

DAAD Summer School
“Dialogue on Cultural Heritage in Times of Crisis”

THE INVENTION OF THE CASTS

Director

Erwin Emmerling

Student

Andrea Piaggio

Organizing Committee

Dr. Roberta Fonti

Dr. Sara Saba

Dr. Anna Anguissola

ABSTRACT

Nine days before the Kalends of November (October 24th) a. D. 79, at 13 p.m. on an ordinary Friday in Pompeii, the Vesuvius is released an amount of energy equal to fifty thousand atomic bombs. Pompeii and Herculaneum was hidden. Almost seventeen hundred years passed. New generations, with others customs and new forms of knowledge, struck spades into the earth and brought forth the dead cities from oblivion.

Giuseppe Fiorelli was undoubtedly the most important archaeologist who worked in Pompeii in the nineteenth century. Director of excavations from 1860 to 1875, among the many merits he had that of the invention of the method to performing the casts of the victims of the eruption. In 1863, he had the great intuition to fill with liquid plaster the gaps that emerged in the ashes, due to the decay of organic matter, with fantastic results.

Years 2015 – 2016, in the sphere of the Great Pompeii Project, overall eighty-six casts are selected for the restoration. A team composed of radiologists, dentists, archaeologists, restorers, anthropologists, engineers and computer scientists the conservation and aesthetic of the artifacts, and was involved in the following steps: cleaning, consolidation, integration and protection of the building. The project was intended not only as recovery of the material, but especially an opportunity to study the various levels of knowledge of organic materials, so of the man hit by the Vesuvian tragedy, that representing absolute unique.

*“What marvel is this? We begged you for drinkable springs,
O earth, and what is your lap sending forth? Is there life in
the deeps as well? A race yet unknown hiding under the
lava? Are they who had fled returning? Come and see,
Greeks; Romans, come! Ancient Pompeii is found again, the
city of Hercules rises!”*

J. C. F. von Schiller, from Pompeji und Herkulanum

*“Audires ululatus feminarum, infantum quiritalus, clamores virorum: alii parentes, alii liberos, alii coniuges vocibus
requirebant, vocibus noscitant; hi suum casum, illi suorum miserabantur; erant, qui metu mortis mortem
prearentur; multi ad deos manus tollere, plures nusquam iam deos ullos aeternaque illam et novissimam noctem
mundo interpretabantur.”*

Plinius Minor, Epistulae ad Familiares, 6,20.

“You heard the screams of women, the cries of children, the outcries of men; people were looking for parents, sons, wives and husbands and they could be distinguished from each other by their voices; there were people who pitied their fate, who that of their loved ones, and even who through fear of death called for the death; many raised their arms to the gods, while others, more numerous, declared to be no longer any gods in heaven and that was to be the last and eternal night of the world.” (English version)

Keywords: Casts; Fiorelli; Great Pompeii Project; Restoration

ABOUT THE AUTHOR

I'm Andrea Piaggio, I'm 24 years old and I live in Chiavari - Italy. I attended the Liceo Scientifico because I love math, physic and astronomy. I'm pragmatic and rational, and a little bit dreamer. As a child, I was visiting Pompeii with my family. During that trip I was developing my early interest in Archeology. The passion for art of my family strong influenced me and my personal interests. Thus, Art, Archaeology and History are my passions especially the ancient civilizations of the Old and New Continent. With particular regard to the Roman Age, I mostly favor the figure of Julius Caesar.

I'm a dogged reader of novels, history, art and sciences treatises. I love teaching and transmitting my passion for archeology and history. Occasionally, I teach art in primary and middle school and I guide students towards educational trips. I like geography, travelling and visiting new places: I was travelling all around Italy and Europe. I am actively involved in competitive swimming and in my free time I swim, dive and skate.

At the present time, I live in Pisa. I am regularly visiting both my parents in Chiavari and my brother Lorenzo, as well as, my cousins Stefano and Claudia, and my friends.

1. INTRODUCTION

The first rumors of the tragedy occurred around 62 d. C. when an intense earthquake devastated the city and the neighboring towns of Campania. Taking refuge was not easy. The poorest class suffered the most serious consequences because it had destroyed houses. Most public and private buildings were still under construction when Vesuvius, revealing its true nature, went into activity and in just a few hours it spread death and destruction.

Nine days before the Kalends of November (October 24th) a. D. 79, at 13 p.m. on an ordinary Friday in Pompeii, the Vesuvius released an amount of energy equal to fifty thousand atomic bombs:

“Nunc est ira recens nunc est discedere tempus
Si dolor auferit crede redibit amor”

Properzio II, 5, 9-10 (graffiti on the wall of a house in Pompeii)

“Now the fury is still too present, it is now time to go
If the pain will disappear, believe me, it will return the love.” (English Version)

To borrow the words of C. W. Ceram taken from “Gods, Graves and Scholars: The Story of Archaeology”, we retrace that tragic day from the point of view of the victims.

In the middle of August a. D. 79, there were signs that Vesuvius was again about to erupt, but since Vesuvius was often active, at first there was no alarm. On the forenoon of the 24th (from the new discoveries, which I will discuss later, it appears that probably was already full autumn), however, it became clear that a disaster of unparalleled dimensions was in the making. The top of the mountain split apart with a thunderous explosion. Smoke mushroomed into the sky, darkening the sun. A rain of volcanic cinder and ashes began to sift down, amid terrific crashes and terrifying flashes of light. Birds tumbled dead out of the air, people ran about screaming, animals slunk into hiding. Meanwhile torrents of water rushed through the streets, and no one could tell whether they came from the sky or out of the earth. This violence descended on the two cities of Pompeii and Herculaneum during the busy, sunny hours of early morning and worked their total destruction in two different ways. An avalanche of mud (a mixture of volcanic ash, rain, and lava) poured massively over Herculaneum, forcing its way into streets and alleys, rising higher and higher, and always increasing in pressure. The flow covered roofs, ran in through doors and windows, and eventually filled Herculaneum; everything and everyone not immediately evacuated was buried deep.

