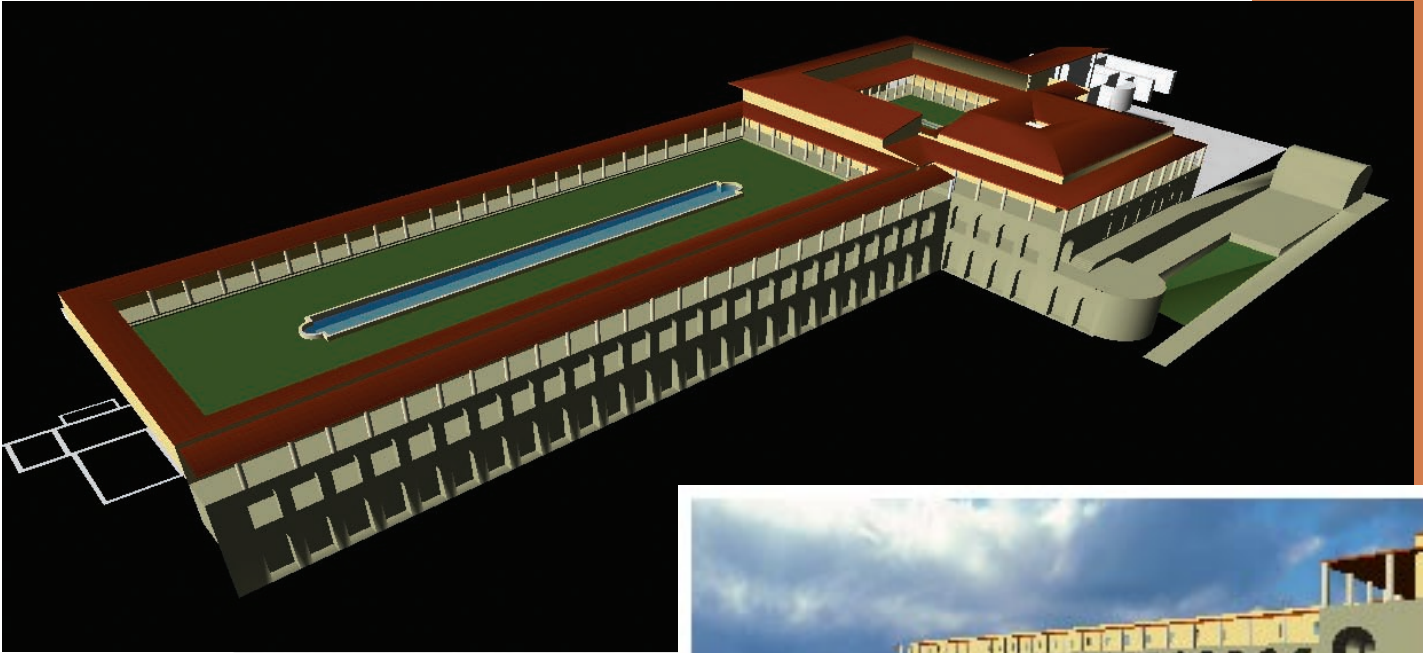
As these and other gems take their catalogued place in the Society's Cabinet of the Muses, additional donations await processing. In the coming year we plan to make available: (i) digital images of John Hayter's unpublished editions and papers (over 500 folia) now housed in the Bodleian Library; (ii) transcripts and manuscripts of papers relating to the Herculaneum papyri by Christian Jensen, Wolfgang Schmid, Albert Henrichs, and others; (iii) an on-line archaeological and topographical bibliography of Herculaneum and the Villa of the Papyri; (iv) an on-line index of images and illustrations of the Herculaneum papyri; (v) a Guide to Work in Progress on Herculaneum; and (vi) a List of Speakers willing to lecture on Herculaneum, the Villa of the Papyri and its ancient library, and the aims of the Society.

It is hoped that these materials will help establish the case for Herculaneum as foundational for the study and reception of classical and post-classical culture in Europe and the Americas. The Society welcomes further donations to the Archive; all will be gratefully acknowledged.

