Herculaneum

Herculaneum (in modern Italian Ercolano) was an ancient Roman town destroyed by volcanic pyroclastic flows AD 79, located in the territory of the current commune of Ercolano, in the Italian region of Campania in the shadow of Mt. Vesuvius.

It is most famous for having been lost, along with Pompeii, Stabiae and Oplontis, in the eruption of Mount Vesuvius beginning on August 24, AD 79, which buried them in superheated pyroclastic material that has solidified into volcanic tuff. It also became famous as the source of the first Roman skeletal and physical remains available for study that were located by science, for the Romans almost universally cremated their dead. Since the discovery of bones in 1981, some 300 skeletons have been found, most along the sea shore — the town itself having been effectively evacuated. Herculaneum was a smaller town with a wealthier population than Pompeii at the time of the destruction.
History

Ancient tradition connected Herculaneum with the name of the Greek hero Herakles (Hercules in Latin and consequently Roman Mythology), an indication that the city was of Greek origin. In fact, it seems that some forefathers of the Samnite tribes of the Italian mainland founded the first civilization on the site of Herculaneum at the end of the 6th century BC. Soon after, the town came under Greek control and was used as a trading post because of its proximity to the Gulf of Naples. The Greeks named the city Ηρακλείου. In the 4th century BC, Herculaneum again came under the domination of the Samnites. The city remained under Samnite control until it became a Roman municipium in 89 BC, when, having participated in the Social War (“war of the allies” against Rome), it was defeated by Titus Didius, a legate of Sulla.

After the eruption of Mount Vesuvius in 79 AD, the town of Herculaneum was buried under approximately 20 metres (50–60 feet) of mud and ash. It lay hidden and nearly intact for more than 1600 years until it was accidentally discovered by some workers digging a well in 1709. From there, the excavation process began but is still incomplete. Today, the Italian towns of Ercolano and Portici lie on the approximate site of Herculaneum. Until 1969 the town of Ercolano was called Resina, and it changed its name to Ercolano, the Italian modernization of the ancient name in honour of the old city.

The inhabitants worshipped above all Hercules, who was believed to be the founder of both the town and Mount Vesuvius. Other important deities worshipped include Venus, who was believed to be Hercules' lover, and Apollo.

The eruption of 79 AD

The catastrophic eruption of Mt. Vesuvius occurred on the afternoon of August 24, 79 AD. Because Vesuvius had been dormant for approximately 800 years, it was no longer even recognized as a volcano.

Based on the archaeological excavations on the one hand and two letters of Pliny the Younger to the Roman historian Tacitus on the other hand, the course of the eruption can be reconstructed.

At around 1 pm on August 24, Vesuvius began spewing volcanic ash and stone thousands of meters into the sky. When it reached the tropopause (the boundary between the troposphere and the stratosphere), the top of the cloud
flattened, prompting Pliny to describe it to Tacitus as a Stone Pine tree. The prevailing winds at the time blew toward the southeast, causing the volcanic material to fall primarily on the city of Pompeii and the surrounding area. Since Herculaneum lay to the west of Vesuvius, it was only mildly affected by the first phase of the eruption. While roofs in Pompeii collapsed under the weight of falling debris, only a few centimetres of ash fell on Herculaneum, causing little damage but nonetheless prompting many inhabitants to flee. Because initial excavations revealed only a few skeletons, it was long thought that nearly all of the inhabitants had managed to escape. It wasn't until 1982, when the excavations reached boat houses on the beach area, that this view changed. In the suburban area, archaeologists discovered few hundreds of skeletons huddled close together on the beach and in 12 boat houses facing the sea. Further excavations in the 1990s confirmed that at least 300 people had taken refuge in those chambers, while the town was almost completely evacuated.