In Pompeii it was different. Here there was no flood of mud; disaster began with a light fall of ash, so light that people were able to brush the powdery dust off their shoulder. Soon, however, lapilli began to come down, occasionally mixed with very heavy bombs of pumice. The extent of the danger was only gradually revealed, and only when it was too late. Clouds of sulphure fumes settled down on the city. They seeped through cracks and crevices and billowed up under the cloths that the suffocating citizens held up to their faces. If they ran outdoors seeking air and freedom, they were hit by a thick hail of lapilli that drove them back in terror to the shelter of their homes. Roofs caved in, whole families were buried. Others were spared for a time. For half an hour or so they crouched in fear trembling under stairs and arched doors. The fumes reached them, and they choked to death.

The sun came out forty-eight hours later, but this time Pompeii and Herculaneum had ceased to exist. For a distance of eleven miles around, the landscape had been destroyed. Clouds of ash were created by air currents as far as Africa, Syria and Egypt. Nothing but a thin column of smoke issued from Vesuvius, smudging the lovely blue dome of sky.

Before the first excavation, nothing but the bare memory of the two cities' entombment remained. But once digging had begun, step by step the whole dramatic event took shape in men's mind, and information on the catastrophe left by the authors of antiquity came to life. The full frightfulness of the disaster was realized. The daily routine had been cut off so abruptly that the suckling pig was found where it had been left to roast in the oven, and bread discovered half done on the baker's peel. What a story of death in debacle these poor bones could tell, bones still wearing the fetters of the slave, the sifting. And at last, when the pouring ash filled the room, the slave had perished, still fastened to his leash, next to the ceiling. The excavators' shovels revealed a lot of family tragedies, scenes of mothers, fathers, and children caught in absolutely extremity.

Mothers were found still holding their children in their arms, protecting them with the last bit of veil as they both suffocated. The archeologists found the remains of men and women who had gathered their valuables, and tried to go as far as they city gate, and there collapsed under the stony hail, still clinging to their gold and precious things. "Cave canem", reads a sign in mosaic at the gate of the house in which Bulwer-Lytton lodged his Glaucus in "The Last Days of Pompeii". At the threshold of one house two young women were found: they had hesitated until it was too late. Bodies were found at the gate of Hercules, bodies all heaped together, and still encumbered with the household gear that had grown too heavy to drag any farther. In a sealed room the skeletons of a woman and a dog were uncovered. Close examination revealed a grisly incident. Whereas the skeleton of the dog had remained intact, the woman's bones were scattered about the floor. Apparently crazed by hunger, the dog's wolfish nature had come out and he had fallen on his dead mistress and eaten her.

Not far from this house was another in which funeral rites had been in progress when the cataclysm fell. There they were the funeral guests, after seventeen hundred years still sprawled on their benches about the table bearing the funeral feast, mourners at their own obsequies.

In an adjacent building seven children had been surprised by death while innocently playing in a room. In another structure thirty-four bodies were found, with them the remains of a goat that had rushed indoors to find safety among people. Neither courage nor a cool head nor brute strength helped those who delayed their flight too long. The remains of truly gigantic man were uncovered. In vain he had tried to protect his wife and their fourteen year old child, who were hastening along ahead of him. Apparently with a last, despairing surge of strength he had tried to pick them up, but just then the fumes had intoxicated him, and he slowly crumpled, rolled over on his back, and stretched out: in this position ashes buried him and preserved this tremendous shape. The excavators poured plaster of Paris into the depression where he had lain, and in this way secured the proportions of the dead Pompeian.

What cries echoed in the house when people discovered that the doors and the windows were precluded?

Almost seventeen hundred years passed. New generations, with others customs and new forms of knowledge, struck spades into the earth and brought forth the dead cities from oblivion. It was almost a resurrection, a miracle.

2. THE INVENTION OF THE CASTS **The first cast**

Giuseppe Fiorelli was undoubtedly the most important archaeologist who worked in Pompeii in the nineteenth century. Ordinary Inspector in the ruins of Pompeii from 1847 and later director of excavations from 1860 to 1875, among his many merits, he had that of the invention of the method of performing the casts of the victims of the eruption. In 1863, he had the great intuition to fill with liquid plaster the gaps that emerged in the ashes, due to the decay of organic matter. "On 5th February 1863, while cleaning out an alley, Fiorelli, director of excavations, was told by the workers that they had met a cavity, the bottom of which they could see some bones. Inspired by a stroke of genius Fiorelli ordered to stop the work, he did melt plaster (fece stemperare del gesso), that it was poured into the cavity and two others nearby. After having waited for the plaster to dry, the crust of pumice and hardened ash were removed. So eliminated these enclosures, came out four corpses." This story describes the invention of the method of the casts, thanks to which today we can see the expressions of the faces, the folds of clothing, the twisted positions in which they were surprised by the fury of Vesuvius, but also the outlines of doors, cabinets, roots of plants, of animals.

The method applied to the bodies submerged during the eruption by ash rain that, over time, solidifying it took the form and, after their natural decomposition, has created a cavity in the ground with their imprint.

"The most successful part of his inventions was the authentic image that gave of the Vesuvian catastrophe... so these bodies are revived in the forms and contractions of their agony," so he wrote in this regard the archaeologist Giulio De Petra.

Already in 1823, the director of excavations Antonio Bonucci had reported the imprint left by a door in the ash, but it was in 1856 that it was decided to draw with plaster the cast in a similar case. It was only between 2nd and 5th February 1863 that Giuseppe Fiorelli experimented this technique for the victims: during the excavation of the alley between the insulae VII 9 and VII 14, which was called "Alley of skeletons", were found the bodies of four individuals and they performed the first casts: a man, a woman fall on the right side,

a girl face down with his head on his left arm, a woman fallen on his left side and his face covered, called the "pregnant woman" for swollen abdomen.