Dirk Obbink



# MAPPING THE VILLA OF THE PAPYRI



The use of Virtual Reality (VR) modelling techniques in reconstructing historic buildings and sites has provided scholars with a useful research tool. Reconstructions of historic buildings and sites have been traditionally executed as 2D elevation drawings, selected perspectival or axonometric views, and three-dimensional models. These methods provide either flat two-dimensional images, or highly selective bird's eye views of the buildings and sites. With VR technology, the recreated buildings and sites are reconstructed in three-dimensional real scale models, in which researchers can walk and study the experience that their spaces create. VR models have facilitated scholarly research by easily creating alternative reconstructions of a building and site, by further allowing examination of the way each of these alternative reconstructions was experienced, and by conducting analysis of lighting and climatic conditions.

The use of VR modeling is particularly useful in cases where we no longer have access to the site or building. The Villa of the Papyri is one such case. A work-in-progress VR model of the Villa of the Papyri was recently developed under the auspices of the UCLA Experiential Technologies Center, incorporating the information available from the recent excavations at the Villa of the Papyri and current research results. The VR model facilitates research into and evaluation of spatial relations, climatic and seasonal conditions, and different lighting during the day.



# THE VIRTUES OF

BRENT SEALES discusses the technique of non-invasive scanning and  
This new development has clear implications for the many unopened

It is tantalizing to envision a technology capable of producing a readable image of a rolled-up text without the need to physically open it. Such a “virtual unrolling” would offer an obvious and substantial payoff, especially in the context of the Herculaneum scrolls.

Assume for the moment that it is entirely possible to construct a very high-quality, comprehensive, penetrating scan of an object on the basis of which all subsequent analysis can be performed. This could greatly simplify the complex interplay between conservation and scholarly analysis by almost completely decoupling the physical artifact from the interpretive process. It is not unlike emerging trends in medicine, where radiologists render accurate opinions about (completely digital) scans without ever seeing the patient, and where surgery is guided solely by images from cameras without the need for open access to the surgical field. In fact, remote surgeries using robotics have removed the physician from the patient to the point where certain procedures can be performed across continents.

My preliminary work has made me optimistic about solving the problem of virtual unrolling. The idea for a solution is based on obtaining a high-quality 3D data set from non-invasive, penetrating technology (e.g. CT scans) followed by careful analysis using specialized software tools. In fact a virtual unrolling system has three primary components. First, the scanning process must be non-invasive and must reveal the text. Second, since the text is written on surfaces that need to be flattened, there must be a set of software tools for digitally unwrapping them to produce readable images. Third, substantial computational requirements must be in place to support the collaborative, consistent manipulation of large amounts of data.

There are several non-invasive scanning technologies that can produce complete 3D views of the insides of objects. Computed Tomography (CT) scanning is based on X-rays that pass through a material. Magnetic Resonance Imaging (MRI) uses signals resulting from an induced magnetic field. Ultrasound can recover material structure using echoes that return from emitted sound waves. Clearly the imaging process to be used as the basis for virtual unrolling must produce a very high resolution, and must be able to distinguish clearly between the components of interest: ink and substrate material.

We have used a custom CT scanner to demonstrate preliminary results. Figure 1 shows a sample papyrus fragment that has been embedded in polyurethane. As a result it is

completely inaccessible, making non-invasive scanning essential.

Figure 1

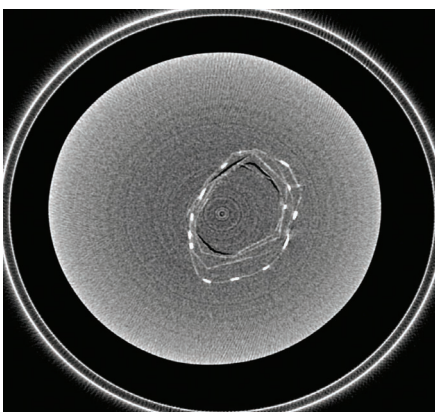


Figure 2 shows one of the papyrus samples being entombed in the resin. The CT scan produces a set of slices, one of which is shown in Figure 3. As a set the slices form a 3D sampling that penetrates the entire object. Figure 3 shows an edge-on view of the coiled papyrus. The scan was taken orthogonally to the axis of the roll, so that each slice appears as a spiral. The intensity variations along the cross-section result from ink on the papyrus.