During the night, the eruptive column which had risen into the stratosphere collapsed down onto Vesuvius and its flanks. The first pyroclastic surge, formed by a mixture of ash and hot gases, billowed through the evacuated town of Herculaneum at 100 mph (160 km/h). At about 1am it reached the beach and the boat houses, where those waiting for rescue were killed instantly by the intense heat, despite being sheltered from the direct impact. The study of the victims' postures and the effects on their skeletons indicate that the emplacement of the first surge caused the instant death of these people as a result of fulminant shock due to a temperature of about 500 °C (932 °F). The intense heat caused explosion of the skulls, fracture of long bones and teeth, and contraction of hands and feet.[6]

A succession of six flows and surges buried the city's buildings from the bottom up, causing them little damage and preserving almost intact structures, objects and victims. The surprisingly good state of preservation of things and victims is due to several factors:

1. The rapid and complete filling and covering of Herculaneum buildings and the town itself by the ash surges and flows emplacement preserved most of structures from collapse.
2. The intense heat of the first pyroclastic surge carbonized the organic materials and extracted the water from them.
3. The signs of bone carbonization and the preservation of victims' joint connections indicate that most soft body tissues were destroyed by the intense heat and then replaced rapidly by ash. The heat of the ash was sufficient to vaporize most of the organic matter, so the initial violent vaporization caused a sudden drop in ash temperature and the corpses were preserved intact in their original postures.
4. The deep (up to 25 meters), dense tuff formed an airtight seal over Herculaneum for 1,700 years
Excavation

Excavation began at modern Ercolano in 1738 by Spanish engineer Rocque Joaquin de Alcubierre. The elaborate publication of *Le Antichità di Ercolano* ("The Antiquities of Herculaneum") [7] under the patronage of the King of the Two Sicilies had an effect on incipient European Neoclassicism out of all proportion to its limited circulation; in the later 18th century, motifs from Herculaneum began to appear on stylish furnishings from decorative wall-paintings and tripod tables to perfume burners and teacups. However, excavation ceased once the nearby town of Pompeii was discovered, which was significantly easier to excavate due to the reduced amount of debris covering the site (four meters as opposed to Herculaneum's twenty meters). In the twentieth century, excavation once again resumed in the town. However, many public and private buildings, including the forum complex, are yet to be excavated.

Skeletal remains

In 1981, Italian public works employees, under the direction of Dr. Giuseppe Maggi, found bones at the Herculaneum site while digging a drainage trench. Italian officials, at Dr. Maggi's urging, called in Sara C. Bisel, a physical anthropologist from the United States, to oversee the excavation and study the bones of the victims found on the beach and within the first six boat chambers. This research was funded with a grant from the National Geographic Society.

Until this discovery, there were few Roman skeletal remains available for academic study, as Ancient Romans regularly practiced cremation. Excavations in the port area of Herculaneum initially turned up more than 55 skeletons: 30 adult males, 13 adult females and 12 children. The skeletons were found on the seafront, where it is believed they had fled in an attempt to escape the volcanic eruption. This group includes the 'Ring Lady' (image at right), named for the rings on her fingers.

Through the chemical analysis of those remains, Dr. Bisel was able to gain greater insight into the health and nutrition of the Herculaneum population. Quantities of lead were found in some of the skeletons, which led to speculation of lead poisoning. The physical examination of the bones yielded additional information. The presence of scarring on the pelvis, for instance, gave some indication of the number of children a woman had borne. [8]

In 1997-1999, new excavations conducted by Pier Paolo Petrone, a bioanthropologist at the Museum of Anthropology of the University of Naples Federico II, in collaboration with Giuseppe Mastrolorenzo, volcanologist at the Vesuvius Observatory, and Mario Pagano, then director at the Herculaneum Site, investigated three left unearthed chambers, within a scientific project finalized to study directly in situ the effects of the eruption on people, structures and things. The results of this research, published by *Nature* in 2001, had a wide echo through world press and several scientific documentaries produced by international broadcasters.