On March 12th, 1868, during the excavation of Marcus Rufus House Gavius' room (VII 2, 16) were discovered seven skeletons and of one of them - a man fallen face down - it was possible to perform the cast. There are some photographs that illustrate it upside down and not, in its original position, to enhance the face that seems terrified. On March 4th, 1871, in the alley between 2 IX and IX 3, was made another cast: a supine man with sandals on his feet. On September 25th 1873 during the excavation of the garden in the house I 5.3 is executed the cast of a man lying on his left side, almost dozing.

On November 20th 1874 he made the cast of the dog in the House of Orpheus, and on April 23rd, 1875, at the northeast corner of the same insula VI 14, were performed two new casts of human victims, placed in the middle of the road and four meters above the ground: a prone woman and a man on his back. On January 24th 1882, in the alley between the islets VIII 5 and VIII 6 was made the cast of a child, fell face down on the left side. To it were added in 1889, the casts of three people (two men and a woman) found near Porta Stabiana and those of three other men and a woman found in the same area the following year.

2.2. The casts in the twentieth century

After the experiences of the nineteenth century, in the following years archeologist continued in the application of the Fiorelli method for making casts of the victims. They were generally left on the site of the discovery or adequately protected in glass display cases left in the same building. You can remember about the four casts of the garden of the House of Criptoportico, found along with other five individuals of which it was not possible to make a mold, made under the direction of Vittorio Spinazzola in 1914. Since 1923, with Amedeo Maiuri, the casts on display had been renovated, while other casts had been realized including the one of a crouching man bending forward, wearing a cloak, who had been found in the large gym.

In 1943, the casts of the bodies discovered in the Alley of Skeletons and those found in the Villa of the Mysteries were destroyed in the rain of bombs from the allies' planes.

After World War II, Maiuri reduced the number of casts on display in and they were badly damaged. In 1961 he was also responsible of the discovery, of the most famous group of victims - the thirteen individuals of the so-called Garden of the Fugitives - and he had the casts exhibited in a corner of the large vineyard where they had found the death. It dates back to the seventies the making of fifteen casts during excavations at Porta di Nola, way out of town in the north-east and, which like the others, did not lead to salvation.

In 1984, a different technique for the reproduction of the casts was used: it was in fact made a casting of resin of the victims who came to light in an environment of the Villa of Lucius Crassius Tertius Oplontis. This system integrates the method devised by Fiorelli with that of the wax casting of bronze statuary, so that you can create a transparent mold that makes visible the skeleton. In this way the archeologists can identify and recovery of jewels and objects that the victims took with them when they fled.

2.3. The Fiorelli's Method

The method invented by Giuseppe Fiorelli and still used for the production of molds is very simple. When the archaeologist performs an excavation in the Vesuvian area, he finds a particular stratigraphy due to the mode of the burial and to the succession of the different phases that occurred during the eruption.

The first phase of the eruption was marked by the fall of lapilli, a sort of hail of small size pumice that covered the open spaces, streets and courtyards, which collapsed the roofs of some houses. Subsequently there was the phase of ash fall that penetrated everywhere filling every void and enveloping everything. The fall alternated with the succession of pyroclastic flows, so-called "hot clouds", which at high speed and high temperature walked in several waves on the land causing destruction and death. The ash, hardened, and constituted what is commonly called "thunder", a very resistant layer.

In this hardened ash archaeologists often discover hollows, caused by the decomposition of organic substances: they can be wooden items such as furniture, fixtures and objects, but also the bodies of the individuals.

In the vacuum it is then poured a mixture of gypsum and water until fill it's completely. When the plaster is left to dry, they can proceed in the excavation and highlights what he had determined the void: the hardened

ash has preserved the volume, shape and location of the object or of the body that had been buried, as a mold.

This solidified plaster footprint is called cast. It may include some parts that have not decomposed, for example, bones or metal objects; on the surface it can present the imprint of the tissue texture that covered it, or of which there are sometimes only small traces.

In these particular cases, therefore, in contrast to all other archaeological sites, not only we have the skeletons of individuals, but also their real form, their appearance, their clothing, their features, their gestures, even if those tragic of their agony.

The writer Luigi Settembrini added:

“It is impossible to see those three misshapen figures, and not to feel moved. They died eighteen centuries ago, but they are humans seen in their agony. This is not art, not imitation; but their bones, the remains of their complexion and of their shoes mixed with gypsum: the pain of death that embodies... So far it has been discovered temples, houses and other objects that interest the curiosity of the educated people, artists and archaeologists; but now you, o my Fiorelli, you have discovered human pain, and anyone can feel it.”

3. THE RESTORATION OF THE GREAT POMPEII PROJECT

The selected casts for the restoration, scheduled as part of the Great Pompeii Project, are eighty-six, taken from the various buildings of the archaeological area and of the Superintendence deposits. Among these, there was also the human plaster stored in the warehouses of the Opera of Our Lady's Shrine of Pompeii, it was taken there for unknown reasons. There are also the casts of the dog, of the pig and the head imprint preserved in the National Antiquarium of Boscoreale. Twenty casts, among those restored, were displayed at the exhibition "Pompeii and Europe. 1748-1943".

The intervention was aimed at the conservation and aesthetic of the artifacts, and it was characterized by the following steps: cleaning, consolidation, integration and protection of the building.

A team composed of radiologists, dentists, archaeologists, restorers, anthropologists, engineers and computer scientists analyzed the casts of the eruption's victims.

They used the current medical equipment, to study the populations of the past and, at the same time, to discover more about humanity in the past and in the present.

For the first time the skeletons of the ancient Romans were studied thanks to the latest equipment able to perform volumetric scans of the entire body in 100 seconds.

More than twenty of the eighty-six casts were examined; this was the first restoration in the history of Pompeii, conducted simultaneously on a large number of exhibits. The project was intended not only as a recovery of the materials, but especially as an opportunity to study the various levels of knowledge of organic materials, such as those of the man hit by the Vesuvian tragedy.