Figure 2



Figure 3





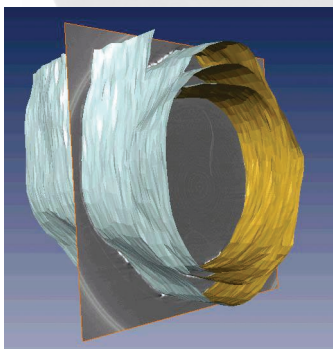
# VIRTUAL UNROLLING

its use as a tool for reading papyri without the need to unroll them.

papyrus rolls recovered from Herculaneum in the eighteenth century.

Even though this scan contains a very clear signal (brighter intensities) where text is written on the papyrus, the slice-based representation makes it impossible to read. Software to locate the surface of the papyrus in all the slices makes possible a transformation of the data to a meaningful, readable representation. The result is a surface positioned in the CT data at exactly the right place to show the ink response. Figure 4 shows the geometry of such a surface without the texture that it will inherit from its position in the scan. Once this surface is correctly positioned, a simulation to unroll it (Figure 5) produces a flat 2D image of the text (Figure 6). The side-by-side comparison of Figure 6 to the photograph of the original papyrus in Figure 7 gives a taste of what virtual unrolling could provide in terms of text quality. Results this good from a real scroll would be a breakthrough.

Figure 4



A working system to be applied to scrolls will need to improve some aspects of this prototype. It is crucial for the scan to reveal the ink and for the sampling rate of the scan to be very high. This resolution requirement implies the need for a high-performance computing and storage environment. A few back-of-the-envelope calculations illustrate the point. The scanner needs to be able to sample so that the writing in every layer can be resolved. The papyrus in the Herculaneum scrolls averages about 100-200 microns in thickness, meaning that a minimum sampling size of 50 microns is required to see something on every layer. This minimum sampling rate yields about two samples per layer of papyrus, or 20 samples per millimetre. It would take a slice resolution of 1600x1600 to scan a scroll with a diameter of 8cm. A complete (single-power) scan at this resolution could easily generate 15 gigabytes of data. Add to this the need for multi-power scanning in order to improve the procedure's ability to distinguish ink — the data sizes can really start to grow.

There have been a number of technical advances applied to the task of reading the scrolls from Herculaneum over the past two hundred years. Advances in optics (microscopes) and lighting produced a huge step forward, followed by the more recent confluence of multi-spectral imaging techniques and the digital image revolution. These remarkable imaging techniques coupled with the superb resolution and availability of digital imaging software have already decoupled the process of analyzing primary materials from the need to have the primary source immediately available.

I believe that a successful system for virtual unrolling could be the ultimate technological tool for the most belligerent (and unexamined) scrolls in the Herculaneum collection. As discussions continue about whether or not to continue excavations at Herculaneum, it is worth pointing out that virtual unrolling may allow an unprecedented capability to analyze any unopened scrolls that are found. This kind of analysis would require a much lower investment from conservators. Perhaps this and other technological innovations that ease the burden of handling and analyzing newly discovered scrolls can open the way for the discovery of what remains in Herculaneum.

Brent Seales  
University of Kentucky

Figure 5

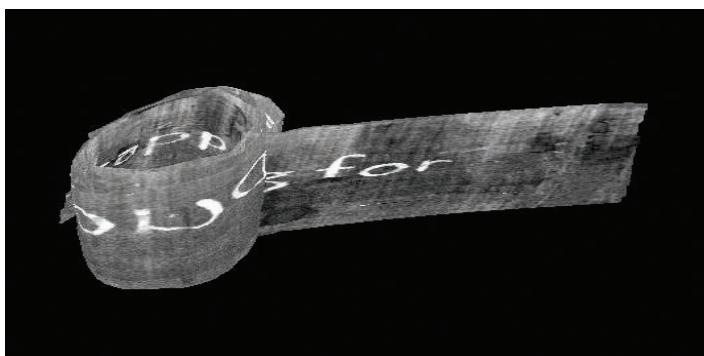


Figure 6



Figure 7



*O ye who patiently explore  
The wreck of Herculean lore,  
What rapture could ye seize  
Some Theban fragment, or unroll  
One precious, tender-hearted scroll  
Of pure Simonides!*

*That were, indeed, a genuine birth  
Of poesy; a bursting forth  
Of genius from the dust:  
What Horace gloried to behold,  
What Maro loved, shall we enfold?  
Can haughty Time be just!*

William Wordsworth, "Upon the Same Occasion" (1819), final two stanzas.