Casts of the skeletons were also produced, to replace the original bones after taphonomic study, scientific documentation and excavation. In contrast to Pompeii, where casts resembling the body features of the victims were produced by filling the body imprints in the ash deposit with plaster, the shape of corpses of those killed at Herculaneum could not be preserved, due to the rapid vaporization and replacement of the flesh of the victims by the hot ash (ca. 500°C). A cast of the victims' skeletons unearthed within chamber 10 is on display at the Museum of
Anthropology in Naples.

Recent multidisciplinary research on the lethal effects produced by the AD 79 pyroclastic surges in the Vesuvius area definitely showed that at Pompeii and vicinity heat was the main cause of death of people, heretofore supposed to have died by ash suffocation. This study shows that exposure to at least 250°C hot surges even at a distance of 10 kilometres from the vent was sufficient to cause instant death of all residents, even if they were sheltered within buildings.\[9\]

**Specific buildings**

![Image of Herculaneum]

To expand this section, translate it: Scavi archeologici di Ercolano.

**Open excavation**

The buildings at the site are grouped in blocks (insulae), defined by the intersection of the east-west (cardi) and north-south (decumani) streets.

Hence we have Insula II - Insula VII running anti-clockwise from Insula II. To the east are two additional blocks: Orientalis I (oI) and Orientalis II (oII). To the south of Orientalis I (oI) lies one additional group of buildings known as the 'Suburban District' (SD).

Individual buildings having their own entrance number. For example, the House of the Deer is labelled (Ins IV, 3).

**The House of Aristides (Ins II, 1)**

The first building in insula II is the House of Aristides. The entrance opens directly onto the atrium, but the remains of the house is not particularly well preserved due to damage caused by previous excavations. The lower floor was probably used for storage.

**The House of Argus (Ins II, 2)**

The second house in insula II got its name from a fresco of Argus and Io which once adorned a reception room off the large peristyle. The fresco is now sadly lost, but its name lives on. This building must have been one of the finer villas in Herculaneum. The discovery of the house in the late 1820s was notable because it was the first time a second floor had been unearthed in such detail. The excavation revealed a second floor balcony overlooking Cardo III. Also wooden shelving and cupboards. Sadly with the passing of time, these elements have now been lost.
The House of the Genius (Ins II, 3)
To the north of the House of Argus lies the House of the Genius. It has only been partially excavated but it appears to have been a spacious building. The house derives its name from the statue of a cupid that formed part of a candlestick. In the centre of the peristyle are the remains of a rectangular basin.

The House of the Alcove (Ins IV)
The house is actually two buildings joined together. As a consequence of this it is a mixture of plain and simple rooms combined with some highly decorated ones.
The atrium is covered, so lacks the usual impluvium. It retains its original flooring of opus tesselatum and opus sectile. Off the atrium is a biclinium richly decorated with frescoes in the fourth style and a large triclinium which originally had a marble floor. A number of other rooms, one of which is the apsed alcove after which the house was named, can be reached via a hall which gets its light from a small courtyard.

College of the Augustales

Villa of the Papyri
The most famous of the luxurious villas at Herculaneum is the "Villa of the Papyri" was once identified as the magnificent seafront retreat for Lucius Calpurnius Piso Caesoninus, Julius Caesar's father-in-law. However, today it has clearly emerged that the objects thought to be associated with Lucius Calpurnius Piso Caesonius correspond more closely to a greatly standardized assemblage, and cannot indicate, with certainty, the owner of the villa.[10] The villa stretches down towards the sea in four terraces. Piso, a literate man who patronized poets and philosophers, built there a fine library, the only one to survive intact from antiquity. Scrolls from the villa are stored at the National Library, Naples. The scrolls are badly carbonized, but a large number have been unrolled, with varying degrees of success. Computer-enhanced multi-spectral imaging, in the infra-red range, helps make the ink legible. There is now a real prospect that it will be possible to read the unopened scrolls using X-rays.[11] The same techniques could be applied to the scrolls waiting to be discovered in the as-yet unexcavated part of the villa, removing the need for potentially damaging the unrolled scrolls.