The restoration project involved multiple interventions articulated into several layers and involving archaeologists, restorers, anthropologists, radiologists, engineers for laser scanner-relieves and a technical cartography and computer science. In particular, the anthropologist's activities were intended for the repositioning of the body parts, in order to outline the bioanthropologic and individual genetic profile. This had been made with the most appropriate biological, biochemical and physicochemical surveys.

The laser scanner-relieves of all the casts are made with cutting-edge digital technology, which enable a three-dimensional view - of great impact - of changes over time as well as of aging processes and a continuous monitoring of the casts' conservation status. Additionally, ten replicas of the casts were soon produced with sensors for the three-dimensional reading of the surface, in full scale.

"The plaster is radiolucent and the X-rays pass without difficulty. The TAC is useful because you can see not only the location of all the bones of a skeleton, but even if there are still remnants of those ornamental or jewelry items that the deceased was carrying when he was killed by the cloud of poisonous and hot gas that struck Pompeii ", explains Gino Fornaciari, paleopathologist, director of the «Division of Paleopathology» of

the Pisa's University. He goes on: "The tomography allows us to have the real picture of what is the skeleton inside the plaster" jacket "that covers it in the calc." What diseases can be highlighted? "All those of the skeleton - responds - infectious diseases, bone tuberculosis, arthrosis, arthritis, dental disease, cancers. In short, everything that has left traces on the skeleton can be highlighted with TAC, which has become a diagnostic tool very fine from the radiological point of view. In the past there had already been a study on the skeletons of Herculaneum which were found in the arches of the ancient beach. The picture that emerged showed cases of bone tuberculosis, traumatic injuries, joint diseases such as osteoarthritis and arthritis, there were skeletons that had injuries resulting from work." Can you also highlight problems of malnutrition? "It can bring out - says Fornaciari - signs which lead diagnosis of calcified bone, osteoporosis, rickets. The TAC also gives information on teeth decay, abscesses and tooth usury. The latter will indicate the diet. A sugar regime, perhaps based on honey, leads to teeth decay; however, it must also be taken into account that the water of Vesuvian area contained good amounts of fluoride, which fights the disease. Then, using other analysis methods we will see if the diet was more or less rich in meat or vegetables." (Carlo Avvisati - Il Mattino)

3.1. The first results

From analyzes conducted on some casts have emerged, in fact, new details about men who lived over two thousand years ago and the dynamics of the tragedy.

How did the Pompeians die?

Most of Pompeians were killed by the fiery cloud (from over three hundred degrees) which provoked a lethal heat shock in a few seconds. Not everyone, however, was killed in that way. Many others, for example, were killed during the collapse of the roofs of the buildings.

"Thanks to the studies conducted so far, by TAC, we have found that a considerable number of people died of head injuries," he told VICE News Superintendent Massimo Osanna.

"After the examination of the skeletons, preserved in plaster, have emerged many fractures in the skulls and other parts of the body, as well as broken spinal columns. The cause of the death of these individuals was probably the collapse of walls and upper floors. There are also people who died for circulatory problems and by asphyxiation."

The shape of the calks can also provide information on the last moments of life of Pompeians: "Even the position of the body, can tell us the type of death," Osanna continues.

"The cast of adult male crouching and leaning forward, wearing a cloak, from the 'big Gym', for example, suggests an asphyxiation death. You can notice, in fact, his hand wearing the tunic over the face to protect from gas. The TAC also provided us with data concerning the age of man: fifty years."

From the type of clothes worn, scientists can trace the exact date of the eruption. "It was always thought it occurred in August", emphasizes Hosanna, "but probably is not so. We are crossing data sets originating from tomographic research and those arising from the analysis of recovered materials, in collaboration with the University La Sapienza of Rome. The first tests prove that people were wearing clothes made of heavy fabrics: it is therefore more likely that the eruption took place in autumn than in August."

3.2. Everybody is a story

The new studies assume that every cast of the victims of the eruption can tell an individual and their social story. From its analysis, scientists can trace back the age of the person, gender, health, the social status and the type of work.

"We are cataloging all the casts", explains Giovanni Babino, radiologist in charge of radiation protection. "We focus on a series of data: the type of restoration material used during the cast, the presence or absence of the skeleton, the size of the bones, the corresponding age and the preservation of objects. We happened, in fact, even to identify an ancient bulla."

The bulla was an amulet that every male child, passed nine days from birth, had to wear. It was worn around the neck like a medallion. Depending on the social status and wealth of the family that commissioned it, it was made of different materials; when it was made of gold, it belonged to a child of the Roman aristocracy.

The bulla was found inside a chalk from the "House of the Golden Bracelet", one of the great stately homes built on the wall of the ancient city.

Inside were found several victims of the eruption which included a child with arms stretched forward, the tunic decomposed and compressed lips. The tomographic analysis established the preservation of the skeleton.

Therefore, the scientists were able to trace accurately his age, which is four and a half, through an examination of the teeth, the measurement of the limbs and that of the bones of the wrist, they also discovered the presence of precious object.

"It is a metal pendant in the shape of a shell," continues Babino, "of about 3 centimeters, probably made of gold. In the cast, it is externally visible only a bulge in the point where you find the item and nothing could make you think of a similar item. From TAC analysis it was showed the presence of the bulla."

"Also the study of teeth," adds Superintendent Osanna, "is very important for the biography of a person" and a civilization. Thanks to tomographic examinations two things have clearly emerged: (i) a sign that the Romans had a healthy diet, made mostly of fruits and vegetables and low in sugar and (ii) that some parts of their teeth were especially consumed. This was probably due to the habit of cutting or breaking objects with the power of the jaws.

3.3. A clinic in motion

The tomographic survey is part of a wider "Site of restoration and development of the casts of the victims of Pompeii", launched in August, which was started for a simultaneous restoration on eighty-six casts of Pompeii. The twenty used for the further study phase through TAC were chosen taking into account the maximum gap of the scan of the equipment: 70 centimeters.