The expectations voiced by William Wordsworth in 1819 were shared by an entire generation that had been exposed to the papyri found at Herculaneum (1752–4). At first tossed aside because of their sorry condition — carbonized, they resembled lumps of black coal — they were only later discovered to contain traces of writing, instantly raising hopes. Their story is an object lesson in the clash between the ideals of classicism and the sobering material realities of classical studies.

Wordsworth may be thought to have taken his inspiration from a report to the Prince of Wales by William Drummond and Robert Walpole, *Herculansia* (1810), regarding the set of disegni, or papyrus drawings, made under the supervision of John Hayter (the series is now kept at Oxford). In their Preface, Drummond and Walpole share their own expectations of discovery:

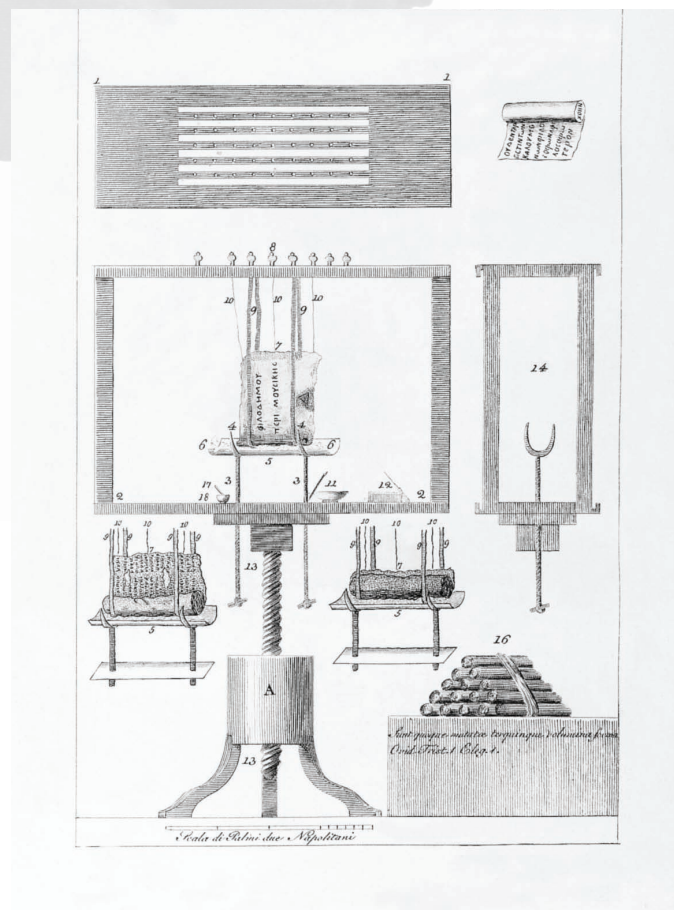
The lost books of Livy, and the Comedies of Menander, presented themselves to the imagination of almost every scholar. . . . Varius again took his seat by the side of Virgil; Simonides stood again with Sophocles and Pindar by the throne of Homer; and the lyre of the Theban was struck to themes and to measures, that are remembered no more. (ix-x)

The authors here prefigure Wordsworth's rapturous exclamations. But they also express their disillusionment:

Where the ruin has been great, the rubbish is likely to be abundant. The first papyrus which was opened, contained a treatise upon music by Philodemus the Epicurean. It was in vain that Mazzochi and Rosini

wrote their learned comments on this dull performance: the sedative was too strong; and the curiosity which had been so hastily awakened was as quickly lulled to repose. . . . [T]he uncertainty of producing any thing valuable had apparently discouraged and disgusted the Academicians of Portici. (x)

Drummond and Walpole's remarks remind us of the first published reports of the discoveries from Herculaneum. One of these came from an unexpected source: J. J. Winckelmann, the German art historian, who visited the Museum of Portici near Naples in 1758, '62, and '64. There he viewed the first papyri to have been unrolled and looked on as further progress was being made, millimetre by millimetre, thanks to the ingeniousness of Piaggio's "machine". Winckelmann's accounts in two open letters helped to bring the discoveries at Herculaneum to the notice of the wider European public and set the stage for their later reception.