A team spent a month in summer 2009, making numerous X-ray scans of two of the scrolls that are stored at the French National Academy in Paris. They hoped that computer processing would convert the scans into digital images showing the interiors of the scrolls and revealing the ancient writing. The main fear, however, was that the Roman writers might have used carbon-based inks, which would be essentially invisible to the scans. That fear has turned out to be fact. They now hope that re-scanning the scrolls with more powerful X-ray equipment will reveal the text. [12]
Issues of conservation

The volcanic water, ash and debris covering Herculaneum, along with the extreme heat, left it in a remarkable state of preservation for over 1600 years. However, once excavations began, exposure to the elements began the slow process of deterioration. This was not helped by the methods of archaeology used earlier in the town's excavation, which generally centered around recovering valuable artifacts rather than ensuring the survival of all artifacts. In the early 1980s and under the direction of Dr. Sara C. Bisel, preservation of the skeletal remains became a high priority. The carbonised remains of organic materials, when exposed to the air, deteriorated over a matter of days, and destroyed many of the remains until a way of preserving them was formed.

Today, tourism and vandalism has damaged many of the areas open to the public, and water damage coming from the modern Ercolano has undermined many of the foundations of the buildings. Reconstruction efforts have often proved counterproductive, however in modern times conservation efforts have been more successful. Today excavations have been temporarily discontinued, in order to direct all funding to help save the city.

A large number of artifacts come from Herculaneum are preserved in the Naples National Archaeological Museum.

Photos

- House Number 22 is noted for this outstanding summer triclinium with a nymphaeum decorated with coloured mosaics
- Herculaneum, Neptune and Amphitrite, wall mosaic in House Number 22
- Street paving stones in Herculaneum
- Residential water pipe made of lead in Herculaneum
- Wall paintings in the first style
- Inlaid marble floor
Documentaries

- A 1987 National Geographic special *In the Shadow of Vesuvius* explored the sites of Pompeii and Herculaneum, interviewed archaeologists, and examined the events leading up to the eruption of Vesuvius.
- A 2004 documentary "Pompeii and the 79 AD eruption". TBS Channel Tokyo Broadcasting System, 120'.
- An hour-long drama produced for the BBC entitled *Pompeii: The Last Day* portrays several characters (with historically attested names, but fictional life-stories) living in Pompeii, Herculaneum and around the Bay of Naples, and their last hours, including a fuller and his wife, two gladiators, and Pliny the Elder. It also portrays the facts of the eruption.
- Pompeii Live, [[Five (channel)|Channel 5][13]], 28 June 2006, 8pm, live archaeological dig at Pompeii and Herculaneum]
- Secrets of the Dead: Herculaneum Uncovered[14] a PBS show covering the archaeological discoveries at Herculaneum.

References

[4] The founding myth asserted that Hercules built Herculaneum at the location where he killed Cacus, a son of Vulcan who had stolen some of Hercules' cattle.
[8] Recently Dr Estelle Lazer of the University of Sydney has questioned some of these findings in *Resurrecting Pompeii* (2009).

- *In the Shadow of Vesuvius* National Geographic Special, (February 11, 1987)
- 30 years of National Geographic Special, (January 25, 1995)
Herculaneum

External links

- The Friends of Herculaneum Society (http://www.herculaneum.ox.ac.uk)
- The local archaeological authorities (http://www.pompeiisites.org/)
- AD 79: Year of Destruction (http://sites.google.com/site/ad79eruption)
- The Philodemus Project will publish Philodemus' works on poetry and on rhetoric. (http://www.humnet.ucla.edu/humnet/classics/philodemus/philhome.htm)
- Brigham Young University: Herculaneum Scrolls (http://magazine.byu.edu/?act=view&a=43)
- Herculaneum (http://www.roman-empire.net/articles/article-011.html) by Iain Dickson, 'Melvadius Macrinus Cugermi'
- Romano-Campanian Wall-Painting (English, Italian, Spanish and French introduction) (http://creadm.solent.ac.uk/custom/rwpainting/cover/index.html)
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