By a radiological study, multilayer volumetric images of the interior casts were acquired and reconstructed with the dedicated servers for clinical diagnostic images. The used equipment is a modern TAC from sixteen layers model MX16 with a powerful X-ray tube and equipped with a special acquisition algorithm to eliminate the artifacts caused by metal bodies on images.

Commonly, this is a machinery used in the medical field for the examination of patients with prosthesis. In Archeology, this serves to eliminate disturbances coming from the metal reinforcements of the casts.

In Pompeii, in addition, a post processing system with specific software for 3D reconstructions of skeletons and dental arches was installed.

In addition to the TAC practiced on casts, where permitted by the conditions, it was proceeded to the laser scanner-reliefs of all the bodies obtained with digital techniques that, providing a three-dimensional view, allow you to read the changes over time in the conservation status.

3.4. Bodies without skeleton

Among the first results obtained by this analysis, an important news was the discovery of the absence of the skeleton in some casts.

"Even the 'negative' data are significant," continues Massimo Osanna. "*In some casts the skeleton has not been found. This is because probably in the nineteenth century, before making the cast, the bones were eliminated so that the work could be done. Thus, these findings provide us with important information on the techniques used to create the casts*".

Andrea, Piaggio

The invention of the method for performing the casts of the victims of the eruption is attributed to Giuseppe Fiorelli, the most important active archaeologist at Pompeii in the nineteenth century.

In 1863, Fiorelli experimented with this technique for the victims: during the excavation of the alley then called "of the Skeletons" were found the bodies of four people and executed the first plaster casts.

In the following years, it was continued in the application of the method for the realization of other casts, but they were generally left on the site of discovery or under cover spaces of the same building, adequately protected by glass display cases. Later they changed the materials used: in 1884, on one of the victims come to light in an environment of the Villa of Lucius Crassius Tertius Oplontis, was realized. In fact, a resin cast.

This system completed the plaster cast method devised by Fiorelli. Together with the melting wax of bronze statuary, this allows to create a transparent cast.

"The discovery of casts without bones," explains to VICE News the anthropologist Estelle Lazer, a member of the research team, "demonstrated the particular process used in the 19th century: once removed the skeleton, it was made a cast and insert brackets as reinforcement. This is not an anthropological discovery, but it is still important because it will help us to understand the work of Fiorelli and all archaeologists who followed him."

By examining of the so-called 'pregnant woman', with swollen belly, for example, showed the absence of bones, and it is concluded that "Although, therefore, we have few elements to go back to her biography, the analysis of the cast's shape shows clearly that this person was not pregnant, but that clothing had become a single compact mass when she fell during the eruption."

4. CONCLUSIONS

From 1863 the materials and the methods of analysis have been evolving, but the technique to produce the casts has remained the same devised by Fiorelli, who had the brilliant idea of pouring liquid plaster into underground cavities. This idea so simple and so brilliant has allowed us to relive a tragedy of two thousand years ago, to a level otherwise unknowable: the human one.

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Andrea Piaggio

The invention of the casts

XXII Sept. 2016
Ancient Pompeii

*“What marvel is this? We begged you for drinkable springs,
O earth, and what is your lap sending forth? Is there life in
the deeps as well? A race yet unknown hiding under the
lava? Are they who had fled returning? Come and see,
Greeks; Romans, come! Ancient Pompeii is found again, the
city of Hercules rises!”*

J. C. F. von Schiller, from «Pompeji und Herkulanum»

“Audires ululatus feminarum, infantum quiritatus, clamores virorum: alii parentes, alii liberos, alii coniuges vocibus requirebant, vocibus noscitabant; hi suum casum, illi suorum miserabantur; erant, qui metu mortis mortem precarentur; multi ad deos manus tollere, plures nusquam iam deos ullos aeternamque illam et novissimam noctem mundo interpretabantur.”

Plinius Minor, «Epistulae ad Familiares», 6,20



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Dialogues on Cultural Heritage in Times of Crisis



The invention of the casts

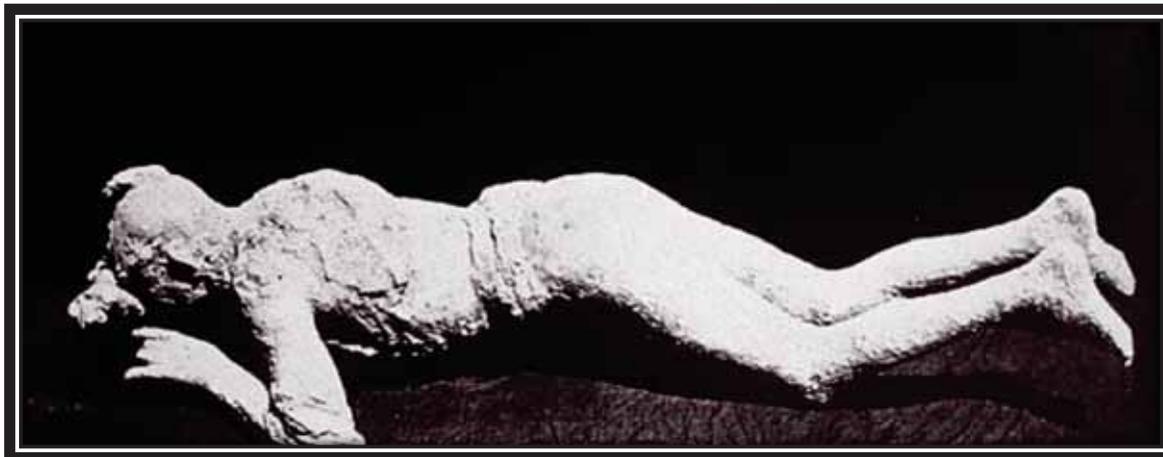


Giuseppe Fiorelli (8th June 1823 - 28 January 1896)