Above: Piaggio's unrolling machine

At first, Winckelmann writes, scholars were dazed by what they found. Some denied that the papyri were books at all, because they were not in codex form: they must be civil documents, and the villa from which they issued must have been the official public archive of Herculaneum.



# ISTORY OF ART CRITICISM

More strangely still, it was supposed that the papyri contained forms of writing that were hitherto unknown, whether Sabine or else Oscan, the Ur-language of Campania!

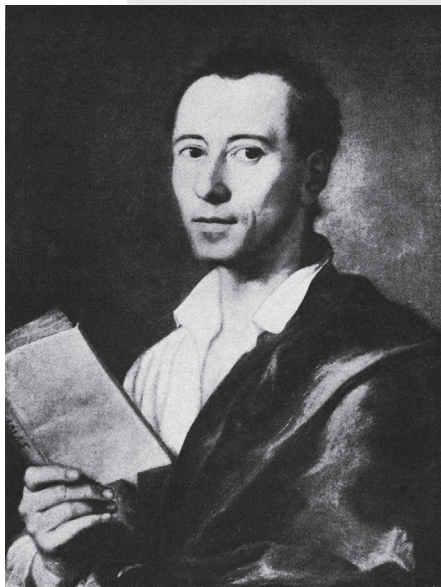
Winckelmann scoffed at these rude attempts at scholarship, but he himself fared little better. Once two treatise titles had emerged, *On Music* and *On Rhetoric* by Philodemus,

this gave rise to the fear that nothing but Philodemian writings are to be found. . . . For who cares about a hypochondriacal and twisted complaint about music?

Alas, Winckelmann wistfully wrote,

one would have wished to find historians . . . [and] other writings, such as Aristotle's criticisms of the dramatic poets, the lost tragedies of Sophocles and Euripides, the comedies of Menander and of Alexis,

and works of art-historical interest. The Epicureans were aesthetically uninteresting to him.



Above: Johann Joachim Winckelmann (1717-1768)

Wordsworth's "tender-hearted scroll" of Simonides has yet to be discovered in the Villa, although the unrolled treatises do contain fragments of the Theban Pindar. Over the centuries, scholars and other enthusiasts of antiquity have learned to make the adjustment to a valuable postclassical, if not unclassical, archive. And while a lost library of Latin classics at Herculaneum has begun to come to light, the priceless scrolls which shed light on Epicurean culture and a host of otherwise unattested but fascinating thinkers have also come to be duly appreciated in the end.

But there is another twist to the tale. For by the strangest of reversals, even Winckelmann learned to embrace the recovered antiquity of Herculaneum in all its Epicurean splendour. Winckelmann's foundational concept of the classical ideal—noble simplicity and tranquil grandeur—is in fact a calque on Epicurus' idealization of divinity. Compare his *History of Art* (1764):

The beauty of the gods in their virile age consists in the quintessence of strength that comes with mature years and the joyfulness of youth — and this consists in the lack of nerves and sinews, which are little in evidence in the full flowering of life. . . . And that is what explains Epicurus' view of the form of the gods, upon whom he bestows a body, albeit a quasi-body, and blood, albeit quasi-blood, a view that Cicero finds obscure and incomprehensible.

Winckelmann's classical ideal of beauty is sometimes characterized as Neoplatonic. But it is in fact suffused with Epicurean features. The gods of Epicurus preeminently display grandeur in their tranquility and in their blissfulness: they are ideals of human happiness. It is hard for us to see how Winckelmann was able to reconcile his distaste for Epicurean philosophy when encountered in the flesh, as it were, with Epicurus' implied aesthetics of divinity. But it is fair to say that he owed at least some of his theory of Greek beauty to his contact with Herculaneum.