“Alley of skeletons”



The so-called «pregnant woman»



Marcus Rufus Gavius' House



Orpheus' House

Some of the other casts



Amedeo Maiuri and the casts in the twentieth century



Antiquarium before 1889



Amedeo Maiuri (7 gennaio 1886 - 7 aprile 1963)

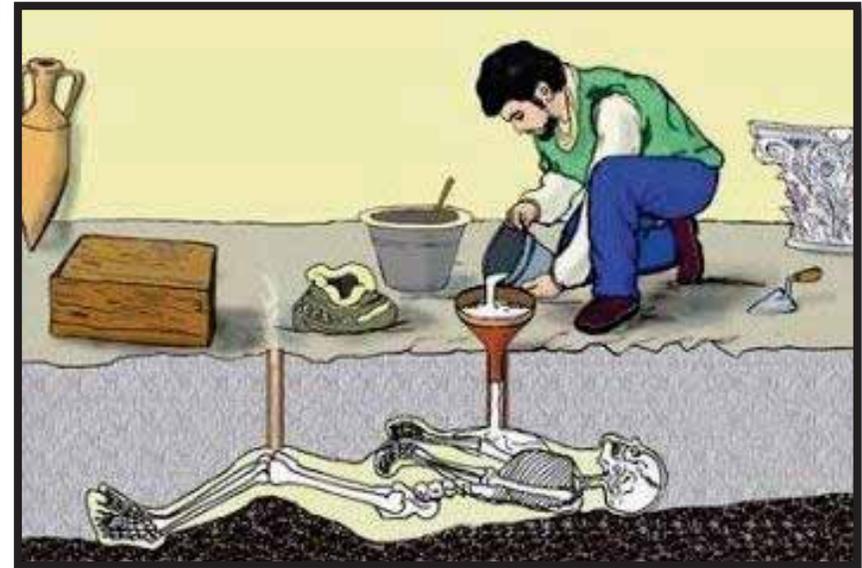
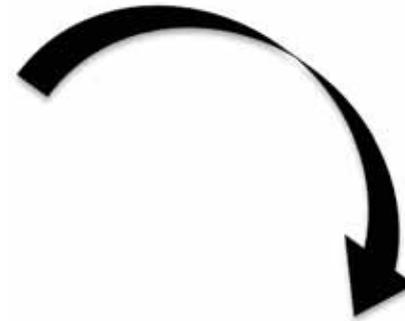
Garden of the Fugitives



The resin's cast

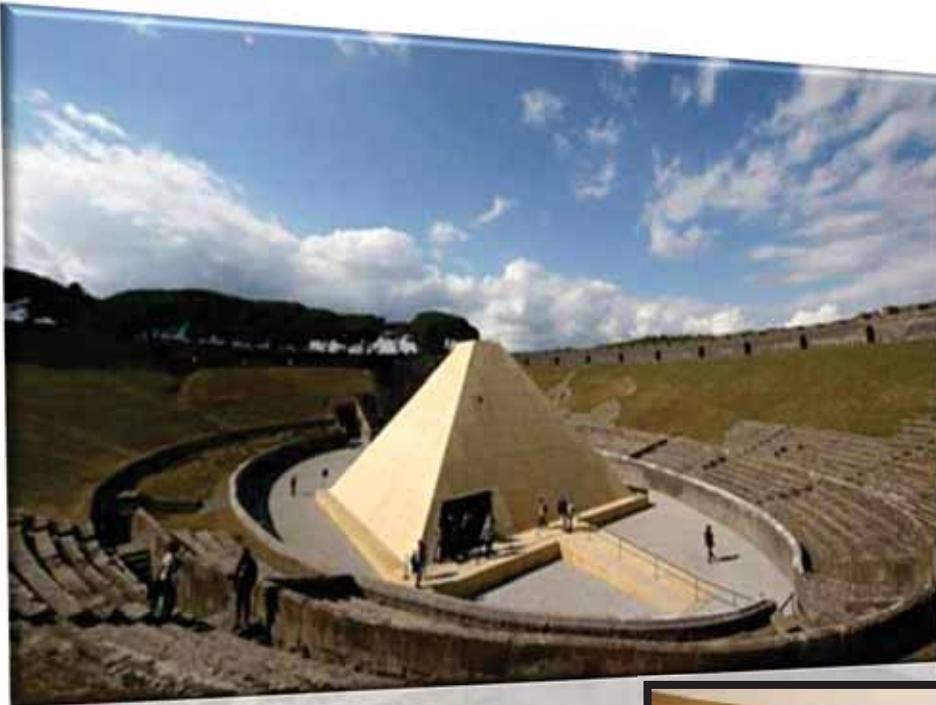


The Fiorelli's method



“It is impossible to see those three misshapen figures, and not to feel moved. They died from eighteen centuries, but they are humans who are seen in their agony. There is not art, it is not imitation; but their bones, the remains of their complexion and of their shoes mixed with gypsum: it is the pain of death that regains body and figure... So far it has discovered temples, houses and other objects that interest the curiosity of the educated people, artists and archaeologists; but now you, o my Fiorelli, you have discovered human pain, and anyone is man hears it.”

Luigi Settembrini



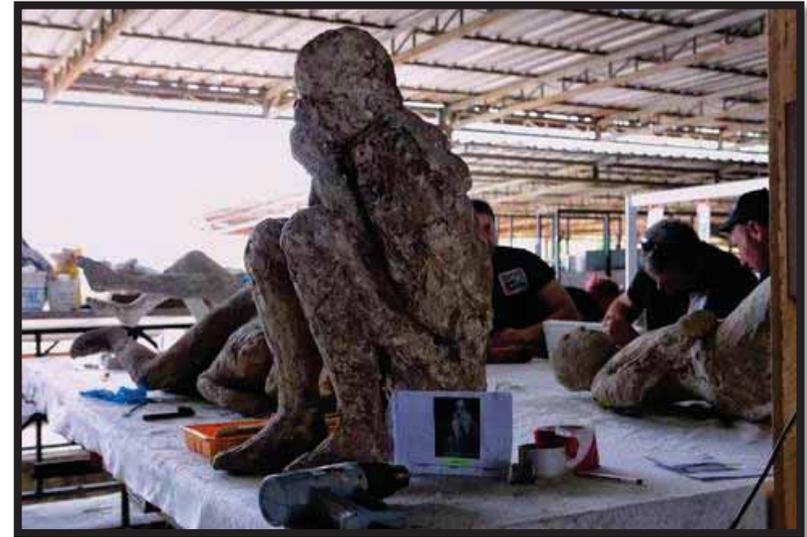
The restoration of the

**Great Pompeii
Project**



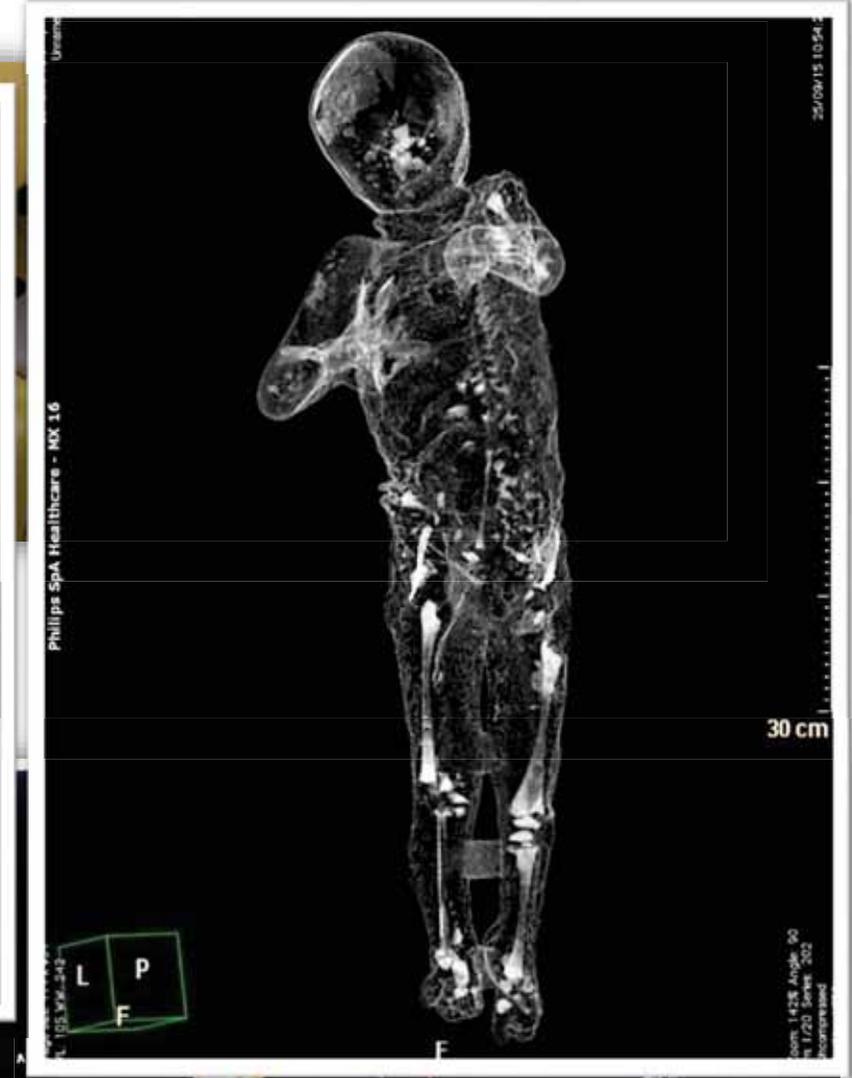
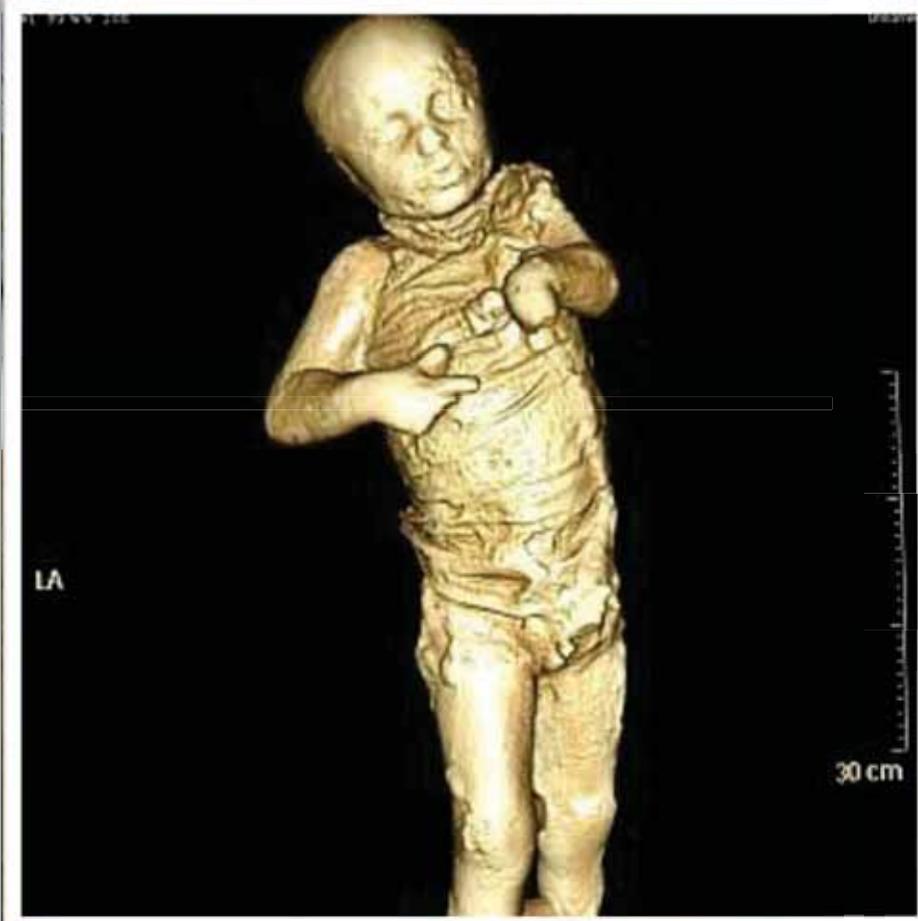
The analysis on the casts