James I. Porter  
University of Michigan, Ann Arbor



Above: Amorini at the throne of Venus (from a painting in the Casa dei Cervi at Herculaneum). This engraving is taken from the first volume of *Le Antichità di Ercolano Esposte*, published at Naples in 1757.

# SCULPTURE IN CONTEXT

*The Villa dei Papyri at Herculaneum: Life and Afterlife of a Sculpture Collection* by Carol C. Mattusch (Los Angeles, California, 2005), \$85

The Villa of the Papyri attracts the lion's share of the attention given to Herculaneum because of the papyrus scrolls after which it is named and which constitute still the only library to be recovered from the Graeco-Roman world. However, the Villa itself and the other artefacts recovered from it are equally precious finds, and well deserve the close attention given to them in this detailed and finely illustrated book.

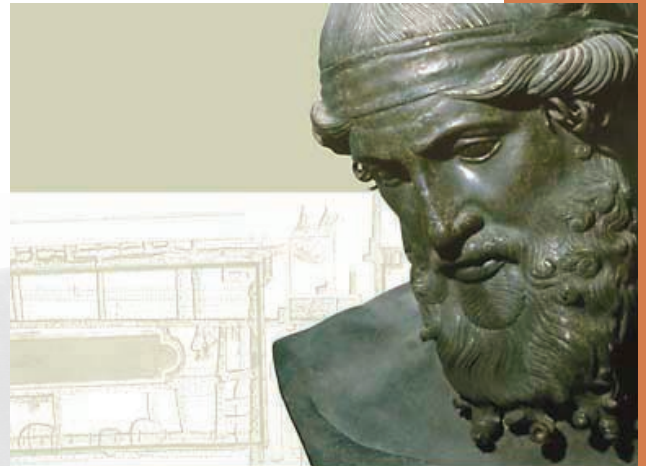
The overarching theme throughout is contextualisation: after a brief account of the excavations that led up to the discovery of the Villa, the first chapter discusses the place of the country villa in the lifestyle of the Roman nobility, the layout of the Villa of the Papyri, and its likely owner, and closes with the eruption of Vesuvius. The second chapter then picks up the thread with the discovery of the Villa and reactions to what was found, ranging from the eighteenth century to the present day.

Having established the ancient and modern cultural contexts, Mattusch devotes the bulk of the book to the marble sculptures and bronze statues recovered from the Villa. Her detailed survey comprises a scientific study of the materials, and two chapters dedicated to marbles and bronzes respectively. The abundant photographs provide a much-needed reference point for the comments, which take in restoration work as well as describing the pieces and discussing points of interest arising from them. The final chapter concludes the study of the reception of these artefacts by looking at reproductions of the works and their disposition, and stresses the importance of treating this collection of images as a group as opposed to discussing them piecemeal.

Like the papyri, the sculpture collection is also unique, "the largest collection of Greek and Roman sculptures ever discovered in a single context" (p. 359), and the great strength of this book is that it emphasises that the sculptures need to be placed in context in order to be fully appreciated. There are many things to be enjoyed here. The images are impressive throughout, and they well counterbalance the sensitive discussions in the text. The reader is left with a

deep impression of the opulence surrounding the owner of the Villa, and one cannot fail to be impressed by this latest reaction to the treasures of Herculaneum.

Matthew Bladen



## THE VILLA DEI PAPIRI AT HERCULANEUM *Life and Afterlife of a Sculpture Collection*

Carol C. Mattusch

### CONTENTS

p. 2: The Herculaneum Archive  
*Dirk Obbink*

p. 3: Mapping the Villa of the Papyri  
*Mantha Zarmakoupi*

p. 4: The Virtues of Virtual Unrolling  
*Brent Seales*

p. 6: Herculaneum in the history of art criticism  
*James I. Porter*

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For more information about the Society, or if you have any comments, suggestions or ideas for articles for the next edition of *Herculaneum Archaeology*, please feel free to contact the editor. We hope you have enjoyed this edition, and thank you for your interest.

Edited by Matthew Bladen