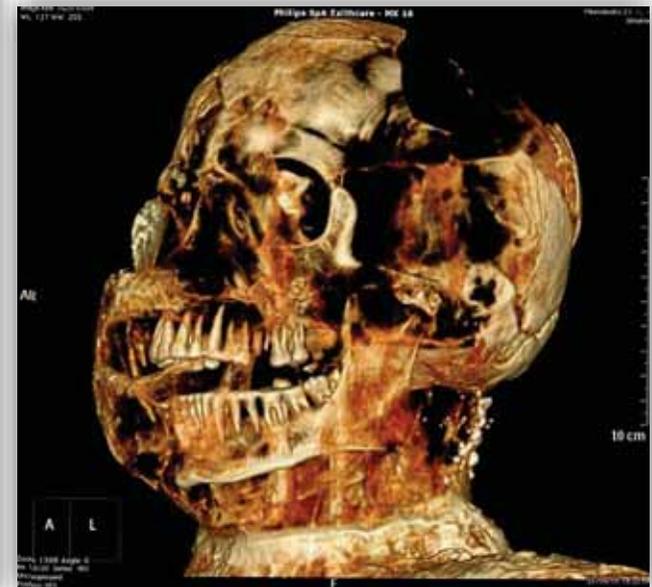
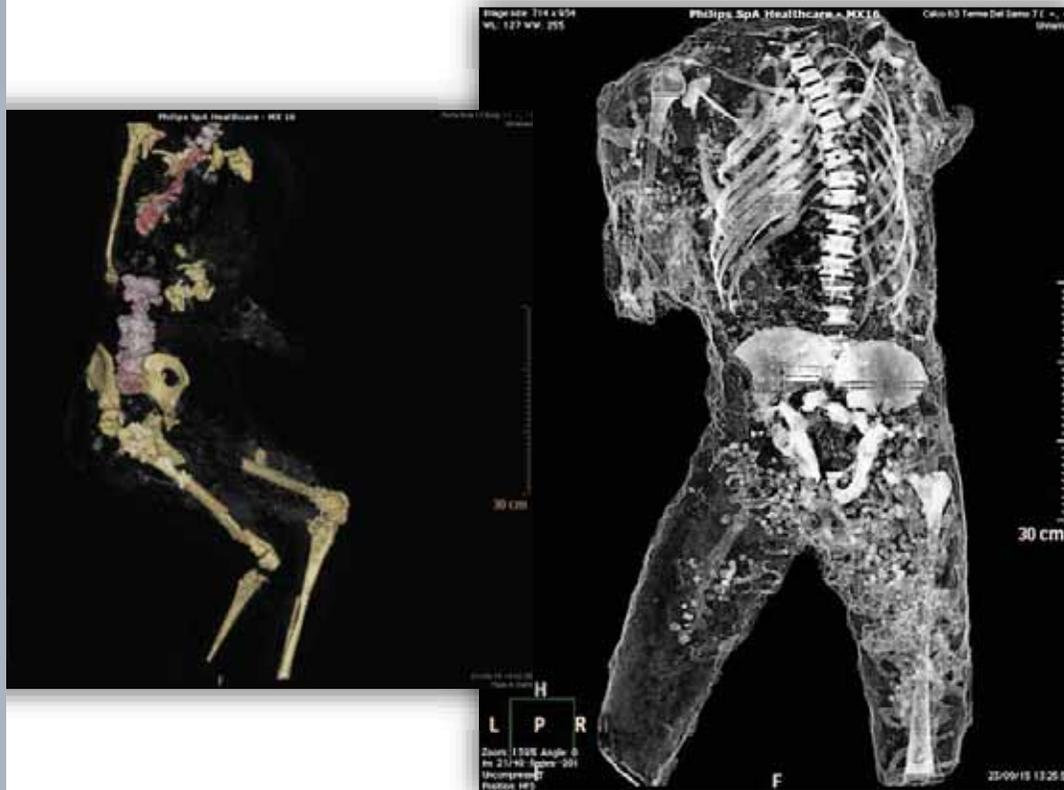
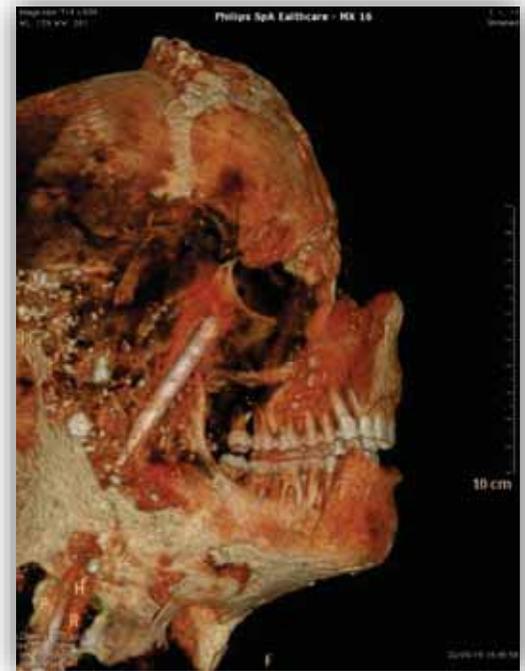






TAC and X-ray







rediscovery a human tragedy

